Life Science Health System

prepared by T.C. Fry

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Inspiring Quotes by Morris Krok

- By attending to the excretion and elimination of unwanted substances is the first step to good health.
- The greatest or most important health step that one can take is to put the body into an extended and deep elimination mode - to eliminate everything that is unwanted and obstructing the functions of the body.
- When the body is thoroughly cleansed and magnetized by the power of breath, the mind becomes calm, insight is enhanced and there is greater harmony in the entire system.
- The body must be cleansed from the filth of civilized food so that the flow of innovation and inspiration is not impeded.
- Man is suffocating, suffering and sinking, in a swampy sea of saturating, silting, sticky, slippery, sloppy slicks of sludgy slime.
- Cleanse the system so that purified mind is forever inspired.
- Miracles are wrought on an empty stomach.
- Good habits last a lifetime, bad habits are short-lived, you won't live long enough to enjoy them.
- He who loves his stomach does not love his life.
- Health is the balance between assimilation and elimination.
- Eyes must sparkle with the laughter of inner cleansing.
- Truth comes in small segments to one who is attuned.
- More murders are enacted in the kitchen than anywhere else.
- In ten minutes you can eat so badly that you will become an invalid for a week.
- Internal purification is best when we drink an abundance of light water for it to create a healing pressure as it flows through the body like a silken thread.
- A mind totally in harmony with a body functioning with rhythmic clocklike efficiency is something that man unknowingly is searching for.
- It has been truly said that magic is wrought on an empty stomach. For if the digestive tract is always stuffed with food, and the bloodstream saturated with food essence, breathing, nerve and blood circulation is impeded.
- To learn the truth listen to the sermon and song of an old and trusty preacher - nature. It is everything that is logical, simple, effective, intelligent and powerful; but it will not be denied by man-made philosophies, religions, commercialism and laboratory produced substances.
- One obtains the best results from food eaten when all the previous meals have been well assimilated and its residues have been eliminated from the body. As it is written in the New Testament do not put new wine into old skins.
- Though not generally accepted, illness is fed by what we imbibe through the air, from the food and liquids we take. Conversely, as illness, including germs and viruses cannot live in a clean environment, the solution is to abstain from food for a while and replace it with large amounts of clean water to purify the entire system.
- In the same way that hunger or thirst cannot be appeased by one meal or one glassful of water during our lifetime, so health and fitness cannot be stored. It has to be earned by rational living

every day of our life.

- When we can breathe deeper and slower, its effect on the mind is so pronounced as it releases life's treasures, not of coins and gems but of effulgent, lucid and clear thinking.
- You can eat enough of the wrong foods in ten minutes to make you an invalid for a week. As one meal takes 24 hours or more to be fully digested and for its residues to be eliminated, the body can feel the harmful effects for that length of period.
- There is no more satisfying way of living than by refraining from food and also drink if we are not hungry or thirsty. With a little discipline in this regard and providing we choose natural food when we do eat, we will become less body conscious as our mind can now function with all the freedom in creative endeavours and our everyday tasks.
- Man will only to realize the truth about illness and health, something that has evaded him since the dawn of time and which he still has not accepted, by placing himself on a thorough internal elimination regime. It makes no difference what his illness is called and he can even be a so called healthy person. They will be shocked by the unceasing flow of unwanted toxic and slimy matter that is excreted from every aperture of their body. It is amazing that this truth was understood by the ancient yogis of India and their method the six shatkarmas is perhaps the greatest legacy that the old world has bestowed on contemporary man.
- Life is breath and breath is life. Accordingly it is more a breathing mechanism than anything else. It is certainly the body's most predominating feature.
- Man reaches his full potential when our consciousness is bathed with innovative inspiration delightfully experienced with each breath.
- When you are attuned in this way, and as you grow in awareness of life's infinite range of logical and intelligent segments, truth will be forever your companion. It is out of this never exhausting supply that man has discovered and invented what he has or has streamlined the way he does things.
- Thinking after gathering all the relevant facts, and allowing the subconscious to weave its unique brand of magic, is waiting for that gleam of light to flash on the mind which it usually does unexpectedly.
- The easiest way to achieve success is to find a simple formula, easy to keep uppermost in the mind and perform. In the search for higher health, waiting for natural hunger and thirst, even if we do not imbibe anything for the entire day fits this bill perfectly. When the inner activities of the body do not always have to contend with the intake of food, it can perform its higher duties more efficiently. It is therefore, true that one is more satisfied when this rule is followed as it concurs with the axiom that magic is wrought on an empty stomach.
- Language is magical because it it is the only thing that can express or capture consciousness and awareness our most prized possession — the meanderings of the mind, the fleeting and frail ethereal essences called thought and thinking that unceasingly flow in diverse and unexpected ways.
- The mind cannot be forced but it can be fooled.
- A wise man learns from the mistakes of others; a fool doesn't even learn from his own.
- After gathering all the relevant information, thinking is waiting for the subconscious to weave its unique brand of magic by flashing solutions unexpectedly on the mind.
- Outwardly you will be silent, but within your master will speak to you in the voice of a roaring rapid and resounding waterfall.

- Nothing is more detrimental to man's advancement and well-being than an untruth which is given authoritative approval.
- We shall continually chant so that we and our children shall never forget that we are sons of the morning, children of the light.
- Knowledge is light but knowledge from light is most revealing of all.

About Rawfoodexplained.com

The materials on this website are based on the Philosophy, Principles and Practices of Natural Hygiene and were originally published as a course consisting of 106 lessons called *The Life Science Health System* by T.C. Fry.

The *Life Science Health System* is vast compilation of knowledge by various authors and was intended to prepare the student for a career as a *Natural Hygiene Health Consultant*.

If you want to buy the printed version of the *Life Science Health System,* you can do so at http://www.rawschool.com/course.htm

A revised and edited version, including testing and certification, called "Essential Natural Hygiene Course" with 44 Lessons of the *Life Science Health System* is available at the Transformation Institute.

For the principal Discussion Forum on *Natural Hygiene* on the Internet, go to http://health.groups.yahoo.com/group/Rawschool/

About me

I'm 27 years old and changed to a Raw Food Diet about six years ago. This was one of best decisions I have ever made.

After reading the very inspiring book *Survival Into The 21st Century* by Viktoras Kulvinskas, I decided to go raw the same day.

I cut out all the cooked, processed and canned foods and ate very simple meals of fresh organic fruits, raw vegetables, nuts & seeds and sprouts. I realized that all those beautiful fruits and vegetables are the divine gifts of nature to humans and animals and that our bodies are designed to thrive on these pure foods.

After about a year, I noticed very positive physical changes like normalized weight, high energy levels, clear skin, fuller hair, no more body odor etc.

What was most astonishing, was the mental/spiritual transformation that had taken place. For the first time in my life, I was able to feel love for myself and my body. I accepted myself as I was. I felt more and more connected to the earth and the people around me and I became very sensitive. I actually had to pay attention not to pick up too much of the thoughts/emotions of other people.

At first, I wasn't consciously aware of it, but after a while it became increasingly apparent that I could ask myself questions and actually get valid answers from within. The connection to my intuition/higher self was greatly enhanced. This has nothing to do with anything "paranormal". I think it's a very natural thing.

Beside the Raw Food Lifestyle, I'm interested in everything related to personal development. I spend a lot of time reading books about Spirituality, Philosophy and Psychology. I'm also practicing Yoga and Meditation.

My other interests include all things related to Lucid Dreaming and Astral Projection. About three years ago, after reading a book on the topic, I had an Out of Body Experience. I'm researching the subject in more depth ever since.

My two major goals in life are to always live consciously and to be able to give unconditional love to all sentient beings of this wonderful world.

For questions or feedback, feel free to contact me per email at rawfoodexplained [at] yahoo [dot] com or use the contact form.

Thank you very much and have a nice day!

Philip

Available for consultations

Areas of expertise:

- Natural Hygiene
- Water/Juice/Dry Fasting
- Toxic Teeth and Heavy Metal Detoxification
- Liver Flushing
- Advanced Yoga Practices
- Kundalini Awakening
- Deep Relaxation Techniques & Yoga Nidra
- OOBE and Phasing

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Health & Nutrition Friends

- Going Bananas Blog - Useful Blog Posts about living on Raw Foods
- The Raw Vegan Network - Online Raw Food Certification Courses
- From SAD to RAW - My journey to lose weight... and gain me.
- The Raw Table - Raw Food Recipes, Classes, Private Instruction, Houston Area
- Matt Monarch - Author of "Raw Spirit"
- Love Raw - Living Organic Vegan Experience
- Juicers, Reviews, Recipes and Nutrition Knowledge
- Kristen's Raw - Living Foods, Longer Life
- Health Synergy UK - Hair Analysis for Food Sensitivities
- Real Raw Food - Distributor of Organically Grown Truly Raw Food, British Columbia, Canada
- UliMana - Raw Chocolate Truffles, Superfood Spreads and Raw Hot Chocolate Mixes! All Organic, Handmade, Vegan
- Dr. Stanley Bass - Super Nutrition & Superior Health
- Soil and Health - Online books about Natural Hygiene
- Transformation Institute - School of Natural Hygiene
- Raw Cane SuperJuice at Farmers Markets and Retailers in California

Fasting

- Fasting.ws - Fasting for healing, weight loss and detoxification
- FastingConnection.com - Fasting Articles, Events, Books, Forum, Shop, etc.

Raw Coaching

- RawHealing.com - Audrey's Raw Food Lifestyle Coaching
- RawSchool.com - Nora's Raw Coaching
- Angela from RawReform.com - Private Consultations and Raw Lifestyle Coaching
- Dr. Gina Shaw - Take Back Control of Your Health Through Health Consultations and Fasting/Detox Programmes

Raw Retreats

- Hippocrates Health Institute
- Tree of Life Rejuvenation Center
- Creative Health Institute
- Vida Clara - Fasting, Meditation, Transformation
- Cedar Springs Renewal Center
- Karuna Detox Retreats
- Sura Detox Retreats in Devon UK - 7 Day Juice Fasts With Colonics, Nutrition, Massage & Yoga
- TrueNorth Health Education Center
- Mind Your Body - Hawai'i Raw Detoxification Retreat

Raw Directories

- Raw Wide Web - Your Raw-Foodist Internet Guide
- Raw Food Planet - Worldwide Raw Food Lifestyle Directory
- Raw Index - Comprehensive Listing of Raw & Living Foods related Websites

Metaphysics & Spirituality

- Advanced Yoga Practices - Easy Lessons for Ecstatic Living
- SwamiJ.com - Self-Realization in the Tradition of the Himalayan Masters
- Biology Of Kundalini
- Emotional Freedom Technique

Personal Development

- StevePavlina.com - Personal Development for Smart People

Books

- TheRawFoodWorld.com - Raw Vegan Books
- Health Research Books - Publishing Rare and Unusual Books since 1952

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Lesson 1 - Introduction To Life Science As A Way Of Life

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Welcome! It is my privilege to introduce you to the science of health known by the descriptive term "Life Science." It is also known as health science, Natural Hygiene, Hygiene, and other terms.

1. What is Life Science?

At the outset it is wise to delineate just what Life Science is—just what grounds it covers.

Life as we know it is possible and became possible because certain favorable conditions are and were present. Some of these conditions include favorable temperature, presence of oxygen and other gases and minerals, presence of water, absence of lethal substances, etc. Life Science is the study of all the conditions which make life possible. Because present-day life seems to be losing touch with those conditions which made life possible, Life Science brings us "back to our roots," so to speak. We should endeavor to meet life's requisites so that we can lead a joyous existence.

Science is not the cold dispassionate pursuit many of us have been led to believe. Rather, it is personal, and relevant to all that we are involved in. When we turn our studies upon ourselves so that we may have a very personal science, we begin to arrive at the essence of Life Science.

Science as represented today is not the warm practical medium we speak of here. Science that we can't use and benefit by is hardly science. Life Science is the exploration and elaboration of those elements and influences we can invoke to exalt our lives and being. Certain truths are applicable to our being. Studying and systemizing these truths so that we can be guided by them is our aim here. That which begets correct results is scientific.

That which begets wrong results is unscientific.

Life Science concerns itself with those principles and truths applicable to human life so that we may observe and avail ourselves of them. We are of the firm conviction that only by scientific living can we realize the loftiest joys *and the destiny* which is our birthright.

Animals in nature are creatures of instinct. Following the guidance of instinct, they are correctly self-directed to meet their needs. Thus they thrive optimally in accord with their environmental possibilities. Inborn guidance is, in effect, Life Science or a science of life for nature's creatures.

Humans have infinitely more potential for happiness and goodness than nature's simpler forms of life. We are endowed with immeasurably more sophisticated faculties.

These superior endowments can keep us in a state of euphoria during a long life.

Life Science must be for humans what inborn direction is for animals. We, too, have instincts, but we are far more than these basic impulses of life. Unfortunately, we not only fail to follow our instincts but we often reject them in our living practices. Our instincts have been vitiated and perverted by unwholesome conditioning in a world that is quite berserk by sane standards. When humans act contrary to instincts *they are being unscientific*. When their practices are in accord with their instincts—with their inherent biological adaptations—*they are living scientifically*. Life Science is as simple as that.

Obeying our natural instincts is part and parcel of Life Science. We believe nature did not err in instilling in us guiding instincts. We contend that humans, with our as yet fledgling intellects, do the erring that begets our sickness and suffering.

Life Science is an intellectual endeavor. We are far enough along that we can determine what is good and what is bad for us. We are profound enough in our knowledge to construct a science of life that will guide us to realize the happiness and the destiny that should be ours.

Life Science is, therefore, a way of life that rightfully concerns itself with every facet of human life and human well-being. Only such a thoroughgoing philosophy and concern can be a true science of life.

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2. An Introduction To Life Science

2.1 Life Science as a Philosophy of Life

In introducing Life Science as a true philosophy of life thoroughly in accord with the facts of existence, the question arises as to how its validity was determined. The surest way of assessing the correctness of any system is to put it to the test. Does it work? If it works, it must be deemed valid. If it does not work, then it must be unscientific.

Life Science began with success. From its beginnings as a new, but not yet complete, healing science it developed until today it is a full-blown scientific system touching upon everything that relates to human well-being. That it is valid is beyond doubt—Life Science works perfectly!

To capture the essence of the science of healthful living, I feel it appropriate to quote from a most notable hygienist, Dr. Keki Sidwha. He's been a Hygienic practitioner in Great Britain for almost twenty years.

> "In spite of all the great advances in many branches of science, we are still in a period of prehistory, a dark age, in our thinking about health, disease and healing. What the world sorely needs is a new concept of health. A different orientation of thoughts, words and deeds than we have been led to accept for umpteen generations is now urgently called for.
>
> Natural Hygiene, a life science, is that branch of biology which investigates the conditions upon which health depends and the means by which it may be sustained in all its virtue and purity, while we have it, and restored when it has been lost or impaired.
>
> Before physiology developed, the rules of Hygiene were instinctive, traditional, and empirical. Today these rules are based on the growing knowledge of physiology and biology. If we had perfect knowledge of the laws of life and applied them in a perfect system of Hygiene, disease would be impossible and never occur. In this sense Hygiene is the science of intelligent and healthful living.
>
> Natural Hygiene refutes the present-day ideas that disease and ill health are inevitable in people's

> lives, depending on chance and circumstances outside their own control and domain. Natural Hygiene is a way of life, a philosophy of living. Health can only be obtained through healthful living; it cannot be bought across the counter of a drugstore, not can it be found in a physician's office or in a hospital. We contend that healing is a biological process which is continuously going on inside every organism."

This brilliant expression of the Hygienic stand by Dr. Sidwha deserves immortality. His salutary contributions to the science of healthful living will achieve immortality in our annals. Certainly this statement embodies the essence of hygienic philosophy.

The following is a concise statement of the philosophy, principles and practices of Life Science.

2.2 Life Science Philosophy, Principles And Practices

- LIFE SCIENCE holds that life should be meaningful and filled with beauty, goodness and happiness.
- LIFE SCIENCE holds that humans are inherently good, righteous, and virtuous, and that their exalted character will be realized under ideal life conditions.
- LIFE SCIENCE holds that superlative well-being is normal to human existence and necessary to the realization of the highest human ideals.
- LIFE SCIENCE holds that supreme human excellence can be realized only in those who embrace those precepts and practices which are productive of well-being.
- LIFE SCIENCE, which encompasses all that bears upon human well-being, constitutes the only way to realize the highest possible order of human existence.
- LIFE SCIENCE, alone, is in harmony with nature, in accord with the principles of vital organic existence, correct in science, sound in philosophy and ethics, in agreement with common sense, and successful in practice and a blessing to humankind.
- LIFE SCIENCE recognizes that the human body is a fully self-sufficient organism, that it is self-directing, self-constructing, self-preserving and self-healing, and that it is capable of maintaining itself in superb functioning order, *completely free of disease*, if its needs are met. Foremost among these needs are fresh air, pure water, rest and sleep, wholesome foods, cleanliness, comfortable temperature, sunshine, exercise, constructive work, emotional poise, self-mastery, recreation and pleasant environment.
- LIFE SCIENCE recognizes that humans are constitutionally adapted to a diet of fruits, vegetables, nuts, and seeds eaten in compatible combinations while in the fresh raw natural state.
- LIFE SCIENCE recognizes that diseases are caused by improper life practices, especially dietary indiscretions. Illness proceeds from reduced nerve energy and consequent toxemia. Insufficient nerve energy arises from dissipation, stress, overindulgence, *excess or deficiency* of the normal essentials of life, or pollution of the body with substances not normal to it. Accordingly, recovery from sickness can be achieved only by discontinuing its causes and supplying conditions favorable to healing.
- LIFE SCIENCE recognizes that a thoroughgoing rest, which Includes fasting, is the most favorable condition under which an ailing body can purify and repair itself.
- LIFE SCIENCE, which teaches that exalted well-being can be attained and maintained only through biologically correct living practices, is not in any sense a healing art or a curing cult. It regards as mistaken and productive of much grief the idea that diseases can be prevented or overcome by agencies abnormal to our natural being. Consequently, LIFE SCIENCE emphatically rejects all drugs, medications, vaccinations and treatments because they undermine health by interfering with or destroying vital body processes and tissues.

Therefore, LIFE SCIENCE regards the body and mind as the Inviolable sanctuary of an individual's being. LIFE SCIENCE holds that everyone has an inalienable right to have a pure and uncontaminated body, to be free of abnormal compulsions and restraints, and to be free to meet his/her needs as a responsible member of society.

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3. An Inquiry Into The Philosophy, Principles, And Practices Of Life Science

3.1 The Concept of Innate Individual Worth

Life Science holds that we are born naturally innocent and naturally good. The first two paragraphs of the concise statement we heretofore printed in exposition of Life Science's philosophy, principles, and practices states this.

Scientific studies of babies and youngsters have pointed to one inescapable conclusion. As gregarious creatures, humans are naturally empathetic, altruistic and moral, i.e., humans are naturally righteous toward one another in keeping with their gregarious instinct.

Humans are woefully perverted by unnatural conditions within the context of civilization. They are made vicious by inhumane influences such as deceptive practices, exploitation, insecurity, and other baneful conditions in a society gone mad.

Individuals usually strive to present the appearance of upright character to others. This bespeaks our innate urge and conviction that we should be righteous. Life Science holds that if a society of assurance exists these innate virtues will assert themselves naturally.

3.2 The Concept of Happiness and Ideal Health as Normal

Life Science holds that life was developed to be a long joyous event from birth until a natural death. Happiness and health flow from ideal life conditions. Ideal life conditions ate normal in the environments of our development. However, such is the human intelligence that it has made almost all environments over the face of the globe inhabitable. Many arts, artifices, and artificial environments have been created to satisfactorily supplant the wonders, beauties, and beneficience of a natural environment in many habitats though, in truth, such artifices are never completely wholesome substitutes.

Life Science holds that humans developed to their high state because they adapted so well to the environment and its possibilities. This means that health is normal and natural when the conditions to which we are adapted are met. Superb excellence in humans flows from ideal life conditions and the superlative health begotten of them.

3.4 The Self-Evident Concept of Self-Government In All Organisms

Simple observation of the development of complex organisms from the union of sperm and ovum is indicative that the powers of life reside within. Without anything from the outside other than needed raw materials, the organism has the inner direction to fashion itself from a fertilized ovum into a mature adult.

This implies an inherent character that embraces the following capabilities:

- Organisms are self-programmed.
- Organisms are self-directing or self-governing.
- Organisms are self-sufficient when their material requisites are available.
- Organisms are self-constructing in accord with their genetic blueprint.
- Organisms are self-defensive and preservative, defending themselves against all internal and external threats.
- Organisms are self-repairing or self-healing and possess solely and exclusively the faculties and powers to accomplish restoration in event of damage or derangement.

These faculties and powers are self-evident upon the simplest observation of yourself or other organisms. This concept and its axioms should ever be borne in mind when dealing with clients. The confidence needed in dealing with your own problems should you have any, or with the problems of your clients, can be derived and reinforced by referring to these self-evident truths.

3.5 Life Science as a New Concept of Healthful Living

Life Science may be said to be a reassertion of the conditions best suited to human life. In pristine nature, humans lived what we now call Life Science because of primal urges—on the instinctual level. They lived as gatherers of fruits from vine, stalk, and tree.

With the development of intellect, humans became ever more versatile in dealing with the forces of nature. But this eventually led to human alienation from both nature and our biological heritage. Though most humans observed much of their pristine endowment well into the civilization of the Christian era, the dark ages of medieval times brought on the renunciation of nature and earthly considerations. Humans became poorer in the observation of the elementary needs of life. Human needs on earth were contravened in the name of religion and salvation.

Fortunately, the dark ages did not wipe out humankind. Near the end of the dark ages the unnatural and inhumane conditions under which European civilization lived decimated the population with plagues. Great plagues were not due to any kind of contagion. The only thing contagious in the times of the bubonic and black plagues was widespread modes of death-dealing living practices.

Hygiene or Life Science as a philosophy and outlook survived the dark ages when the twin human scourges of medical and religious superstition saddled most of what we refer to smugly as the civilized world. In many parts of the world our biological mandate was fairly well maintained, notably in tropical cultures of the Far East and in isolated pockets here and there. It was preserved among many traditions and cultures in part.

Well before the Christian era Pythagoras elaborated a rather extensive philosophy of living on all planes of life. Among them was perhaps the best formulated statement of Hygienic living until this time. While the Greeks, of whom Pythagoras was one, were heavy on fruitarianism, they were also heavy into the incipient practices that begot the modern goliath of medicine.

The philosophy of Pythagoras gave rise to Appolonius and the Essenes, an ascetic culture that was vegetarian/fruitarian in practice. Much of Essenian philosophy and practices were preserved in the New Testament and is quoted in the sayings of Christ. The thin thread of Hygienic philosophy survived and received a modern impetus from the greatest universal genius of all times, Leonardo da Vinci, who was a vegetarian/fruitarian.

Though medical beliefs remained relatively unscathed while the areas of religious domination were receding during the Renaissance, some elements of the Hygienic philosophy survived.

I reiterate that our natural heritage was largely unaffected by the medical outlook in many areas of the world, notably in the Far East. But healthful living as a philosophy of life in the Western Culture did not exist as such.

It was not until the time of Dr. Isaac Jennings in 1822 that Hygiene as a formalized philosophy of life had its beginnings. Not until the consummate genius of Drs. Graham, Trail, Dewey, Tilden, and Shelton did the philosophy and science of health become fully ascertained.

Life Science is not new from many perspectives, although it is relatively new to what we call civilization. But it is totally new for most who learn it the first time. Now it is alien to our culture because of its relative rarity. At this time Life Science, even though in accord with our pristine being, is in eclipse because of medical thinking and a commerce that trades upon pathogenic fare.

It is our hope to teach enough dedicated individuals this science of health to assure that humanity thrives in health and enlightenment. In pursuing this course you are asked to be the torchbearers of a way of life whose time has come.

3.6 Life Science as a Broad-Based Science of Life

By no means is Life Science confined to dietary principles as you might gather from association with today's Hygienists. Few Hygienists involve themselves with the expansive aspects of Life Science as a philosophy embracing every facet of human well-being.

Dietary concerns are but one area of Life Science's dominion. It also includes mental and emotional well-being, as well as social and economic well-being. It includes environmental factors or ecology and is coextensive with all factors that touch upon human welfare. While this course is nominally on the specific area of nutrition, nutrition is but a small part of the all-encompassing philosophy of Life Science.

3.7 The Concept of Self-Healing or Self-Repair

Self-healing is the only healing. Throughout nature we see animals with cuts, bruises, broken bones, and other injuries undergo healing. Obviously this healing is effected by internal faculties and powers, for in nature, animals seek out a quiet secluded spot and rest. They undergo almost no activity. They partake of no food.

Instinctively an injured animal will abstain from all indulgences that detract from the full application of the body's energies and faculties to the reparative/restorative process. Likewise, humans when placed under the same conditions in keeping with our nature and disposition undergo healing in a fraction of the time that occurs when regular activities are pursued.

Healing is always and ever a biological process. Our task is but to establish the conditions so that the body may conduct the process more quickly and efficiently. The inherent programming, intelligence, and power that developed a fertilized ovum into a wonderfully and beautifully built creature is all the healing power that is needed. Conditions favorable to the exercise of these powers can be established. As a health practitioner/nutritionist it will be your role to know and apply these conditions.

Much suffering and grief result from the idea that the body can be helped by the application of substances, conditions, and treatments abnormal to the body. It will be your role to rescue the victims from harmful practices as well as set them on a right course for health recovery and maintenance.

3.8 The Concept of Individual Sovereignty

Life Science holds that everyone is an independent entity unto himself or herself within the context of society. Everyone should be entirely free—fettered in no way—within the context of enlightened self-interest—within the context of our symbiotic mandate on earth.

Every man, woman, and child must be regarded as capable of carrying on life's affairs for himself or herself. It is not our role to judge or impose ourselves on others but to help if our aid is sought. We should not impose ourselves on anyone no matter how wise or unwise, or how good or bad such imposition is or would be. We must accord to everyone the prerogative of leading their lives as is their bent and capability so long as their pursuits do not impinge upon the birthright of others. The golden rule should be our rule of conduct.

While it may seem unwise to grant the same privileges and prerogatives to both the genius and the relatively unlettered, nevertheless a society is not free in which either are denied their right to pursue opportunities on an equal footing. The capable are bound to succeed and should offer aid to their biologically crippled or less favored brethren.

For all its drawbacks and advantages we must always respect everyone as supremely sovereign. Whatever they do or decide, however good or bad their acts or decisions, in their own interests, we must pursue a role of non-interference. We may, by example, seek to inspire and motivate. But to impose ourselves and our precepts on others is reprehensible.

4. Discussion Of The Medical Approach To Health And Disease

4.1 The Erroneous Notion of "Cure"

The idea behind medicine is more than 2,500 years old and, like most ideas from behind the dark ages, it's very unscientific. The premise is that the body is like a machine that can be repaired by outside agencies. The machine goes wrong because of invading entities. In ancient times these entities were evil spirits, demons, and devils which had to be exorcised. By and by these evil spirits became known as little beasties called microbes, germs, bacteria, viruses, and yet other appellations.

Medicine today has the concept of "cure," a word that has been perverted from the original of "care." Medicine itself means a curative or healing substance. The idea behind the use of medicine is that the "medicine" acts within the organism, that it seeks out the trouble, routs the invaders and effects in some manner the necessary healing. The medical concept of the modus operandi of drugs which they call medicines is very hazy at best. But medicine is the harmful practices that men do to try to help ailing people.

People go to physicians for medical intervention. They want to get "fixed up." They're ailing. Something must be done lest they suffer grave consequences or death. Medical practitioners take advantage of the clients—they play upon their fears. They applaud their clients for coming to them when they did. They flatter them for this bit of "wisdom" and assure them that, if they do not do something soon, grave dangers will ensue. The medical man always has a course of treatment to suggest, invariably a prescription of drugs and tests.

The idea is that the tests will reveal what is wrong and thereby determine what drugs to prescribe or what steps to take, as in surgery.

That their beliefs and practices are, on the whole, precisely contrary to biological science seems never to enter their minds. We'll treat medical concepts in depth at a later time but here, suffice it to say, there is no healing other than self-healing. All modalities can interfere with healing but none can aid healing.

4.2 "Cures" Do Not Deal With Causes

Can you imagine trying to develop a drug to "cure" drunkenness without going to the root of the whole matter, i.e., the drunkard's drinking habit? How can we deal with drunkenness if the drunkard continues to drink?

This is what happens with the medical approach. They try to remedy effects or symptoms without dealing with causes. In reality they drug, butcher, and purge while almost totally ignoring basic causes of physiological problems. They resort to crippling surgery and treatments running into the thousands of dollars when the problems can be simply and inexpensively solved by a change in life practices.

You'll learn herein that nothing happens without sufficient cause. You'll learn that all affections of the body must be caused and the cause is almost always initiated by the sufferer. You'll learn that unless cause is discontinued the problem will always develop again, ever more serious.

In learning nutritional and health science you're basically learning to do two things: 1. to remove causes of problems and 2. to establish the conditions of health. Since these two steps are so very easy overall, that is one reason we can confidently bestow upon you a degree of Doctor of Philosophy at the end of the lessons. If you've mastered the understanding of cause and effect in nutrition and health—that diseases are suffered because the sufferer has indulged or been subjected to cause and that health results when reasons for health are dominant—you'll be a mountain among a throng of mole hills called health care professionals.

4.3 "Cures" Do Not Furnish the Needs of Life

To be returned to health the body must be provided with its requirements. First, those substances, influences, and practices which beget illnesses and disease must be discontinued. Secondly, it is necessary to bring to the client the essentials of health. Very simply these are pure air, pure water, correct diet, sunshine, exercise or wholesome activity, adequate rest and sleep, emotional poise, security of life and its means and yet other factor elements and influences.

If you reflect upon medical procedures it is obvious they do not try to ascertain causes that are inherent in lifestyle and practices. They do what an auto mechanic does—they try to find out which cylinder is missing and then proceed as if the body can be repaired much in the manner of a vehicle. They rarely advise about practices and beliefs which cause problems. Since most medical men are financially oriented, it is wise that they do not teach correct habits. They'd be out of business if their clients became well.

4.4 "Cures" Destroy Body Vitality

Dr. Herbert M. Shelton must be proclaimed the greatest oracle of Hygienic philosophy, principles, and practices unto this day. He has noted that now we have more medical discoveries than ever before; we have more medical practitioners than ever before; medical men enjoy more respect than ever before (at least until recent years) and yet, for all this, we also have more disease and suffering than ever before.

Why is this so?

Because, very simply, drugs destroy. They never build. It is not within the province of drugs to create cells and replace body tissue. Medical men would be the first to tell you this for they've studied physiology too. But yet they act as if their drugs perform some kind of magic that will effect healing.

What do drugs, when administered, really do?

In truth, drugs do nothing other than form chemical unions with body compounds and fluids. When these chemical unions occur, the body suffers distress. When the character of a substance is determined as harmful by the body, it goes into a frenzy. When it does this, it is stimulated. Sometimes the body has a reaction of depression in which case it is sedated or narcotized. This means function has been inhibited or paralyzed. In both cases the reaction is one of self-protection against an unwelcome intruder, in this case a poison even though it is called a medicine.

In causing an emergency in the body, drugs are harmful. The body must redirect its energies from the healing process which it is conducting. The symptoms for which the drugs or medicines are administered are evidences of the body's self-conducted healing process. When drugs are ingested or injected, the body must leave off partially or wholly the cleansing/healing efforts and attend to a greater threat which the drugs represent. When healing efforts are discontinued the symptoms disappear. Physicians interpret the disappearance of symptoms as a "cure" or a healed condition. They thus mistake drug or poison effects for healing effects. In reality the body has more problems than before. For now it has, additional to its prior problems, the problem of expelling a terrible poison too.

4.5 Medical and "Healing Art" Approaches Are Deadly And Deadend

We readily recognize that drug addicts take illicit drugs and eventually become physiological wrecks as a result. Also the drug addict loses moral values. Thinking ability is lessened and almost totally redirected to acquiring the addictive drugs and to the spell the body casts when they are taken.

What we also recognize is that physician-prescribed drugs have precisely the same actions. What we do not recognize is that the prescriptions, administrations and treatments of all so-called healers have the very same effects whether the medics be called physicians, homeopaths, chiropractors, osteopaths, herbal doctors, acupuncturists, or whatever. Their modalities devitalize while their ignorance of cause likewise continues to devitalize and destroy. Because treatments are more or less deadly and because causes are left intact by those who treat the diseased, the situation gets progressively worse. Those who get better do not become so because of the treatments. Better health comes from self-healing which occurs despite, not because of, treatments.

Under medical and other care, recovery takes place about 90% of the time. Medical men, just as do herbologists, chiropractors, osteopaths, etc., attribute healing to their intervention. But the unrecognized truth is that witch doctors have a much higher "cure rate" and that Hygienic practitioners have a nearly 100% recovery rate! As a Hygienic practitioner or health professional following the dictates of a true health science, you'll realize a nearly 100% success rate. Healing always takes place to the extent of residual healing potential when causes are discontinued and the conditions of health instituted.

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5. What Health Really Is

5.1 Delineation and Description of Health

Can we define health?

Yes, we can. Conventionally, a lack of obvious disease is regarded as a state of health. In actuality about 99% of our peoples are diseased in some manner or other regardless of appearances.

Health may be defined as having fullness of function. Health means complete well-being, inner and outer harmony, vigor, strength, mental acuity, in short, total fitness.

Perhaps no better statement of health has ever been made than that of Dr. Herbert M. Shelton. I'm happy to quote his definition:

> Health is a condition of perfect development, a state of wholeness and harmonious development and growth, an adaptation of part to part of the organism, or organ to organ, with no part stunted and no part in excess.
>
> In this state of organic development lies the perfection and symmetry of beauty. Beauty is but the reflection of wholeness, of health. It is easy to demonstrate that the forms and proportions of humans and every animal and plant which are in their highest and most useful state are the most beautiful and therefore the most healthy.
>
> When every bone is of the best form and size for its service in the total organism, there is perfect proportion. When every muscle is fully and proportionally developed, with just enough of fat and the cellular tissues to round out the muscles, we have the highest beauty of form. When the texture of the skin is finest, when the circulation of the blood most vigorous, the blood well-nourished and freed of all waste, there is the glow and charm of the finest complexion.
>
> The highest beauty is the expression of the highest health. Partial beauty, fading beauty or decaying beauty—these are but expressions of partial, fading or decaying health.

When we suffer any impairment or impediment we cannot be said to be in a state of health. We can be in a relatively high state of health but to the extent we do not enjoy perfection of body function, we are not healthy.

We live in a nation where disease is the norm of life rather than a rarity. In taking up a health career it is our duty to make health the norm and disease a relative rarity.

I refer you to text material included in this lesson for a fuller discussion of what health is. Therein appear two articles by the dean of health teachers, Dr. Herbert M. Shelton.

5.2 Beauty as Reflecting Health

Though our standards of beauty are rather low today, they still, nevertheless, take note of the exceptionally beautiful. Beauty, as a reflection of health and well-being, should be the norm, not the exception. How many women have we seen whom are so lovely and beautiful that we are drawn to them as a magnet? How many men are so wholesome, so fit and handsome that they, likewise, are irresistible to their female counterparts? I daresay such men and women constitute less than 1% of our peoples.

The ability to appreciate beauty is highest in humans. And humans would normally be the epitome of beauty if they lived in keeping with their birthright, that is, their biological mandate. We readily recognize beauty in birds, flowers, and other life in nature. But our fellow humans, whether aged or young, whether nice or disagreeable, are, for the most part, in some way repulsive to our aesthetic senses. Forty percent of our population are repulsively overweight. This is but one impact of the ugliness that characterizes an unhealthy population.

I've seen "monsters" transformed as if by magic upon undergoing as little as a month's Hygienic care. Fatness and ugliness both were overcome with the restoration of a relatively high level of health.

One of the "miracles" you can hold forth to your would-be clients is that of handsomeness or beauty. That quality will be tremendously enhanced in those whom you help to achieve a high level of health.

5.3 Fullness of Function as a Barometer of Health

While it is not always true that athletes are superb examples of health, it is true that all in superb health are quite athletic. Suppleness, agility, stamina, strength, and vigor are qualities essential to a state of health.

Physiological function will be ideal in every respect to someone in full health. A sense of euphoria, of joy, and of total well-being is a condition of health. Healthy people usually wear smiles and pleasant countenances. Glumness and a downcast disposition personify inner unhealthfulness. Nothing sabotages beauty, function, happiness, and well-being as a body shot through with the poisons or toxins borne of bad living practices.

5.4 The Possibility of Perfect Health for Humans

Life Science holds that perfect health is the norm of life. We hold that all creatures in nature adapted perfectly to the conditions of life under which they developed. They changed to cope with their environment and their food supplies.

In nature, perfect health is the norm of existence. Animals have no knowledge or concept about healthful living. They live healthfully naturally by doing only what their instincts bid them do.

It would seem that with a technological society at the apex of development human health would have kept pace and be better now than ever. The contrary is true. Humans are probably unhealthier now than at any time except the immediate past, that is, the last ten to twenty centuries. In the Dark Ages and Medieval times health was at an overall low.

Technological progress builds upon itself, and it is a credit to the human heritage that we still have, even though in a degenerated state, sufficient intelligence to develop and husband a highly technological society. Even though affected by physical degeneracy, the brain is always the least affected of organs in famine, disease, starvation, and physical debilitation.

Perfect health is possible if the conditions of health are ideal. With our intelligence and extensive technology we can create the conditions for healthful living practically anywhere in the world where humans live.

5.5 Health Is Normal and Natural

Over eons of time, organisms have developed to cope with changed environmental conditions and food supplies that varied environments were capable of producing. Environments range from the ideal to the impossible for every creature on earth, even microbial forms of life. Perfection arises from adaptation—from coping with conditions. Adjustments to every vagary of nature created organisms that functioned perfectly.

In humans and animals we witness what is obvious: health is normal and natural. We see animals in nature being born, living their natural life spans and dying naturally without once suffering the infirmities of sickness. And for all our modern pathogenic practices we see humans more or less well most of the time. In view of my Hygienic experience and by my observation of hundreds of others who remain sickness-free under the Hygienic regime, there is but one inescapable conclusion: health is a normal condition of life. It is our birthright.

Life Science is truly a science of life for it is based soundly and scientifically upon our biological requirements for thriving in perfect health.

This is the outlook which you are studying in this course and being asked to advocate and follow in your professional career.

Let us now explore Life Science's beginnings.

5.6 How Life Science Began in Modern Times

Life Science or Natural Hygiene had its awakening in 1822 when Dr. Isaac Jennings, who had a medical practice in Derby, Connecticut, despaired of drugging. In his many years of practice he was distressed to see his patients become worse from the drugging modality. His patients died and many became chronically afflicted. His yearning to help his fellow beings was sincere.

Dr. Jennings noted that as physicians became older they drugged less and less. He did likewise and found his patients were faring better under less drugging. Then he quit prescribing drugs altogether and found that it wrought miracles.

When patients with problems came to Dr. Jennings he would dispense pills of colored flour and vials of tinted waters. He gave strict instructions for their use just as other physicians gave detailed instructions for the ingestion of drugs. But, in Dr. Jennings' case, he made a prescription that was to launch a great health movement and an infant science. In 1822 at age thirty-four Dr. Jennings gave his patients placebos with instructions to take them at specified hours of the day with a glass of water. His prescription was that no food could be taken, or else the pills would not work. His patients were ordered to do this for a number of days and then return for a checkup. Upon return they would be terminated from the regimen or continued on it "a few more days."

Under Dr. Jennings' new modality, his patients invariably became well. While other physicians lost patients by the graveyard full, his thrived. The ailing flocked to him from far and near.

The success of his "no-drugging" system astounded Dr. Jennings as much as it did his patients and colleagues. Wisely, in his initial years, Dr. Jennings did not reveal his "secrets." Instead he sought the rationale for his success. He called his treatments "the leave alone" method while professing to dispense pills of unnamed composition. They came to be regarded as pills with magic curative properties.

From this rather inauspicious start, Dr. Jennings began to develop a few laws relative to his observations and experience. He called the system that flowed from the employment of these laws "orthopathy," or correct affection. He formulated many of the "laws" of life and named some of them as follows:

- The Laws of Action and Repose, i.e., the necessity for activity and rest (sleep).
- The Law of Economy which resulted from his observation of the way in which the body managed its vital energies.
- The Law of Physiological Distribution or the way in which the body supplies all its parts and faculties adequately.

- The Law of Stimulation or how the body accelerates its physiological activities at a frenzied level when a toxic material is introduced therein.
- The Law of Accommodation or how the body adjusts to poisons by decreasing its vital resistance and more effectively quarantining itself from the toxins' baneful influences. The body gradually builds defensive mechanisms much as armies grow to ward off attack as the need becomes greater.
- The Law of Limitation or the conservation of vital energies.
- The Law of Equilibrium or the revitalization of debilitated parts and faculties when normalcy has been restored to an ailing organism.

Dr. Jennings, to his credit, saw disease not as an attack from some malevolent entity but as lowered vital energy or vital energy redirected to other purposes. His new outlook ventured that disease was caused by an ebb of the body's energy supply. In essence he was correct, but his explanations were quite formative for it remained for successors to build upon the foundations he built. Dr. Jennings may rightfully be ascribed as the father of Natural Hygiene or Life Science, for he is the first to attempt a systematic ascertainment of the physiology of health and disease.

The next illustrious forefather of the science of health was Sylvester Graham. He was born six years after Dr. Jennings in 1794. He was a very sickly boy. Becoming healthy was an obsession with him which led him to study health. He became well versed in anatomy and physiology. Before coming onto the health scene, he was a Presbyterian preacher. In 1830 during the temperance movement, he lectured in Philadelphia on the physiological evils of alcohol. As a firebrand orator he was amazingly effective with large audiences. In Philadelphia he expanded his knowledge of physiology and health and became acquainted with the teachings of a "vegetarian" group who abstained from animal foods and products and many modern ways of preparing foods. This group was known as the Bible Christian Church and based its mode of life on Biblical commands.

In the great cholera "epidemic" of 1832 Sylvester Graham rose to fame. He literally took on the whole medical fraternity of New York City and the interests supporting the medical system. While the medical men were advising New Yorkers to abstain from fruit and to cook their food thoroughly, Dr. Graham was advocating eating more fruits in the raw state. He advocated open windows, more light, and fresh air and other healthful measures which were contrary to medical teachings. It is noteworthy that those who followed Dr. Grahams's teachings were not affected by the cholera epidemic, whereas those who followed medical bidding died wholesale.

His fame as a health lecturer was well established in 1832 and he, more than anyone else, gave health science a tremendous impetus. He was in demand as a lecturer over the whole Eastern seaboard. He appeared before audiences of several thousand. People flocked to his lectures and listened to them raptly for hours in seeking salvation from disease and suffering.

So effective was Dr. Sylvester Graham in his lectures and writings that books and magazines blossomed presenting the "Graham system." The first health food stores came into existence to sell foods which he advocated. Special eateries and living facilities were established for those who wanted to follow his system. The name of Graham became synonymous with the Hygienic diet and Hygienic living.

Where Dr. Isaac Jennings approached health and healing from the point of view of helping people regain health, Dr. Sylvester Graham was instrumental in teaching the touchstones of healthful living so that people would not become ill in the first place.

During the 1840's, Dr. Jennings and Dr. Graham were joined by perhaps one of the greatest geniuses the movement has produced, Dr. Russell Thacker Trall. His was an inquiring methodical mind that ever sought the rationale and scientific basis for the concepts and findings developed by his predecessors. Thus he brought the Hygienic system to a standard that could thoroughly challenge the medical system. Dr. Trall delivered a lecture in the Smithsonian Institute to some of the nation's highest dignitaries in 1863. The title of the lecture was THE TRUE HEALING ART. It made quite a ripple during the time. Dr. Trail is the originator of the famous challenge which, though oft-repeated, has never been accepted by a single physician unto this day. This challenge is stated below:

1. That the medical system is ENTIRELY FALSE. That it is untrue in philosophy, absurd in science, in opposition to natural principles, contrary to common sense, disastrous in results, and a curse to humanity.
2. That the Hygienic System is TRUE. That it is in harmony with nature, in accord with the principles of vital organic existence, correct in science, sound in philosophy, in agreement with common sense, successful in results, and a blessing to mankind.

The new system of health did not discriminate against women. In fact it encouraged women to participate in the movement on an equal footing with men. Among the notable women in this new movement were such luminaries as Florence Nightingale, Mary Gove, Harriet Austin, Susanna May Dodds, Ellen White (guiding light of the Seventh Day Adventists), and Louisa May Alcott, the famous author whose brother became an M.D. and a Hygienic professional.

In the 1870's the medical profession adopted the Pasteurian germ theory with a passion. People found it much easier to blame their problems on little mysterious beasties rather than on their mode of living. No matter what they did they were absolved of responsibility for their condition. The germ theory made them unfortunate victims of malevolent entities over which they could exercise little control.

With the ushering in of the "germ era" came about the decline of Hygiene. While the philosophy remains alive and still receives a good following, it has been in continual decline relative to our population. In recent years there has been growth in the ranks of those practicing Hygiene in their lives, but there are yet only a few thousand devoted Hygienists.

The revival of Natural Hygiene in the 1920's owed much of its impetus to the efforts of Bernarr McFadden and Dr. Herbert M. Shelton. Though there were some great Hygienists in the early part of this century, notably Hereward Carrington, Otto Carque, John H. Tilden, and Linda Burfield Hazzard, Dr. Shelton became the acknowledged voice of Hygiene with the publication of his immortal book, "Human Life, Its Philosophy And Laws", in 1927. Though Dr. Shelton built upon the shoulders of his predecessors, he produced such a wealth of literature with new findings and thoughts that he added more to the science and art of healthful living than any other person. He had the benefit of new findings, and his fertile mind generated a new body of knowledge based on them.

Today the Hygienic movement still survives though it cannot be said that it thrives. A few thousand Americans practice it conscientiously. A greater multitude pay lip service to it and practice healthier living because of it. But, by and large, Hygiene is almost completely out of the mainstream on the American health scene.

In this lesson we cannot hope to more than summarily deal with Hygiene's history. Books on the history of Hygiene are practically nonexistent. It must be picked up in fragments here and there from books and magazines that make reference to the past. You'll pick up the history of Hygiene throughout your studies. Perhaps, someday, a history will be published.

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6. Questions & Answers

What do the words Natural, Unnatural, Normal, and Abnormal really mean?

> Natural or normal is that to which we became accustomed while living in a pristine state of nature and that to which our bodies were adapted. That which is contrary to our adaptations, that is, to our biological heritage, is abnormal and unnatural.

What are biological adaptations?

Biological adaptations is a term to describe the faculties an organism has developed to meet its requirements in the environment in which its growth has occurred. What is natural to an organism depends on its environmental adaptations.

Would you say carnivores are biologically adapted to meat-eating because of the structure of their teeth and other body structures?

Yes, I'd say that. Animals that live primarily upon meat have developed the tools or faculties for securing their food supply and best digesting it for their physiological needs. Animals that have claws and fangs are usually carnivores.

Are we adapting to our present environment?

Probably, but not perceptibly. A social adaptation or accommodation is not physiological and anatomical adaptation. Biological adaptations are slow and often require hundreds of thousands of years to come about. For example, when humans started eating meat, they did not during all their meat-eating days over a period of several thousand years develop fangs, claws, or the concentrated hydrochloric acid solution that characterizes meat-eating animals. You need but look at Eskimos to see confirmation of this. Animals adapt very slowly to changed conditions. On the other hand if there is a failure to adapt or the change is too quick, the danger of extinction exists.

In nature there are checks and balances. Isn't something like the black plague a natural check on the population?

No. In nature there are no such things as checks and balances in that context. In normal circumstances there are periods of famine and periods of feast. When there's famine, death overtakes many of the organisms that are victims of the scarcity. When there's a feast, a rapid multiplication occurs. Organisms in nature live in symbiosis with each other and a balance exists amongst them according to the food chain. For instance, if you study and witness insect hordes, you'll learn that when they are thriving on abundant vegetation there is a corresponding increase in their predators, that is, birds and other animals that feed upon insects. When the insect population is practically wiped out the predators decline in numbers. These are the only kinds of checks and balances that exist in nature. Nothing can exceed its possibilities.

What you call calamities cannot be in any sense referred to as natural. A plague or any sickness or disease is not natural. It happens because an organism has lived contrary to the laws or principles that apply to its life. When we contravene the laws of our existence, we will incur disease. Diseases or plagues are in no sense checks and balances. If humans live in pathogenic perversions they'll develop diseases and die amidst plenteousness.

What is your opinion of holistic health?

Those who are striving for something better than the medical system with which they've become disillusioned must be admired for both their perspicacity and their courage in undertaking an independent course. We Hygienists may not agree with the course or courses they've chosen as an alternative, but we hold they have every right to pursue it as is their bent and persuasion. The word "holistic" derives from the word "health" which, again, means "whole," "complete," or possessing fullness of function. The word "holy" also derives from the word whole or healthy, although we have lost sight of this.

What we call "holistic health" in current society is a catchall of all modalities. The term is a tautology. It's like saying "healthy health." But the holistic movement involves M.D.'s, homeopaths, chiropractors, osteopaths, naturopaths, herbologists, acupuncturists, polarity therapists, foot reflexologists, and just about anything else that attaches itself to the movement. The holistic health movement embraces anyone who wants to join it.

Hygienists who bring their philosophy with them are not accepted in the holistic movement. To be accepted into the movement you must be of a "curing" frame of mind, that is, basically medically oriented. This movement is therapy-oriented rather than health-oriented. However, some of the practitioners in the movement, notably the naturopaths, do recognize that we must remove the causes of disease in order to establish a basis for health. Even some chiropractors are enlightened in this regard. There are, in fact, practitioners in all schools that recognize the real needs of the human organism and advise their clients of these needs.

We call ourselves wholistic. To us this means that we embrace every facet or condition that touches upon human welfare. In the sense that we recognize that health is realized only by the length and breadth of the living regime, we're wholistic. But we do not identify with the current movement that calls itself holistic.

I think you're wrong about all healing being self-healing. I've personally seen a woman who had a leg ulcer for over a year. Topical application of comfrey poultices healed it in less than ten days. How can you deny that?

I do not deny that the leg ulcer healed, and I do not deny that the comfrey poultice was the agency that precipitated the healing process of the leg ulcer. But the body is probably worse, not better for the treatment.

What happens physiologically to cause the ulcer in the first place? Why do they sometimes persist only to heal later? What happens when the agency of toxic materials such as in garlic, aloe, comfrey, or in pharmacological preparations are applied and the ulcer is healed?

The comfrey poultice neither caused nor healed the ulcer. The body created the ulcer in the first place just as it creates a boil, fever, pimple, or other so-called infection. The body creates these conditions as outlets for an extraordinary load of toxic materials. As long as the body is burdened with toxicity that it cannot eliminate through normal channels, it will utilize vicarious outlets, i.e., outlets other than normal. As long as the practices introduce into the body toxic materials and the sufferer's habits are such as to cause the body to retain its own metabolic wastes, then the body will protect itself against a death-dealing situation by getting rid of its problems any way it can. An ulcer is created in two ways. First, a lesion can be created by the body through self-autolyzation of its tissues. The body causes the self-digestion of a hole to the surface in the case of a boil or pimple. It is the body that forces toxic materials into the hole it has created to the surface. It is the body that creates the tremendous pressure necessary to keep the pus and debris near the surface in the form of a boil until drainage or expulsion occurs.

Just so it is the body that causes the ulcer in one way or another. Probably the leg ulcer was caused by the body's collection and concentration of poisons in a given area until the cells and tissues of the area were totally destroyed. Then the body utilizes the open sore as a drainage outlet much as a teakettle will discharge its steam through a blown hole after the hole is blown. When aloe vera, comfrey, or certain pharmaceutical preparations are applied, they do not solve the body's problems. Herbs and drugs have not the intelligence or power to create cells and new tissue to bridge the chasm or gulf that constitutes the ulcer or lesion.

What happens is that the poultice or drug application applied to an open sore poses a new danger. Absorption of poisons from the outside causes the body to change strategy. Where it had been exuding poisons to keep them low, the body is now absorbing poisons there. To obviate this new threat the body closes up the dumping ground and seals it off from the outside by scarring it over.

Though the body healed the ulcer, it is now worse off than before. It is retaining the toxic material previously expelled through the open sore or ulcer. Either it must now create a new extraordinary outlet or suffer the retention of the toxic materials it previously expelled through the ulcer. Had the ulcer sufferer fasted, the ulcer would have healed more quickly than with the application of a poultice. Moreover, the body would, under the fasting condition, be free of the input of toxic materials and toxigenesis due to enervating habits. Under this condition it can accelerate expulsion of toxic materials through regular channels. Once the level of toxicity has been reduced below a certain tolerance level, the body will promptly proceed to heal the ulcer. Healing takes place much more quickly under the fasting condition than any other. While fasting, the body can concentrate its energies and its material resources to the healing process, thus affecting healing much more speedily.

So, the comfrey poultice did not do anything other than become a source of irritation. The body "closed up shop," so to speak, at the ulcer site and did business elsewhere. Keep in mind that all healing is a body process and never that of drugs. And let us not mistake the drug nature of comfrey. It contains pyrrholizidine and allantoin, two quite toxic alkaloids or glycosides.

Are you telling us we'd get along better without doctors and healers? Does not nature furnish natural remedies for our problems?

I just furnished an example of the physiological modus operandi of the body under the influence of toxic materials. I had hoped that would suffice to dispel any ideas that healing can be effected by extraneous agencies.

Yes, we would be better off without physicians, miscalled doctors, and so-called healers. We do need teachers to help people see their errors concerning health. We need teachers to get them on the right biological track so they can lead healthy and happy lives. Nature never developed humans or other animals so that remedies are needed in the first place, and it never created remedies in the second place. These interpretations errant humans have ascribed to disease and healing phenomena are based on illusory appearances. The only remedy for any ailment is the capacity of the body to right itself once the assault upon it has been discontinued.

Aren't diseases caused by germs and viruses? Surely you can't mean that millions of physicians the world over are wrong about this?

We'll get into the depths of these matters in subsequent lessons. But the answer is no: germs do not cause disease. They can, at worst, complicate them secondarily. Bacteria are our symbiotic partners in life. Partners accommodate each other for mutual benefit. Viruses as an entitative existence are a medical myth. If diseases are caused by uneliminated metabolic debris, which is what so-called viruses are, then the medics have a point. But we Hygienists call that metabolic debris retained wastes, not viruses. "Viruses" are nothing more than the proteinacious debris of spent cells. Their accumulation can precipitate a healing crisis in the body. When this occurs, the body is likely to transport bacteria to the scene to aid it in cleaning up the mess, but the bacteria did not cause the problem. The habits and practices of the sufferer must be looked to as the real culprits. Once these deleterious habits and practices are discontinued, there will be no further toxic accumulations and thus the need for disease or healing crises will cease to exist. Sickness-free health will exist thereafter.

You say that disease is abnormal. Everyone has been sick at some time or other. Haven't you ever been sick? If everyone gets sick, wouldn't you say getting sick is a rather normal thing?

Yes, it is undeniable that disease and sickness are normal in our society. That is one reason there's a great need for enlightened Life Scientists to be on the scene. We can put an end to this misery.

> Let us not, however, confuse what is normal in nature and what is normal in a vitiated society. Disease is a normal body response to an abnormal toxic condition. But the toxic condition is, let us recognize, abnormal.

You talk about Life Science as a cure-all. Aspirin will cure a headache, at least for a while. Can Life Science cure a headache?

> Those practices which, aggregately, we term Life Science, are, indeed, a panacea, a cure-all. Correct diet and health practices build health, not disease. Aspirin does not "cure a headache." The problems remain as before plus the toxic presence of the aspirin itself. Aspirin merely causes our body to paralyze or incapacitate the nervous system. Just because you remove thermometers does not alter the temperature. The fact that the body finally expels the aspirin from its domain and reinstitutes the processes that give rise to another headache is ample indication that drugs solve no problems. Under the Life Science regime all causes of headaches are removed. Causes of health are instituted. This is the ultimate solution to the problem of disease and suffering. When there are no causes there can be no disease. When only the causes of health are indulged, only health can result.

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Article #1: The Return To Perfection by Dr. Herbert M. Shelton

Our word health is derived from the Saxon word for whole. Heal is derived from the same word and means to restore to a state of wholeness, soundness, integrity. Holy comes from the same root and signifies wholeness and purity of mind. Taken in its fullness of meaning, health means completeness and perfection of organization, fitness of life, freedom of action, harmony of functions, vigor and freedom from all stain and corruption—in a phrase, it is "a sound mind in a sound body."

Condition of Perfection

Health is a condition of perfect development, a state of wholeness and harmonious development and growth and adaptation of part to part of the organism, of organ to organ, with no part stunted and no part in excess. In this state of organic development lies the perfection and symmetry of beauty. Beauty is but the reflection of wholeness, of health. It is easy to demonstrate that the forms and proportions of man and of every animal and plant which are in their highest and most useful state are also the most beautiful.

When every bone is of the best form and size for its service in the total organism, there is perfect proportion; when every muscle is fully and proportionately developed, with just enough fat in the cellular tissues to round out the muscles, we have the highest beauty of form; when the texture of the skin is finest and the circulation of the blood most vigorous, the blood well nourished and freed of all waste, there is the glow and charm of the finest complexion. The highest beauty is the expression of the highest health.

Beauty Fades with Loss of Health

Partial beauty, fading beauty, decaying beauty—these are but the expressions of partial, fading or decaying health. They represent unsatisfactory and painful states of existence. Beauty belongs to glowing health and perfection of organization. It is impossible for us to separate these ideals. We cannot picture health in terms of the conventional, for contemporary man is far short of this wholeness of organization and vigor of function that is health.

A Picture of Health

If we try to picture health what do we see? A form of perfect symmetry and proportion; a clean, smooth, semi-transparent skin, with the red blood shining through, especially in the cheeks and ends of the fingers and toes; glossy hair that is full of life; clear, bright eyes that are full of expression and dance with life; rosy lips that smile with the joys of life; pearly white, sound, even teeth; a breath that is as sweet as that of a flower in the springtime; freedom from disagreeable body odors, indeed, where health is perfect, emitting an agreeable aroma; a body that is filled with activity, delighting in work or exercise; and a happy, courageous, mirthful, and hopeful disposition, and a desire to help others.

Such a picture of health can come only from the orderly, regular and perfect performance of the functions of life—from a sound heredity, a congenial environment and conduct that conforms with the constitutional nature of man. Health is the perfect combination of bodily organization, intellectual energy and moral power in harmonious unity. It means perfect organization of brain and nerves that are as finely proportioned as the bones and muscular system. In a healthy person we would expect to see the symmetry and proportion of head of the Cro-Magnon, not the asymmetry and disproportion of head of modern man.

A Perfect Instrument Perfect in Every Respect

As every organ of the body is essential to wholeness and integrity of structure and vigor of function, no organ can be spared. Not merely must the nutritive and drainage systems be perfectly adapted to the requirements of the brain and body, but the smallest and apparently least important parts of the body must be harmoniously and fully developed. As Dr. Nichols so well expressed it: "The smallest instrument out of tune brings discord into the harmony of life."

How is such a high state of health to be attained? How may we assure wholeness and fullness of development; vigor of function and freedom from disease and suffering? How may man be returned to that soundness and integrity of structure and vigor and force of life that he knew in the morning of his existence? If contemporary man is so lacking in health that he is but a puny specimen of manhood, how can he be restored to his pristine power and majesty? In a word: How may man be healed?

Living in Accord with Natural Law Produces Perfect Health

It should not require argument to convince the intelligent man and woman that this can be done only upon a basis of law—natural law—specifically, upon a basis of those laws that operate to make human life possible. All laws operate to make human life possible. All laws essential to the welfare of man are written in his own constitution. Every rule of human conduct, to be valid in promoting human welfare and happiness, must be in harmony with his nature. No law, no social custom (convention), no moral precept can have any reality to man that does not accord with his highest welfare. If it is not intimately related to man's highest fitness—physical, moral and intellectual—it cannot correspond to his highest ideals of truth, duty and enjoyment. The unperverted instincts of wild animals living in their natural homes are the laws of their lives. There seems to be no reason to doubt that man's instincts were once equally perfect guides in his ways of life. But if this was ever true, it certainly is not so today. Man's instincts have been so smothered and buried beneath a layer of cultural baggage that they no longer constitute reliable guides to him in his way of life. They have been "conditioned" until they are misguides.

Health-Sapping Perversions Begin Early In Life

Nonetheless it is true that even now instincts are fairly reliable guides to conduct in the young. But we begin the process of perverting these instincts almost from birth. Instinct does not leave us unwarned when we take our first smoke, but social usage demands that we ignore the warning and suppress the vigorous protests of instinct. We must learn to smoke, even now that we are aware that the end may be death from lung cancer. Today we may get our first smoke second-hand as mere infants. Smoking in the house has become almost universal. Many babies are sickened and even killed by the unintelligent practice of fathers and mothers filling the house with the poisonous fumes of burning tobacco.

We are not left unwarned by our first effort to develop alcoholism. The first drink of beer is obnoxious. Wine both smells and tastes fermented, and it is. The first drink of brandy or whiskey burns and bites, it smarts and stings as it goes down, there is protest every inch of the way. But we ignore these protests, we disregard these warnings, we are determined to "grow up," and the only way this can be done in our society is to become an addict of one or more kinds.

Bad Practices Produce Human Wrecks

Coffee and tea are reproaches to both our sense of smell and to our sense of taste. They produce a "high" state that shouldnot be mistaken for vigor and well-being; they interfere with sleep, keeping us awake for hours. But we ignore these warnings of the faithful sentinels of life. We suppress the urge to flee from such poisons. We are determined to *belong*. We want to be "one of the gang" even if we have to wreck ourselves in the process.

We have learned to take the miserable fragments of natural-foods with which the food processors and refiners have flooded the market, fragments that lack all appeal to our gustatory sense, and to add sweetening, colorings, flavorings, etc. to them to make them appeal to the senses of sight, smell and taste in spite of their unfitness to serve the needs of human nutrition. We eat them, little thinking that they do not represent true foods or that they may prove to be actually hurtful. We have found ways to get unfit substances by the guards that stand at the entrance to the alvine canal. We have found ways to deceive ourselves and to wreck ourselves without knowing that we are doing it.

Disciplined Correct Life Practices Will Restore Pristine Perfection

For the evils of ignorance the remedy is knowledge—for the evils of false ideas the remedy is truth. For the source of truth and knowledge we have nature—especially human nature. Only when truth and knowledge are universal can we expect men and women to cease injuring and destroying themselves in riotous indulgence in tobacco, alcohol, and foodless food. In the spread of Natural Hygiene lies the hope of the future.

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Article #2: What Is Health?

Health does not consist merely of the absence of symptoms of illness. It is a state of positive well-being that is evidenced by a constant state of euphoria. It is rarely, if ever, experienced by humans today.

Various States of Existence

We could well divide the people we meet into the following categories:

1. People who are definitely sick.
2. People who are on the borderline of sickness.
3. People who are apparently healthy.
4. People who enjoy high-level health.

The first three groups constitute the vast majority of our population. Perhaps only a mere handful of our youth could fall within the last category. Great vigour and the buoyant feeling of well-being are extremely rare in our populace.

Delineating Health

Health is a state of soundness and integrity of organism; vigour and efficiency of function; and excellence of mental faculties. Much of this well-being springs from antecedent heredity but that is merely the base requisite to building and maintaining health.

Health manifests itself by such a feeling of tone in the entire organism that the body fairly glows with it and bespeaks it at every turn. There is cleanliness and sparkle to the eyes, clearness and fine color to the skin, vigor and activity and bounce to the step, and an evident feeling of joy of living that is infectious.

We witness traces of the pristine vigor and well-being in our youngest children. Rarely do we observe exuberant physiological excellence beyond the age of six. If we really want to see vigor we must watch the young of animals.

This vigor is possible to humans throughout most of their lives.

Lesson 2 - The Nature And Purpose Of Disease

- 1. What Is Disease?
- 2. Purposes Of Disease
- 3. Toxemia Is The Universal Cause Of Disease
- 4. Natural Hygiene Or Life Science Care Of The Ailing
- 5. The Character Of Disease
- 6. Questions & Answers
- Article #1: A True Perspective Of Health And Disease by Dr. Herbert M. Shelton
- Article #2: The Nature Of Disease: Its Cause And Purpose by Dr. Hereward Carrington

Inasmuch as we're having only one lesson specifically on the subject of disease, I bid you to study hard and absorb it well, for nearly all your clientele will suffer disease in one form or another.

In this lesson we will ascertain what disease is, what brings it about, what purposes it serves, and why it ends at all in view of the fact that it is supposed to be an occasion when malevolent microbial entities have gained a destructive foothold in our bodies. We will explore how a body in descendancy (as it is said to be in disease) and microbes in ascendancy reverse these tendencies.

1. What is Disease?

a. Disease, as a word, means very simply not at ease—a person is uncomfortable or suffering difficulties in maintaining energies for the functions he wishes to discharge and in keeping operative those faculties he wishes to exercise.
   In physiological terminology, disease means deviation from normal. That means that the body has deviated from regular functions. In a state of disease the body has rechanneled or redirected its energies so that it has less than usual energy for functions normally engaged in.

b. There are two distinct types of disease. The first type of disease serves a purpose and the second type serves none. Discerning these two types in your clients will be no problem at all. These two types of disease are as follows:
   1. The first type is constructive disease, often called acute disease.
   2. The second type of disease is degenerative. This results from organic impairment in which organs, tissues, bones, or other faculties have undergone destruction, distortion, or irreversible impairment.

Your service to your clients will largely depend on your ability to recognize whether a disease is constructive or degenerative. I repeat: this is not difficult. You will, regardless of these conditions of disease, still proceed by guiding your client into healthful practices, healthful practices being the universal panacea.

If diseases are remediable and reversible as most of them are, it is constructive. When disease can no longer be reversed through body remediable processes, it is degenerative. For instance, an arthritic's bony deposits can usually be autolyzed and restored to near normal. But when ankylosis has occurred due to destruction of bone and cartilage and subsequent fusing, healthful practices will restore health except for the ankylosis—it is rarely reversible. However, many diseases commonly regarded as degenerative can be corrected by the body, most cases of arthritis being among them.

2. Purposes of Disease

Disease affects the whole body, not just a part. Disease serves an important body purpose. The body initiates remedial diseases to accomplish a goal. The goal serves the whole body, not just an organ, area, or part. For instance, we can know we have diseased kidneys. But, in actuality, the whole body is diseased. The fact that the symptoms are noticeable only in the kidneys does not mean that the rest of the body is unaffected—it means that the kidneys are the focal point for the eliminative effort, the point at which toxic matters are put out of the body.

Everything that affects any part of the body affects the whole organism. If we have a bad back, the whole body is affected. We are concerned about the welfare of our toes, fingers, ears, legs, eyes, arms—we defend our whole being because our whole body is a single unit. There are no isolated parts about which we are unconcerned, either at the conscious or unconscious level of intelligence. We defend it all at all levels because it is all of us.

We don't have a disease here or a disease there. It's suffered all over. An inflamed appendix has been overloaded with toxic materials because the body is overloaded. Body intelligence puts the overload out through all channels of elimination, but despite this the load is so great the appendix is burdened with more than it can handle. This condition is the same in all remedial diseases where a local organ seems to be the only thing affected.

2.1 Disease Is Started by the Body

The body itself institutes the crisis known as disease. Life Scientists call this process a "housecleaning" or healing crisis. Such a procedure by the body is instituted when bodily integrity is compromised or threatened by an accumulation of uneliminated toxic materials. The level of vitality and the extent of the overload determine the type of crisis. Given high vitality as in an infant, a very low level of toxicity is tolerated. In infants, colds are frequent. Given low vitality as in most older people in our society, colds are a rarity. Because so few older people maintain vital bodies, the toxic overload drags them down into chronic diseases, degenerative diseases, and unsuspected pathology that leads to unexpected death or a "sudden onset" of cancer.

The body must be in a toxic state before it will institute a crisis. Neither bacteria nor anything else starts and sustains a crisis. Microorganisms are incapable of unified action; in fact they cannot exist where there is no food (soil) for them, and living cells are not soil for bacteria.

Bacteria are helpless against living cells. An "invasion" by bacteria such as we imagine in contagion never takes place. The bacteria that proliferate in a crisis are with us all the time. We harbor uncounted billions of microorganisms in our intestinal tract, on our skin, in our mouth and nose and other body cavities. Thus, the body is the ONLY, actor in the crisis of elimination or cleansing called a disease.

Bacteria and viruses cannot be blamed for disease.

Blaming disease on viruses or bacteria is an easy cop out. It's not good business to tell a client that they have caused their own miseries, so the medical profession has blamed suffering on everything but the individual's own failure in the game of living.

2.2 Disease Is an Eliminative Process

The body creates a crisis in response to a body need to free itself of toxic matters and repair damages. Consequently, the body withdraws energy from normal body activities and redirects them to the healing crisis.

> *I could tell you that I am suffering a disease at this moment. I'm not at ease with my larynx as you've noticed in my trying to clear my voice. I ate some cabbage for my evening meal. It was very sharp as it had some mustard oil in it, without doubt. Typically any irritant in the throat, esophagus or windpipe will occasion the flow of mucus which encompasses the irritant for the purpose of ejecting it from the body. In my case now, the body has started a mucus flow to clear the passage of what was regarded as toxic or irritating substance. This is a minor disease or unease. But it is disease and the body reacted to maintain its functional integrity.*

The body will reject anything that's irritating. For example, if dust is put into your nose, the body will secrete mucus to surround and eject the dust irritant. Or you may sneeze. In both cases, the body is acting defensively. Thus, all remedial disease is body-defensive action.

Bacteria do not invade organisms for they're always within the organism. Even after we've lost our intestinal flora after fasting, bacteria are still there. Bacteria can in many cases do what bears and many other animals do—hibernate or become dormant. Pasteur was not the father of bacteriology as many people think. Antoine Bechamp was the father of this science. Bechamp was a scientist in the true sense of the word. He took what he called microzyma from the chalk cliffs of France. He found that, upon furnishing water, warmth and other nutrients, the microzyma proliferated. These microorganisms had been entombed for ten million years in a state of dormancy. So bacteria have certain qualities for survival that most are not aware of.

The celebrated Dr. Lewis Thomas who heads the Sloan-Kettering Cancer Institute said, "pity not the man who has caught bacteria; pity the bacteria that was caught by the man." This is to say that humans furnish a very rough environment for bacteria. The body keeps them restricted within certain bounds. The body controls bacteria at all times. The body is master of its domain.

Bacteria do not control the body as medical people have led us to believe.

Following are two paragraphs from a "bible" on Natural Hygiene, Dr. Shelton's first major work, *Human Life: Its Philosophy and Laws*.

> "For ages the study of disease has progressed. One by one the various systems and system complexes that are presented by the diseased human body have been studied with painstaking care in both living and dead bodies. The study of pathology has reached a degree of perfection unknown to most of the collateral sciences that form what is called the science of medicine. Knowledge of pathology increased by leaps and bounds after the invention of the microscope, until today pathology is one of the most important studies for the medical student. Physiology, anatomy, histology and biology are all made subservient to pathology.
>
> "The study of disease has fascinated the student for ages. Health has received scant attention. Strange as it may appear, health has been considered of so little importance as to be unworthy of investigation. No schools ever existed for teaching the conditions of health. Medical schools existed to train the student in a knowledge of disease and cures. Even today no school exists that has as its purpose the teaching of the conditions and requirements of health. The conditions of a healthy life are but little understood by the various healing professions and still less so by the general public. Health is not in the professional line of the physician."

The medical world is preoccupied with treating disease with drugs that are currently in fashion. Their seeking out of bacteria and "viruses" as culprits in disease reminds me of a little joke we heard back after the Second World War. It goes like this.

During the Second World War a German civilian worked in a concentration camp. One evening he pushed a wheelbarrow to the exit gate for inspection by a guard. The wheelbarrow was loaded with rags. The guard, very conscientious about his job and the security of the camp and its assets, methodically went through the rags but found nothing. So he waved the worker through the gate.

The very next day the worker came through with a wheelbarrow of newspapers. The guard repeated the previous careful examination. The following day came a wheelbarrow of leaves. Again the same thorough inspection.

The day following this the worker came to the guard pushing a heavy load of dirt. The guard was not going to be fooled. He made the worker dump the dirt and spread it out, then laboriously reload it on the wheelbarrow.

The next workday came another load of newspapers. The guard was very suspicious that the worker was sneaking something out. So, in addition to other procedures, he tapped the handles and other places for concealed material that the worker might be stealing. But nothing was found.

This went on almost every workday for a year. On occasion the guard systematically searched the wheelbarrows but never found anything of value being removed from the camp.

By and by the war was over. A while later the former guard met the former construction worker on the street.

He went up to the worker and stopped him abruptly with this smiling demand:

"Hans, you have to tell me something. I'm no dummy. You were stealing something from the camp. I could never find it. Now that it doesn't matter, why not let me in on it?"

Hans replied, "Why, dummkopf, you saw it with your own eyes. I was stealing wheelbarrows."

Such blindness characterizes the medical profession. The purpose of disease is so evident that the medics can't see it. They are looking for something that doesn't exist, and they have no idea, after countless millions of man hours of chasing microbes and similar deadends, that viruses as living entities do not exist.

So they have gone into the phenomenon of disease elaborately and have chronicled over twenty thousand different diseases. They name them after the area that is most affected. Sometimes they have multiple names because of the number of organs or organ systems or tissues which art affected.

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3. Toxemia Is The Universal Cause Of Disease

Actually, there is only one disease, no matter how it manifests itself. And the disease, which we call constructive disease, is occasioned by the body itself and is known as a crisis of toxemia or healing.

3.1 The Seven Stages of Disease

There are several stages of disease. The underlying cause of disease in all stages is toxemia. Although toxemia may arise from many sources, it basically exists because of insufficient nerve energy to sufficiently eliminate exogenous poisons and body wastes. Toxemia is not broad enough a term to cover the whole poisoning process for it means poison in the blood. Actually toxicosis exists. Tissues, cells and interstitial spaces are also toxic-laden. In short, the whole body is toxic.

Diseases present many different aspects because they evolve with the progressing deterioration of the organism that suffers them. Disease has seven distinct stages. These stages correspond to the distinct differences of each stage of evolution.

3.1.1. Enervation

The first stage is not even recognized by physicians as a disease. Life Scientists call it enervation. Most people call it nervous exhaustion. Enervation is a state in which the body is either not generating sufficient nerve energy for the tasks the body must perform, or the tasks the body must perform may be greater than the normal nerve energy supply can cope with. In any event, the body becomes impaired, and an impaired body generates less nerve energy if the conditions of overwork or under-generation persist. Most people know when they are nervously exhausted.

Enervation can be caused by depletion of nerve energy in any of hundreds of ways. Sleep regenerates nerve energy. Obviously, insufficient sleep will not supply us with our needs. It will not fully recharge our batteries. We need sleep to regenerate nerve energy for the brain and nervous system.

Nerve energy is a form of electricity measurable in millivolts. Sleep laboratories have successfully substituted electricity in place of the body's own. When this is accomplished it is called electrosleep. It takes only two hours out of twenty-four to fully restore nerve energy in this manner.

Demonstrating that nerve energy is electrical is easy. If you mashed your finger, a message would immediately go to the brain and back would come a command to remove the finger from that which applied the pressure. Moreover, the brain would command the entire balance of the body to cooperate in the extraction of the finger from the offending pressure. Only electricity is capable of such speedy transmission. No chemical process or circulatory process is capable of this dispatch. It occurs only through a network of nerves with conductive abilities, and electricity is the only form of energy it can conduct. If you take a weak voltage and hook up to it while holding someone else's hand, the other person gets a shock immediately when you touch the live electrical source. I don't think anyone can doubt that we do generate electricity, and that is the form of energy we use to conduct our physical and mental activities. Sensations are transformed into electrical stimuli and forwarded to the brain. The brain interprets these and sends out commands based upon the interpretation. Thus, if you put your finger to a hot object, the finger is commanded in a flash to withdraw from it.

The foregoing is to demonstrate that the body is primarily an organism that works on the amount of electricity it generates and which it has in its reserves. If this supply is depleted or otherwise insufficient to cope with the needs of the body, then body functions become impaired, including the processes of elimination of both endogenous metabolic wastes and exogenous poisons introduced into the body. This impairment begets further impairment including diminishing the body's ability to restore depleted nerve energy. The body starts going downhill. The next stage of this decline is called toxemia.

3.1.2. Toxemia or Toxicosis

When toxic substances from whatever source saturate the blood and tissues, the lymph system and interstitial fluids, then the conditions of toxemia and toxicosis exist.

As functioning organisms, we generate a tremendous amount of toxic by-products. We generate enough carbon dioxide to kill us within a few minutes. If our lungs failed to function, carbon dioxide buildup and lack of oxygenation would overwhelm us quite quickly. We can accommodate only so much carbon dioxide. And this is but one of many waste products. There are trillions of cells in the human body. Tens of billions of these expire every day. They are replaced by new cells. The old cells are broken down by lysosomes, enzymes that reside in a little organelle within the cell itself. Upon cell death, these enzymes break the cell down into many smaller components for elimination. These components are cell debris. Some of these components such as iron, protein, and amino acids are recycled by the body. Some 95% of the body's iron needs and 70% of its protein needs are met by recycling. Certain other of the body's needs are met by recycling as well. This will give you some idea as to the immense providence and wisdom of the body in meeting its needs. Other components of the decomposed cell are the RNA and DNA. These are toxic while in the system. If they accumulate as they do in most humans in today's society, a condition of intoxication (toxemia and toxicosis) exists. These are what medical people call viruses, and they mistakenly attribute to this dead debris the powers of life and malevolence.

Tissue and blood saturation with toxic materials can be caused by both internally generated wastes and pollutants taken in from the outside which the body has not been able to eject from the vital domain. Intoxication occurs when we overload the body with toxic materials from the outside, or we fail to observe our capacities, and overwork, get insufficient sleep, or are subjected to great stress, or when any number of other factors deplete the body of nerve energy or prevent its sufficient regeneration. For instance, stresses, emotional shocks, or traumatic experiences can drain our bodies of nerve energy very quickly. It's just like shorting out the battery of a car.

At some level of intoxication we begin to experience the next stage of disease which is called irritation.

3.1.3. Irritation

Irritation results from toxic materials being sensed by our nerve network. Most of us pay this stage little mind, and certainly physicians do not pay it heed. When we feel itchy, queasy, jumpy, uneasy, or when we have bothersome but not painful areas, irritation exists. Tickling of the nose is a form of irritation. Collections of mucus along the mucus membranes irritate, although irritation is not painful. It is a gentle prod that moves us to seek comfort, to establish freedom from it. For instance, the urge to urinate or defecate is a form of irritation due to accumulation of wastes greater than the body feels comfortable with. However, the urge is not painful unless it is ignored until it creates too much pressure in its area. Near painful irritation forces us to deal with the problem.

When a person drinks too much alcohol we say that he or she is intoxicated. That's a good example of exogenous intoxication. While all alcohol intake is damaging to the organism, the body can speedily eliminate a small amount before much damage has occurred. Increase the intake, and the elimination is proportionately less and the damage proportionately greater. The first drink of alcohol occasions only irritation which we also call stimulation. But any toxic material, be it salt, caffeine, or condiments will irritate or stimulate. This is a condition wherein the body sets in force its defensive mechanisms and accelerates its internal activities. This might well be likened to an alarm aboard ship where all hands are summoned. A frenzy of activity results in a bout with enemy forces. Unfortunately, this often makes us feel good or hyper or even euphoric. It is distressing to see a euphoric condition arise out of a situation that is damaging to the organism.

If the causes of enervation/intoxication/irritation remain in force and the body can't cope with it the body initiates a responsive crisis called inflammation.

3.1.4. Inflammation

This is usually the stage in which physicians recognize pathology. It is the stage where sufferers are keenly aware of a problem, for it involves pain. As well, it involves bodily redirection of vital energies. The intestinal tract is closed down. Energy that would normally be available for activity there is pre-empted and redirected to the massive effort to cope with a severe condition of intoxication. Lest the integrity of the organism be dealt a mortal blow or crippled, the body musters its all to the emergency.

In inflammation, the toxicants have usually been concentrated in an organ or area for a massive expulsive effort. The area becomes inflamed due to the constant irritation of the toxic materials. When inflammation exists we are said to have an "itis," appendicitis, tonsilitis, hepatitis, or nephritis for example. Note that the "itises" just cited are all due to overburdening of four different organs of purification and elimination.

The names of "itises" are usually after the organ or tissue area that is inflamed. Thus if we have a cold we have rhinitis. If we have inflammation of the sinus cavities we have sinusitis. If we have inflammation of bronchial tissue we have either bronchitis or asthma. And so it goes. We have these peculiar pathologies because in each case the body elected to eliminate the extraordinary toxic load through the organ affected. For instance, asthma exists because the body has selected the bronchi as an outlet for toxic materials. The condition is chronic because the toxic condition is unceasing. While the sufferer continues to intoxicate himself or herself, the body continues to eliminate the overload through the bronchi or alveolar tissue.

Inflammation or fever is a body crisis response to a life-threatening situation. The body and the body alone creates the fever. It is an evidence or symptom of increased and intense body activities directed at cleansing and repair. The extraordinary energies employed for a fever are at the expense of energies normally involved in digestion, work or play, thinking and seeing, etc. Fever is a healing activity. The idea of suppressing it is equivalent to hitting a drowning man over the head so he'll cease his struggles. For instance, if rhinitis or influenza sufferers are drugged it amounts to hitting the body's healer over the head. Thus, the eliminative effort is suppressed, and the toxicity increases until other organs, usually the lungs, become saturated—not only with the toxicity but the drugs administered as well. When body vitality reasserts itself a condition known as pneumonia is likely to result.

Inflammation is the fourth stage of disease and is the body's most intense effort to cleanse and restore itself. The next stage of disease is destructive and degenerative. It will result if the causes of general body intoxication are continued.

3.1.5. Ulceration

Ulceration means that a staggering amount of cells and tissue structures are, being destroyed. Physiological systems are wiped out due to the body's inability to live in an unceasing toxic media. Where tissue is destroyed there remains a void. An example is a canker sore of the mouth. Lesions or ulcers can occur in other areas of the body also. These conditions are often intensely painful, for there are exposed nerves.

While the body may use an ulcer as an outlet for extraordinary toxic buildup thereby relieving itself, it will heal the ulcer if causes are discontinued, or if the toxicity level is significantly lowered. This process of repairing the damage is like patching up pants with holes in them. This patching up process is called induration.

3.1.6. Induration

Induration is a hardening of tissue or the filling in of tissue vacancy with hard tissue. Scarring is a form of induration. But in this stage of disease, there is direction and purpose in hardening. The space is filled, and the toxic materials that threaten bodily integrity are encapsulated in a sac of hardened tissue. The ulcer and the toxic materials are sealed off by the hardening of the tissue around them. This is a way of quarantining the toxic materials, often called tumor formation. It is this condition that is diagnosed as cancer nineteen times out of twenty when, in fact, no cancer exists.

Induration is the last stage during which the body exerts intelligent control. Should the pathogenic practices which brought matters to this stage be continued, cells and tissue systems go wild. They survive as best they can on their own. Cells become parasitic—living off the nutrients they can obtain from the lymph fluid but contributing nothing to the body economy. They have become disorganized. Their genetic encoding has been altered by the poisons. Thus, they are not capable of intelligent normal organized action within the context of a vital economy. When cells go wild in this manner, the condition is called cancer.

3.1.7. Cancer

The endpoint of the evolution of disease is cancer. It is the last stage of disease and is usually fatal, especially if the causes that brought it about are continued. Cessation of causes and indulgence of healthful practices may arrest it, for they can so revitalize the body that they may even destroy the cancer cells. It's all relative. Cancer cells live in a hostile environment but still divide and flourish as long as nutrients are available to them. Cancer cells may be regarded as cells that have become independent and have reverted to the status of uncontrolled primitive cells—cells that live entirely on their own as do protozoa.

These stages of disease are quite distinct in their characters, yet the lines are more or less arbitrarily drawn. This often happens in attempts at categorization where one form evolves into another. The dividing lines have no clear-cut delineation.

People sometimes ask when cancer begins. Hygienists or Life Scientists say that it begins with the first cold or rash of childhood. The first crisis a baby endures begins the pathological chain that leads to cancer. This evolutionary chain begins then because the phenomenon of life is one constant violation of the laws of life from beginning to end.

3.2. Viruses And Bacteria—Their Role In Disease

After reviewing the seven stages of disease it should be obvious that bacteria and so-called viruses do not cause diseases. Viruses do cause diseases if you call toxic waste materials of decomposed body cells viruses. Decomposed cell debris is precisely what virologists and physicians are calling viruses. They regard viruses as living entitities when, in fact, medics have not in all history observed any quality of life they ascribe to viruses. What is called virus is always dead. It's never been observed to be alive. It doesn't have the first prerequisites of life, that is, metabolic and control mechanisms. Even bacteria have that. I repeat that what is called viruses are nothing more than components of decomposed cells.

Some people insist that syphilis is caused by bacteria, more specifically spirochetes. Though the term spirochetes has given way to viruses called Herpes these days—that's today's fashion—it was easy to demonstrate that spirochetes were never responsible in the first place. When you ask a bacteriologist which comes first, the soil or the bacteria, he will answer that the soil must exist first for bacteria to thrive, for bacteria are presented a deadly environment by living cells. So, bacteria never exist in a proliferating state where there is no food or soil for their propagation. They multiply when there is feast, and they die off when there is famine or adverse environment, hence, bacteria no more create their food supply than flies cause garbage. The garbage must preexist the flies and, on the same order, the garbage or soil on which bacteria thrive in our bodies must preexist their presence and propagation. In other words, they do not cause the condition—they are there because of the condition.

When the body has a highly toxic condition such as inflammation, it will absorb bacteria from the intestinal cavity and transport them to the point where deadly materials have been concentrated. The bacteria then symbiotically assist in breaking up these toxic materials for elimination. Of course, the excreta of bacteria are toxic, too.

Ignorant physicians regard these bacteria not as our symbiotic partners in the process of combating disease, but as the cause of the disease. Koch destroyed Pasteur's original theories by his four postulates. The first two state that if a disease is caused by a certain type of bacterium, then that form of bacteria must always be present when the disease exists. The other says that the disease must always be occasioned by the presence or introduction of the bacteria said to be responsible. Although these cardinal principles are self-evident, so many exceptions existed as to disprove totally the germ theory of disease-causation. Koch laid down his postulates in 1892; the medical profession never has given them credence. To this day the profession clings to the disproven germ theory except that germs in the form of bacteria are taking a back seat to an even more elusive entity called a virus.

Bacteria exist in a multitude of strains, forms, and metabolic capabilities. Bacteria are versatile and in many cases change forms and lifestyles in keeping with the character of the soil available to them. Round bacteria can become rod shaped and vice versa.

It used to be said that pneumococcus caused pneumonia. But it was noted that this type of bacteria was absent in nearly half the cases. Moreover, administering the bacteria to healthy organisms never occasioned pneumonia. The plain fact that bacteria are in the human body as they are everywhere else is not recognized by the medical profession. Bacteria are symbiotic partners of all creatures in nature. In order to come to exist in nature in the first place, humans had to establish a state of symbiosis with all natural forces.

In the second place, if bacteria invaded organisms and laid them low as they're supposed to do—if the body could be laid low while in a state of health—then the impetus or momentum the bacteria had built up would become more pronounced and overwhelming as the organism receded in disease. It would be a one-way trip the same as vultures picking the bones of a cadaver. If bacteria and viruses cause disease, once they have overwhelmed the body and actually debilitated it, how does the much weakened body regain ascendancy? If you were to inquire into this deeply and pursue it to its logical conclusions, you'd find that, once a body has lost the battle while in a state of health, it's going to lose the war after being disabled.

3.3 Disease Complicated by By-Products of Symbiotic Bacteria

At their strongest, bacteria complicate disease because the byproducts of bacterial fermentation or putrefaction are deadly poison. In fermentation the by-products are lactic acid, acetic acid or vinegar, and alcohol. Putrefaction involves nitrogenous foods or proteins. The by-products of rotting protein are ammonias, indoles, skatoles, purines, etc. They are toxic within organisms, although the body can normally eliminate these poisons. In fact, our feces and urine are loaded with the by-products of protein decomposition, both from our body decomposition and bacterial decomposition.

You've heard of the ideal of living in a germ-free environment. That is an impossibility, of course. Trillions of bacteria are in and on our bodies at all times. If we were free of these minute organisms, we'd soon die. They perform many essential services for us which will be discussed in a later lesson. Suffice it to say that we live symbiotically with bacteria.

Bacteria are wrongfully blamed for our own indiscretions. It's the rare medic who doesn't find a scapegoat for his client and remove responsibility for problems from the shoulders of the sufferer.

Medical logic is not very logical. According to medical thinking, bacteria or viruses invade our bodies and destroy our cells. It would seem that our body defenses permit this by their intimations. It would seem that once these invading entities have a headstart they would not stop destroying the rest of the cells of the organism, especially as the first strike has crippled the organism and lessened its ability to defend itself. By medical logic, the bacteria are there in greater numbers, for they proliferate astronomically when they've found a feast situation. How can the body reverse this situation and recover? '

The medics believe that they administer drugs that kill off the bacteria so that the body can have a chance to recover. Also, they have people believing that medicines are healing agents or that they assist in healing.

When you start asking deep penetrating questions into the causes of disease, the medical theories fall of their own weight. They cannot be sustained in the face of self-evident truths. So we have to find the rational basis for disease causation.

Disease has a sole unitary cause. It is instituted and conducted by the body itself. It is the only organized entity capable of coordinating the various processes of disease. Disease is occasioned when toxic materials that we have generated within or taken in from without are uneliminated due to the body's inability to cope with them. These debilitate and devitalize the organism until, at a point where it can no longer tolerate the growing toxic load at its mean level of vitality, the body institutes a crisis, redirecting its body energies to the enemy within.

Let's go back to pneumonia. Physicians worry that when a person has a cold or the flu, it will become pneumonia. It occurs so many times among their patients that they make "heroic" efforts to prevent this. They administer drugs galore. Yet, pneumonia occurs so frequently despite the drugging that doctors feel powerless in the face of pneumonia, one of the primary causes of death in our society. The question arises: what causes pneumonia then? Does pneumococcus survive the drug onslaught and cause pneumonia anyway?

If colds are, as we teach, a cleansing process, how does a body that is in crisis get yet worse? If the body is eliminating toxic materials profusely through the respiratory tract as in colds and flu, then how do the lungs also become contaminated?

All cases of colds and flu recover very quickly if the sufferer goes to bed in an airy room with lots of natural daylight. Almost total rest is called for. Total abstention from food but plenty of pure water is needed. Under these conditions debility ceases in from one to three days. But, if the sufferer refuses to rest and continues to eat the same bad food that contributed heavily to the crisis in the first place, the eliminative effort may be less than the continued toxic buildup, in which case pneumonia may be a concomitant. But, if the sufferer goes to a medic and gets drugged in addition, the body turns its attention to eliminating the drugs. It may cease the cold or flu altogether in face of the greater enemy. The continued toxic buildup spreads to the lungs. The drugs and toxic materials may concentrate so strongly in the lungs as to cause death or to set the stage for cancer. Many autopsies reveal people who have had pneumonia or who have smoked or lived in highly polluted air have tumors, indurated sacs of lung tissue which encapsulate toxic substances in the lungs. Many cases of long fasts have been conducted in which pneumonia had been suffered many years before. The drugs that had been given had been noted to make their exit from the lungs during the course of the fast as the body autolyzed the tumors and expelled their contents.

Yet, despite the obvious causes of pneumonia, medical professionals are still saying that pneumococcus causes pneumonia when, in fact, more than 25% of pneumonia cases never have pneumococcus. Now that medics are getting more and more away from the germ theory of disease causation they're invoking viruses as the culprits. This is true only if by viruses we mean uneliminated metabolic wastes. But when you start probing into what viruses are and how they cause disease, you might call this the "evil spirit" theory of disease, for the medics imbue viruses with all the qualities of malevolent spirits.

Such blindness characterizes the medical profession. The purpose of disease is so evident that medics can't see it. Just as with the guard in the concentration camp, they are looking for something that doesn't exist and they overlook that which they see so plainly all the time.

Medical researchers have chronicled over 20,000 different diseases. They name almost every variation. They have multiple names because of the number of organs or tissue systems that exhibit symptoms. All of this is only one disease. And the disease, which we call constructive disease, is occasioned by the body itself and is known as toxemia or toxicosis.

4. Natural Hygiene Or Life Science Care Of The Ailing

4.1 The Work of Doctors Tilden, Carrington and Shelton

Just as there is one universal cause of disease there is one universal panacea! In mythology Asclepius had two daughters. Both were goddesses. One was the goddess of health and she was called Hygeia. The other daughter was Panacea. She was the goddess of healing. The name itself, in Greek, means all-healing or universal healing.

While these goddesses are mythological, they do represent valid concepts. Panacea can be achieved by a return to natural practices. Fasting is the quickest way to invoke the universal panacea. Just as the universal disease is a toxic-laden body, the universal panacea is establishing the most ideal conditions under which the body can cleanse itself of the toxicity and repair the damages suffered. Fasting is the answer. It works in all cases of constructive disease, that is, disease where organic damage of an irremediable nature has not occurred.

Some great luminaries have long since rediscovered the Grecian panacea. Dr. Jennings first employed it until Dr. John Tilden elaborated on it in his scholarly book, Toxemia Explained. Dr. Hereward Carrington wrote a few very illuminating volumes about Natural Hygiene. But Dr. Shelton probed deeper and farther afield than did all those before him. He built upon the shoulders of all who went before him and added a touch of his own genius. In our text section some observations of Dr. Carrington are presented. Here is a quote from Dr. Herbert M. Shelton about the nature of disease:

4.2 The Hygienic Definition of Disease

> *"The Hygienic system teaches that disease is a remedial effort, a struggle of the vital powers to purify the system and recover the normal state. This effort should be aided, directed, and regulated if need be, but never suppressed. What is this mysterious thing called disease? It is simply an effort to remove obstructing material which we call toxic materials from the organic domain and to repair damages. Disease is a process of purification and repair. It is remedial action. It. is a power struggle to overcome obstruction and to keep the channels of circulation free."*

Actually disease is really more than this if we view it in all aspects. Dr. Carrington has simplified Dr. Shelton's presentation somewhat. He says the following:

> *"Disease is an attempt of the body to free its cells and circulatory system of clogging and toxic materials. It is a desperate body rallying its remaining resources to the task of purgation and restoration."*

We have many illustrious forebears in the elaboration and creation of what we call Natural Hygiene or Life Science. Most notable among our forebears have been some truly great women. While women were spurned in the medical profession, the Hygienic movement was truly an enlightened and unfettered one. It welcomed women with open arms and, if we leave the renegade M.D.'s aside, their numbers almost equal those of male Hygienic professionals.

How many of you have heard of Louisa May Alcott? Yes, all of you have. But how many of you know that she was a Hygienist? That her father was a Hygienist? That her brother William Alcott was a professional Hygienist and was also a brilliant writer?

I'm sure you've all heard of Florence Nightingale, who gave new dignity and direction to the profession of nursing. She was a Hygienist.

How many of you have heard of Ellen White? She was a Hygienist who founded the religion we know today as the Seventh Day Adventists.

There are many unsung heroines among women who were Hygienic professionals. Mary Gove, Susan Nichols, Linda Burfield Hazzard and others were a credit to both the profession of Hygiene and to womanhood.

Perhaps the most famous Hygienist of the fair sex was Florence Nightingale. Her daring on the battle fields of eastern Europe still draws our admiration for the courage of her convictions. The British were fighting the Russians and more soldiers were dying behind the battle lines than on them. The physicians and their treatments were killing off the wounded and ailing faster than the Russians.

When Florence Nightingale arrived on the battle scene she really took charge despite the physicians. What she did was a very simple thing: she went to the rooms of the wounded and ailing and opened the windows for fresh air. She would not permit drugs. She gave the patients water which was against medical policy at the time. She rejected heavy feeding and, in fact, for many, any feeding at all. Being confined to a battlefield hospital had been a death sentence before. Now almost all the wounded and sick became well speedily. It's all history and Florence Nightingale became famous because of her tremendous success employing the mere rudiments of Hygienic methods. This is all the more phenomenal when you consider that Ms. Nightingale lived in a medical age and in a man's world. She defied the medics and won. She was truly a pioneer Hygienist. The world, despite its poverty on the health scene, is still richer for her having been amongst our forebears.

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5. The Character Of Disease

In order to understand disease, we must understand health. Health is the enjoyment of full faculties and functioning power. Disease is not the opposite of health but an expression of healthy vitality while under the burden of toxicosis. Disease is a body-instituted and conducted crisis for the purpose of purifying and repairing itself.

Disease is caused by indulging in practices or being subjected to materials and influences not normal to the human organism: that to which we are not adapted will cause disease.

It is a misconception that we have to fight disease. It will not occur unless it is caused. A huge catalog of materials and influences which are abnormal to the body could be given, but it's not that complicated. We need only to maintain the simple needs of life which build and sustain health. We should consume only pure water as thirst demands and wholesome raw ripe fruits, vegetables, nuts and seeds as genuine hunger dictates. We are frugivores, and it is to a diet of fruits as nature delivers them that we are biologically adapted.

Further, we are adapted to pure air, sunshine, rest and sleep, pleasant environment, emotionally balanced companions - in short we are adapted to a harmonious world. We are so constituted that health results when all our physical, mental, emotional, intellectual, and aesthetic needs are met. Thus diseases other than degenerative ones may be said to be body crises for the purpose of restoring health.

The cause, purpose, and nature of disease have now been delineated. Certain questions will be explained below.

5.1 Diseases Are Not Contagious

STUDENT: Is it true that diseases are not contagious in any sense?

INSTRUCTOR: That is correct. Diseases are not contagious in any sense simply because they are body instituted. We cannot transfer our toxic load to someone else. That should be self-evident. A Hygienist can go into a sickroom and not suffer a bit for it. Obviously most physicians and nurses and other people go to the sickrooms, even those housing the most so-called contagious diseases. They never contract the disease or suffer even though on occasion medics claim they do. You cannot transfer your toxic materials to another person unless you have it drawn out of you and injected into the person. The medics do, indeed, do that in transfusions. But the contagion here is medically induced rather than occurring within the realm of natural possibilities.

It is said that colds, flu, leprosy, and a number of other things are contagious. As we learn more, diseases become less and less contagious. Asthma, cancer, psoriasis, meningitis, poliomyelitis and a long list of other diseases have come off the contagious list. Measles, chicken pox, and other affections are still on the list of diseases said to be contagious. The only thing contagious about these diseases is medical ignorance. That is the most contagious of all.

5.2 How Plagues and Epidemics Develop

The reason that there seems to be "epidemics" is that the true contagion is an epidemic of similar bad habits. We all eat pretty much the same junk, are subjected to the same seasons, the same type of housing and, in many other ways, indulge the same health-sapping practices. It's no wonder that many of us suffer the same diseases. Like causes beget like effects. Of course this is modified in the human situation by the diathesis of each individual.

Thus we see that, within the context of a given family or group, people have more or less the same bad habits and suffer the same diseases.

This business about incubation periods of germs and viruses is strictly medical mythology. We'll get into the depths of that and study it methodically in later lessons.

To what are plagues and epidemics attributed? Today's epidemics are for the most part invented and publicized in America by the Center for Disease Control in Atlanta, Georgia. It is a federal service that does yeoman service for the medical profession. When the drug companies want to sell lots of flu vaccine, measles vaccine, etc. they get CDC to release the scare propaganda that stampedes the public into the physicians' offices for shots. To entertain the thought that vaccines injected into people makes them immune is an absurdity not worthy of serious consideration—it is a species of voodooism.

Epidemics today result, I reassure you, from mass indulgence of the same bad habits and subjection to the same pathogenic living conditions. It's no accident that almost 90% of the affections labeled generally as colds and influenza occur within a seven-month period of the year.

The reason epidemics occur in winter and not in summer should be obvious. If anything, microbial life is more active in summer just as we are and their functions are depressed in winter. But lo and behold, microbial forms of life are said to be more active and to cause epidemics. That's nonsense of course. In the winter we eat less wholesome food—we eat more junk. We do not exercise as much. We stay indoors and breathe foul air. In the summer we get more sunshine, more exercise, more fresh air, fresh ripe fruits—in short we live more healthfully in summer and less healthfully in winter. Conditions cause us to so live as to generate our diseases. General conditions cause general ill health. It is not contagion of germs but contagion of pathogenic conditions that create what are termed plagues or epidemics.

5.3 Drugs are Dangerous to Both Bacteria and Human Cells

Hygienists or Life Scientists deplore the medical practice of feeding the ailing and drugging them too.

When ill, the continuance of feeding alone is enough to thwart the healing forces within. But the addition of drugs so destroys vital powers that the body must often redirect its purification efforts to freeing itself from the more virulent poisons administered. Thus it is seen that medical professionals are death-dealing rather than being life-enhancing.

Yes, drugs kill bacteria. But they're just as deadly to all forms of metabolic life. That which deranges and destroys the metabolic functions of bacteria usually does likewise to the cells of all forms of life. Even physicians will tell you that drugs have no effect on viruses. Of course they don't have any effect on what they call viruses because that is dead cell debris that can't be made any deader.

In conclusion I assure you that disease is not something to fear. That's like being scared of your own body. If you fear anything fear your disposition to indulge in unwholesome foods and unwholesome living conditions.

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6. Questions & Answers

Are indigestion and acidosis diseases or just passing little crises?

> These are diseases even though usually of short duration. Anything that puts us at unease is disease. While there is no such thing as acidosis because we'd die long before our body fluids reached the acid stage, there is such a thing as hypo-alkalinity. A reduction in alkalinity from a pH of 7.40 to as little as 7.35 is enough to bring on coma and another five to ten points lower may cause death.
>
> Indigestion and what is called acidosis are usually caused by eating foods in incompatible digestive combinations and in eating a predominantly acid-forming diet. These are the primary causes of these complaints.

You said that diseases are not contagious. If so how do you explain away venereal disease? That's proven to be contagious.

> I've responded to this in a way before but I'll go over these grounds again. Conventional thinking has it that gonococcus and spirochetes are transferred from one person to another during the sexual act. The "infected" person will then develop either gonorrhea or syphilis. Even the medical profession is deserting this long held belief today in favor of the herpes virus as causing what is called venereal disease.
>
> First, syphilis is a figment of the medical imagination. Most of what is described as syphilis in the books of yesteryear were effects of mercury and sulfa drugs which the profession administered so liberally. What is described as gonorrhea is no more serious than the canker sores of the mouth. Both are eliminative steps by the body. The ulceration and suppuration represent the fifth stage of the evolution of disease. The so-called contagious factors, bacteria, are there because of the disease, not the cause of it. In fact something like 20% of those who suffer venereal diseases have neither gonococcus nor spirochetes. Saying that a pimple, ulcer or pustule in the sexual area is caused by either bacteria or viruses is like saying boils are caused by the same when it is generally agreed that boils are a result of filth in the body. Both are the same processes but occur in different areas of the body. Besides it must be recognized that the autolysis of tissue and the creation of inflammations and boils

are body actions, not bacterial or viral actions.

It is not true that venereal diseases are contagious. The U.S. Navy conducted experiments wherein it was shown that so-called infected persons could not infect healthy persons. When I was with a vice squad in Japan we had cases of so-called infected prostitutes who had been with dozens of GI's, none of whom contracted the disease. On the other hand there are many who have infections in the sexual area who have not been in contact with anyone, especially in small children who do sometimes have infections in the sexual area.

The concept of contagion is unproven despite appearances. It is a medical scareword that stampedes customers into the offices of medical practitioners. It's much like insurance companies who like to see fires and pay off for that makes it all the easier to sell insurance.

It seems rather impudent of you to say millions of scientists, doctors, researchers and teachers of medical science are all wrong. Isn't it just possible that you're wrong about disease being body action instead of bacterial or viral action? Isn't it just possible that the medical people who've been around so long are really right?

Old myths die hard, don't they? The older and more revered the myth, the harder it is to dispel. Your question would have done well nearly five hundred years ago when Copernicus presented his heliocentric theory of the solar system. It's just difficult to believe that everyone can be wrong. But I insist that the whole profession operates on a wrong premise. The fact that fasting will enable an organism to heal quickly in injury or illness and drugging will defer or prevent healing altogether is some indication of the error of the medical school of thought. The very word medicine is a misnomer. The word means healing agent or substance. There is not such an agent or substance. Healing is always the sole prerogative of the affected organism. There's not enough intelligence and know how in the collective knowledge of the world to effect the knitting of a bone within an organism. Healing is, I repeat, entirely a body process.

The impudence lies not with me but with those who deny the obvious and plainly evident truth. Age does not make beliefs true, and truth never changes with age. The belief that the world was flat was accepted by millions over nearly two thousand years but that did not flatten the world. Likewise if the masses of our people do not accept obvious truths, truths that account for everything in health and disease and are demonstrable when put to the test, then it is those who deny the obvious that are impudent. Should I repeat an old refrain: "I'd rather be right with a persecuted few than wrong with many."

I know about the swine flu hoax but is the measles vaccination really a hoax too? If children are exposed to the measles they get it; but if they have been vaccinated they don't get it, right?

It's general knowledge that the swine flu vaccination was a hoax. It is only a question of time before people will learn of the tetanus hoax, the rabies hoax, the whooping cough hoax, the measles hoax and other medical hoaxes.

If children are exposed to others who have the measles they don't "catch" it. It is not something that is contagious. What is "contagious" are the food habits, that cause it (any unhealthful living habits, wrong food combinations, stress, etc.). But children usually do not have measles if their system is too drugged and devitalized. And that's what happens when they're vaccinated. They cannot conduct the simple eliminative crisis called measles. If they cannot have measles they'll sooner or later have something worse—like cancer! Measles is a body instituted and conducted crisis to get rid of toxic accumulations. Vaccinal interference destroys the vitality necessary to have measles.

Measles is helpful, not hurtful. The body creates the measles and keeps the process in force until body cleansing has been completed. Contrary to medical myth, the body will not harm itself by conducting this or any other crisis. This is more than can be said for the vaccines, which are poisonous in themselves.

The harm said to be derived from measles is actually from the "heroic" drugging and treatment administered by the medical profession. Measles and other acute diseases are helpful body functions; the body is grappling with an overload of toxic materials. Vaccinations and drugging add to these toxic materials. They are never a "preventive" or an antidote. They can make matters worse but they have no intelligence or ability to help under any circumstances.

If vaccinations don't give us immunity, how about the antibodies vaccinated organisms produce? Don't antibodies really defend against a virus as in the case of measles?

This reminds me of a joke that goes like this: An Air Force Colonel who commanded a fighter wing was inspecting his pilots one Saturday morning. He stopped by a Captain and Lieutenant who piloted and co-piloted a plane. He asked the Captain: "What would you do, Captain, if your plane caught on fire and you couldn't open the overhead canopy?" The Captain repled: "Sir, I'd eject through the canopy." The Colonel rejoined with "You idiot, you'd be squashed to death in the process." Then he turned to the Lieutenant and asked him what he'd do. The Lieutenant meekly said, "Sir, I'd go through the hole the Captain made." Of such substance is this question. The truth is that the body does not create new defensive faculties in responses to a poison. Rather it has its defensive faculties destroyed. Putting a question that way is like saying that the body creates antibodies to defend against tar and nicotine in cigarette smoking because the body can tolerate ever greater quantities without the same ill effects as with the first cigarette of life. The body can't tolerate smoke any better after a thousand smokes than after one. The body no longer defends against the pathogenic poisons of cigarette smoke simply because its defenses have been destroyed, not built up.

Medical researchers will tell you that "antibodies" are merely presumed and not something actually demonstrable in the laboratory as a new body faculty. They are presumed because, when vaccines are administered, most recipients no longer get the disease. This is because the body's defensive faculties are destroyed, not enhanced. The body's ability to conduct the simple cleansing crisis known as measles is so debilitated by the vaccinal poison that it retains what would normally be expelled. It's no accident that cancer is now the number one killer of our children. When simple cleansing cannot occur, the body all the more quickly evolves to the next and succeeding stages of disease.

Antibodies are, I repeat, a medical myth, a figment of the medical imagination.

Well, you've just admitted that vaccines lower the incidence of measles. Isn't that a good thing since measles can cause brain damage?

How can I get this across that measles are not a bane but a boon. If the body is filthy inside, a cleansing is a good thing. Measles are a cleansing process. The body conducts the crisis called measles and it is doing so to help itself, not hurt itself. The body never injures itself except where injury is necessary as the lesser of two evils. Brain damage does not occur from a cleansing crisis. Rather, it is the drugs that are administered in such a crisis that are responsible for the damage. Physicians damage many people with their drugs and conveniently place all blame on the body's noble reparative efforts rather than take responsibility.

How can you prove that a sickness is caused by toxicity rather than germs? Do you base your statement on laboratory proof or on empirical observations?

Were germs the cause of disease there would be no remission. If they had the power to successfully attack living tissue and proliferate enough to lay a person low as is commonly supposed, then the results would be like the effects of rotten apples amidst good ones—they'd all soon be bad. Humans simply would not survive the ordeal and there would be no human race.

Should we fast people who were laid low with a germ-caused disease the fasting would not kill off the germs. Just as a rotten apple can spoil the good ones so, too, the germ proliferation would continue whether we are eating or fasting. Actually people who fast recover health rapidly whereas, if they continue to eat and take drugs, they recover slowly if at all.

Actually there have been fasts conducted under laboratory conditions in many hospitals and university medical centers with controls. It has been proven beyond doubt that the body cleanses itself under the condition of fasting and heals two or three times speedier when fasting than in alimentation and/or drug therapy. Medical experimentation with fasting has been conducted at the University of Illinois in Chicago and the University of Pennsylvania in Philadelphia. You won't have to delve much into the literature on fasting to come up with the results observed. All medical research has proven the truth of the toxemia causation of disease regardless of the misinterpretations of the researchers. Researchers usually interpret their data to suit those who are paying for the experimentation, usually drug companies or drug beneficiaries. If the experiments are too contrary to the ends sought they are usually buried quietly. Both laboratory evidence and empirical observations substantiate that disease is a body reaction to intoxication rather than germs.

How can we convince our clientele that they're responsible for their diseases and that it is not just a bit of bad luck that has befallen them?

Fortunately, you don't have to lay the load of responsibility on your clients' shoulders. Your clients will at first be "cure-minded" and want a way out of the dilemma. You can point out the positive way back to health without getting into culpability. You can have them fill out an extensive questionaire which we've developed and the answers to which are advance weighted so that you can suggest changes in the customer's living regime. You can make the process one of adventure and exploration by holding forth the benefits to be obtained by doing this and this and not doing that and that anymore.

Dr. Jennings had people fasting under a deception. He gave them bread and sugar pills, what we'd call placebos, and instructed the taking of water with them four or five times daily. With that he advised bed rest, fresh air, etc. He cautioned against taking anything with the pills other than water, otherwise they would not work. The results his clients realized were nothing short of miraculous. His patients were recovering 100% while his medical colleagues who were into heroic drugging lost patients in epidemic numbers.

You can impute health magic to certain foods or limited diets, even a distilled water diet. But you can assure a healthful outcome only within certain parameters. Hence the client will likely go along with you in the matter of his welfare just as he or she goes along with every charlatan in the medical or other fields of the so-called healing arts.

I reiterate that you can make a game of this, i.e., make it an interesting adventure rather than an onerous chore. The education and whyfore can follow the results. People are interested in

> results and you are there to show them how. People believe in the magic of nutrition and we're going to teach it to you as it really is. We'll teach it to you so that you can guide your clients back to health most speedily, not only in matters of diet but diet within the context of a thoroughgoing health regimen. You can always give instructions that are completely appropriate and straightforward that will enable the client to quickly regain health. Yet you can do it in such a manner as to make it exciting enterprise. You'll cultivate this confident manner of knowing just what is called for by sympathetic and empathic consideration of your client's problems as related to you through questionaire and verbal complaint.

I find no fault with the toxemia explanation of disease but it seems too utterly simple to be for real. Do you think our clients will go for this?

> I must repeat that your clients aren't interested in theories or explanations. They're looking for results, a magic carpet from a state of disease to a state of health. Just wave the magic wand of nutritional salvation before them within the context of a thoroughgoing health regime and they'll usually follow it religiously. Your expertise will awe them and once word of mouth has gotten around about the miraculous results your guidance makes possible, clients will flock to you.

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Article #1: A True Perspective Of Health And Disease by Dr. Herbert M. Shelton

We live in a day of sensational discoveries and "miracle medicines." Remarkable new cures and near-panaceas are frequently announced. Snake venom, artificial fever, frozen sleep, the sulfonamides, penicillin, streptothricin, blood plasma, powerful X-rays and ever more comes before us almost daily—these compete with sports, movies, politics, crime and other publicity for free newspaper space. So much is claimed for this parade of "miracle cures" and so many new discoveries are made relatively that the public is kept constantly keyed up with open-mouthed and wild-eyed expectancy. Perfect health via the medical promises seems always just around the corner.

At long last, "science" is staging a powerful and winning Blitz-Krieg against our ancient and most implacable foe—*disease*. With remarkable and sensational discoveries crowding so closely one upon the heels of another, the time is surely not far distant when universal health will prevail and disease will have disappeared from the human scene.

Not only is ours an age of remarkable "cures," it is also a time of equally remarkable preventatives. We now have so much "successful" vaccines and serums that there is no longer any need for anyone ever to suffer from many of the "diseases" that were previously so common. New serums are frequently discovered. We may look forward hopefully to the time when all "disease" will be conquered.

Surgery, too, has made rapid strides. It has grown much more daring. Today it invades physiological precepts which only a few years ago it would not have touched. With the newer advances in surgery added to the new "cures" and the new serums and vaccines, we have an almost ideal combination for the "conquest of disease." What these three groups of anti-disease weapons lack in power and effectiveness is completely compensated for by the many glandular products (hormones), and by vitamin and mineral combinations that are claimed to do so much for the sick. Surely, there is no reason to doubt that the *Golden Age* has arrived.

The intelligent and informed reader, however, will notice one very important defect in all these methods of "cure" and "prevention." He or she will quickly detect a deficiency for which no amount of shouting can compensate. It is this:

> *None of these methods of "cure" or "prevention" are designed to affect or even touch the basic causes of disease.*

Drugs may suspend vital activity such that symptoms disappear but they do not remove cause. They may kill germs but they also kill off patients. They do not clear up the systemic condition that permits bacteria to thrive and grow in parts of the body where they are not normal. "Frozen sleep" may temporarily check the growth of a tumor or cancer, but it does not and cannot remove the causes of cancer. Powerful X-rays may destroy a cancerous growth but they also destroy healthy tissue and cause further cancer while leaving intact the causes of disease. It cannot be emphasized too much that:

> *If a modality does not remove causes, it does not "cure".*

Serums and vaccines are admittedly capable of doing much harm, but they do not remove the causes of disease. Therefore, they do not enable us to “avoid” diseases, even those for which they are administered. We need to know that:

> *If they do not enable us to avoid the causes of disease, they cannot prevent disease.*

Surgeons may pull a tooth, extract the tonsils, cut out the gall-bladder, excise the appendix, sever and remove the ovaries and seminal vesicles, drain the sinuses, etc. but they do not thereby remove the causes of disease. Mopping up the water from a leaky faucet does not remove the causes of the leak. Removing effects of cause likewise does not remove the cause. It is time for us to understand the following:

> *If surgery does not remove the causes of disease, it cannot "cure" the disease. There is no "cure" short of removal of causes.*

Cutting out an organ, suppressing a symptom with a drug (medicine), destroying a growth, removing a stone—these processes touch effects only. They fail to restore health for three very vital reasons:

1. They do not remove the causes of ill health.
2. They are not the factors out of which good health is built.
3. They produce positive injury to the body.

We must look to constructive natural agencies, forces, and methods for "prevention" of disease and recovery of health. We must cease relying on destructive, unnatural or anti-natural measures, forces, agents and processes. Agents such as drugs that produce disease in the well cannot possibly produce health in the sick. Disease-producing agents and measures are not health-preserving. The popular methods of "prevention" and "cure" neither prevent nor restore health. Witness the ever-growing army of sick and suffering in spite of the ever-increasing size of our army of physicians, nurses and hospitals, and the ever-growing list of "cures" and "miracle drugs."

To be healthy, do not indulge the causes of disease. Only madness can lead us to attempt to be free of disease by submitting to means which cause yet more disease.

To "cure" disease, remove the causes of disease. It is the worst kind of folly to attempt to cure disease by ignoring its causes and employing modalities which are in themselves causes of disease.

To build health, employ the causes of health. It is absurd to attempt to build health by employing means and measures that are known to impair and wreck health.

For over forty years this writer has helped the sick and suffering back to health and has taught them how to remain well. I have employed a system called NATURAL HYGIENE. For over forty years my health school has been host to over 40,000 people. Dr. Shelton's Health School has been employing the health-building system of NATURAL HYGIENE with only successful results. At the Health School we have received a great preponderance of people who have suffered for years and "have tried everything" without avail. Our success in building good health in the great majority of these sufferers has been remarkable.

At the Health School we have no "cure" at all. We recognize that only nature (normal forces and processes of life) restores health. We accord to nature the conditions and the opportunity to restore health. We recognize that in nature and nature only exists the power of healing. The forces and powers of nature constitute the true panacea. Ours is a plan of living and a program of education that restores our guests to harmonious living with nature. If this plan of care seems too simple, too easy or not heroic enough, just think this over:

> *If this plan were ineffectual we would not have succeeded where all others had failed.*

I implore you to intelligently consider the preceding statements. Lay aside your previous conditioning and prepossessions. Do some real honest-to-goodness thinking. Then, when you thoroughly understand NATURAL HYGIENE, give it a fair and honest test. Heed the ancient admonition: "Prove (test) all things, hold fast that which is good (true)."

An old adage has it that "the proof of the pudding is in the eating thereof." The proof of the truth of the principles presented in NATURAL HYGIENE and of the value of the practices built thereon is in making use of it. "The wise will understand."

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Article #2: The Nature Of Disease: Its Cause And Purpose by Dr. Hereward Carrington

Primitive peoples, as we know, believe disease represents the entry into the patient's body of some evil spirit or entity—which was caused to enter it by some malevolent voodoo man or witch doctor. The unfortunate victim remains so afflicted until he rights a wrong, appeases the witch doctor, or secures the services of another whose "magic" is more powerful than that of the original spell-caster. When once this "evil spirit" has been removed, he is well and strong again; if he fails in this, he dies!

Strange as it may seem, a modified form of this same belief underlies public thinking and constitutes a basic belief of many physicians. True, we no longer believe that an "evil spirit" has entered into the body of a sick person, but it survives in the form of thinking that disease is an "entity" of some sort which is caught and which can be driven out or expelled by suitable medicines— something in a bottle! When this entity has been expelled, the patient is "cured." Such is the popular conception...

Disease: A Phase of the Healing Process

As opposed to this, the Hygienist believes that so-called "diseases" represent merely the bodily states or conditions, nearly always self-caused which are manifested in a series of symptoms, but which are in themselves the very processes of "cure." As Dr. Emmet Densmore stated, in his book *How Nature Cures*:

> *The hygienic system teaches that disease is a remedial effort, a struggle of the vital powers to purify the system and recover the normal state. This effort should be aided, directed and regulated, if need be, but never suppressed... What is this mysterious thing called disease?*

> *Simply an effort to remove obstructing material from the organic domain, and to repair damages. Disease is a process of purification. It is a remedial action. It is a vital struggle to overcome obstructions and to keep the channels of circulation free...*

Precisely the same idea was expressed by Miss Florence Nightingale, in her *Notes on Nursing*, when she said:

> *Shall we begin by taking it as a general principle that all disease, at some period or other of its course, is more or less a reparative process, not necessarily accompanied by suffering; an effort of nature to remedy a process of poisoning or decay, which has taken place weeks, months, sometimes years beforehand, unnoticed—the termination of the disease being then determined?*

So-called disease is, therefore, in the vast majority of cases, merely a *curative* effort on the part of Nature; *it is the process of cure itself*—manifested in a set of symptoms. Attempting to "cure" a disease, in the ordinary sense of the word, leads us to a ridiculous paradox: viz., an attempt to "cure" a "curing" process! The disease IS the "cure." The outward manifestations, the symptoms we notice, represent merely the outward and visible signs of this curative process in action. Any attempt to deal with or smother these symptoms merely retards the process of cure to that extent. Instead of treating symptoms, we should aim at the disease itself—or rather at the causes of the so-called disease. These are really the dangerous factors involved, and those which have brought about the abnormal conditions noted. Once we have removed these causes, the disease (so-called) disappears, and the symptoms vanish. The patient is then restored to health.

Viewed in this light, everything becomes simple! Toxins and waste material of all kinds accumulate in the body, over a period of weeks, months or years—finally reaching the point when they must be expelled or deterioration sets in. This violent expulsive effort on the part of nature produces a series of characteristic symptoms. The body attempts in every way possible to expel these poisonous substances — through the bowels, the kidneys, the skin, the lungs, etc.—with the result that these organs are overtaxed and break down under the load. Clogging and toxemia then set in more seriously than ever, and the patient is really ill. Obviously, the only way to relieve this condition is to stop adding to the waste material the body must eliminate, and assist it in every way possible to dispose of what is already there. Once the body is given a chance to "catch up," so to say, and cleanse itself to some extent, the violence of the internal upheaval will subside, and as this becomes more normal, the external symptoms will lessen and the patient is then said to be "convalescent." If this process continues, he ultimately becomes "cured."

I have used all these terms in a loose sense, because hygienists believe that the so-called "disease" is itself the process of "cure"—as we have seen. What we really mean is that certain causes have been removed, and as they are removed the effects disappear... What are these causes, and how are they removed?

The human body is creating certain poisons within itself by the very process of living. If these poisons were not constantly being excreted we should die. Normally, they are disposed of through the various eliminating organs—the bowels, kidneys, skin, etc. If this balance is maintained, the person remains well. If, however, the poisons accumulate more rapidly than they can be disposed of, abnormal conditions develop. These conditions are the so-called "diseases."

Now, it should be obvious that the speediest way to regain health, when this condition develops, is to stimulate the eliminating organs, and at the same time introduce no new poisons into the system. The former is accomplished by means of exercise, bathing, water-drinking, etc. But it is highly important to prevent the entrance into the body of material which might further clog and block it. The material is our food, and obviously so; for, aside from air and water, this is the only material we ever introduce into our bodies, under normal conditions.

The necessity of fasting in times of stress thus becomes evident. Food supplies us with essential nutriment, it is true; but if the body is in no condition properly to utilize this food, it merely decomposes, creates poisons and is pushed through the body without really benefiting it. The thing to do, therefore, is to withhold food, so long as this abnormal state lasts, thereby giving the eliminating organs a chance to dispose of the surplus material already on hand, and at the same time rest the internal organs, permitting them to accumulate a certain store of vital energy, which would otherwise be expended in the handling and disposal of this extra mass of food-material. The system thus becomes cleansed and purified. It is the simplest and most effective means known to us—and is the course prescribed by nature when she deprives us, at such times, of our normal appetite.

All Diseases Toxemic In Origin

Practically all diseases thus have a common basis and a common origin. There is a unity and oneness of disease, based on a common denominator. This, in a word, is toxemia. The differing diseases, so-called, are but the various means by which nature tries to expel this poisonous material; and the symptoms noted are the outward and visible signs of such curative action. Naturally developed inherent healing powers alone "cure"—whether it be a cut finger, a broken bone or a so-called "disease." All that the physician can do is to assist Nature in this remedial effort. Anything which tends to reduce symptoms merely prolongs the effort to that extent. Give Nature a chance, and she will heal in every case. A "cure" will invariably follow—whenever such "cure" is at all possible.

Most drugs so destroy vitality that body efforts as evidenced by symptoms are stopped. Pain is a warning signal—calling attention to a certain local area which is in dire distress. But this condition is merely a localized manifestation of a general condition. As Dr. Samuel Dickson remarked: "Properly speaking, there never was a purely local disease." Rectify the general body condition, and the local manifestation will disappear. No matter what they may be or where located, they will vanish when the body as a whole is normal.

Drugs do not act *upon the body*; they are *acted upon by the body*. The action we perceive is the reaction of the body against the drug. It is the effort on the part of Nature to expel the poison introduced into the living organism... Much the same is true of stimulants. These seem to impart "strength" to the body; but as we know, this is a false strength, denoting merely the waste of the vital energies. If you dig your spur into a tired horse, it will run faster to the corner; but no one thinks that the spur has supplied the horse with fresh energy. It has simply caused the poor animal to expend its reserve energies more quickly. It is the same with stimulants. The false feeling of strength which they impart is fictitious. The same is true of many drugs; *and the same is true of food*, which also acts as a stimulant, giving us a false feeling of strength when a meal is eaten! It is because of this fact that many people feel "weak" when food is withheld.

The simple, basic idea back of the hygienic system is that practically all "diseases," so-called, are but the varied manifestations of a single underlying cause; and that, when this cause is removed, the symptoms automatically vanish. This cause is toxemia: waste materials and foreign poisons in the body.

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Lesson 3 - Introducing The Life Science System For Perfect Health, Part I

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1. The Essentials Of Life Listed

Every factor in human well-being is also an element of nutrition. All needs are really nutritive needs. Deprivation of any single need may mean our demise or impairment of our growth, development or health. A single factor insufficiently or incorrectly supplied can lead to disease and suffering.

Most people are aware of the essentials of life. But they lose sight of these fundamentals as being factors and influences that are necessary to well-being within the context of society. Therefore, they're likely to violate the very laws of their existence and contribute to their own sickness and suffering.

When in a state of disease, most people do not realize they have brought it upon themselves. They are aided in placing blame outside themselves by a profession that takes the stance that they've had an unfortunate bit of bad luck or they have been invaded by some microbial enemy. Though the needs of the ill differ from those of well people only in that their conditions must be made favorable to recuperation, both ill people and the medical professionals undertake a course of treatment that compounds sickness. Both the physician and the sufferer enter into an attempt to poison the ailing body back into health. The fact is that drugging only makes a body worse.

The causes of health are very simple. Our needs do not change substantially when we become ill. Even illness itself won't occur if the needs of our bodies and minds are properly met.

The nineteen factor elements for optimal well-being are listed as follows:

1. Pure air
2. Pure water
3. Cleanliness—both internal and external
4. Sleep
5. Temperature maintenance
6. Pure wholesome food to which we are biologically adapted
7. Exercise and activity
8. Sunshine upon our bodies
9. Rest and relaxation
10. Play and recreation

11. Emotional poise
12. Security of life and its means
13. Pleasant environment
14. Creative, useful work
15. Self-Mastery
16. Belonging
17. Motivation
18. Expression of the natural instincts
19. Indulgence of aesthetic senses.

Let us explore the first two of these needs in detail.

2. Pure Air

2.1 Air Contents Normal to Humans

Pure air is relatively free of pollutants. It contains only the normal amount of carbon dioxide, carbon monoxide, inert ozone, formaldehyde, sulfur dioxide, nitrogen dioxide, ammonia and particulates, all of which the body is well-equipped to handle.

In other words, there is always water vapor, some carbon dioxide, and a minute amount of carbon monoxide in the air. Carbon monoxide isn't healthful in any sense, but we are equipped to handle it as naturally found in the air from natural sources. There are also particulates in the air including dust or the debris of decomposing products. Pollens, fragrant emanations and other natural effluvia are also present. There are inert gases in air—free gases in very, very minute percentages. Some may be inorganic and toxic, but many come from forms of life. All of these constituents are not a part of the air's chemical composition but are held suspended in it. They are known as variable components.

Air is composed of nitrogen (78.1%), oxygen (20.9%) and fractional parts of less than 1% of argon, hydrogen, methane, nitrous oxide, xenon, krypton, helium and neon.

2.2 Today's Air Is Loaded With Pollutants

Humans have adapted to impurities in air over millions of years. Unfortunately, air today is loaded with immense amounts of pollutants not normal to our adaptations. Even those which we are equipped to handle in minute amounts often pervade the air in overwhelming quantities.

For example, carbon monoxide is often in the air in urban areas in amounts sufficient to seriously affect well-being. In these same areas are huge amounts pf lead, hydrocarbons, and other unwholesome substances in quantities that we cannot handle. Today we get only a fraction of the oxygen-rich air we need for good health. Compounded with the problem of the general pollution of outdoor air, we tend to stay in our homes and workplaces where we constantly inhale our own aerial excreta and staggering amounts of pollutants otherwise generated.

2.3 Many Americans Pollute Their Homes and Bodies by Smoking

Many Americans subject themselves to lung pollution from tobacco smoke. Smoking is a deadly, poisonous habit, a narcotic addiction that slowly kills. Nonsmokers are harmed by the fumes as well as smokers.

We should get as much fresh air as circumstances permit. The ideal is to live in completely fresh air in a pristine state of nature. If nothing changed in our current circumstances except that we lived in fresh air constantly, life expectancy would rise by many years.

2.4 Normal Air Is Continually Cleansed by Forces in Nature

Normal air in nature has its fresh life-giving consistency because it is continually cleansed by the forces of nature. Particulates are continually taken up into the air due to activity in the form of wind and breeze. But, just as constantly, they are dropped down when the air masses become relatively tranquil.

For example, ozone constantly gets into the air but rises to the very top of the atmosphere where it remains. Methane gas constantly rises into the atmosphere from decaying organic matter, but other factors will decompose it back to some other form. Of course, much methane gets trapped within the earth by rock, by liquid overlay, and by other factors. Ozone and methane are both toxic, but it's rare that a great amount of them assault us at any given time or place.

2.5 Air Was Originally Brought to Its Present Consistency By Bacteria

There are certain bacteria called anerobic bacteria. They've been around for a few billion years and were the first type of life on this planet. Anerobic bacteria were photosynthetic in the beginning because there was no organic matter for their soil. It is theorized that these bacteria were able to take on the spark of life, utilizing minerals, light and water.

It is not ours to conjecture too much about the derivation of the original form of life, but perhaps it was some kind of anerobic bacteria that could use sunlight as the spark of life. These bacteria began using water, sunlight and inorganic substances with which oxygen was associated. They could synthesize these raw elements into their life needs. One of the by-products of their metabolization was free oxygen. In time the great amount of oxygen accumulated in the atmosphere that gives it the consistency it now has.

Theory has it that life began in the water medium. No oxygen was present in the earth's gaseous mantle because all oxygen was bound in some compound until the bacteria freed it. The original bacteria evolved into many different forms of bacterial life and into many forms of plant life. All cells are said to be composed of many bacterial cells that united and cooperated for the greater good. Essentially, all life is symbiotic, that is, it is fundamentally in harmony with all other life from the most minute microbe to the largest of the Earth's creatures.

On a practical level, we are concerned with air quality so that we can benefit from it all the more. We seek means by which to take in plenty of air in its purest form. With knowledge and understanding we'll be able to help others conduct themselves in their environments so as to be optimally free of polluted air. Anything that gets into the lungs which the lungs have not been equipped to handle efficiently and naturally is a poison. The lungs have a tremendous capacity for expelling particulates and pollutants. But they can be devitalized by the pollutants and stressed by unceasing efforts to remove extraordinary types and amounts of impurities. The lungs will eventually be overwhelmed and lung diseases often result. You may have heard of black lung, brown lung, emphysema, pneumonia and other ailments of those who live and work in polluted environments. This is especially true of those who work in coal mines, who smoke or who live in highly-polluted cities such as Los Angeles or New York. The lint and dust in cotton mills is notorious for destroying the lungs of those who work in them.

You may know, or know of, people who have lung cancer, emphysema and other afflictions because they smoke, work in asbestos plants or work or live in other heavily-polluted environments. While an atmosphere laden with innocuous dust is pathogenic if exposure is unceasing or for long periods, many substances such as asbestos, tobacco tars and poisons are very virulent in themselves. Despite the lungs best efforts at ridding themselves of these poisons, they are always seriously and deleteriously affected.

2.6 Air Pollution in the American Home

Most homes in America are very polluted places. They have filthy air. (The words filth, poison and pollution are fairly synonymous terms in this context.) People who smoke deliberately and knowingly are intentionally poisoning themselves. Smokers do not seem to recognize that tobacco smoke is very toxic and is one of the biggest polluters of all. But most forms of pollution are unintentional, even unknown.

Humans must have sufficient fresh air. We often read of people jumping from hotel rooms to their deaths on a sidewalk in preference to the tortures of smoke inhalation and fierce heat. In many cases there is no heat and even no imminent danger of suffocation, yet agony and fear prompts the death jump. Yet, all too often, smoke inhalation alone kills. How many times have you read reports of people who die in homes, untouched by anything but smoke?

Cleansers and detergents are used heavily in almost all homes. All of these substances are poisonous although some are less toxic than others. Some exude almost no odor. They are called biodegradable or ecologically-viable cleansers, detergents and soaps.

There is much carbon monoxide in many homes. Carbon monoxide is one of the primary pollutants which emanates from auto exhausts; it is very deadly in the human system, binding the oxygen in the blood. Carbon monoxide also destroys animal and plant life. Plants cannot assimilate it and it actually causes leaves to wither. In the home carbon monoxide is a by-product of cigarette smoke, heating units, and cookstoves that use anything but electricity—and more.

Air that contains sulfur dioxide is extraordinarily poisonous. It is to be found mostly in the air of industrial areas that burn coal. In these areas homes are very likely to be polluted with sulfur dioxide as well as with the extraordinary aerial pollution to which most American homes are subject under conventional modes of living.

Air pollution is becoming quite an issue, especially in some parts of America. In the East, acid rains are a problem for food raisers of all kinds. They are also destructive of buildings, autos and everything else. In the Los Angeles area rare forests and plant life are dying off due to the highly-polluted air. Many crops in that area are adversely affected. Gardeners as well as growers are just giving up. Los Angeles is becoming an area in which neither plant life, humans nor other animals can thrive healthily.

The purity of air is of great importance. Polluted air is a great source of debility and disease. Pure air is necessary for best health. It behooves us to have the best air possible. Unfortunately, the most polluted air is to be found in the Average American home!

Polishes, waxes and other household items give off a large amount of gases. Whether pleasant or unpleasant they're usually poisonous. Aerosols and sprays have become widespread in their use in our homes. Even "foods" such as artificial creams, toppings, etc. come in aerosol containers. The vaporizer is usually a fluorocarbon and/or vinyl chloride. Both substances are toxic and a highly toxic material is used to thin these substances to make them aerate or expand when pressure on them is relieved.

Chlorine is a deadly poisonous element. During World War 1 it was used as a weapon. Many fighters succumbed to it. Even though chlorine is dilute in city water, we can still taste it. Most water supplies have been treated with this toxic element. How many times have you run bathwater or showers and gone into the bathroom to be assaulted by accumulated chlorine? In bleaches and in some other compounds that are frequently used in laundering and cleaning, high concentrations of chlorine are usually released.

Most people do not realize it, but certain types of plywood and other products in their homes are bonded with formaldehyde, which is in insulation, plywoods and plastics. Formaldehyde is given off as a particulate in the air. It may be given off for years in homes and trailers. This substance is quite toxic and many deaths have been attributed to breathing it. Formaldehyde is especially likely to be found in new homes, trailers, mobile homes and new rooms where plywoods and bonded plastics are used.

Oven cleaners are particularly toxic. They're designed to cut grease and to act as solvent for other debris on enamel. Their fumes are particularly toxic.

Cosmetics are a very big source of pollution in some homes, especially where there are hair sprays and products containing fluorocarbons. The substances sprayed are usually very toxic in themselves, for they have copolymer residues of vinyl acetate. These residues are toxic when inhaled. Fumes from cosmetics that are in contact with the air may smell pleasant but they're also toxic. The only substances that are not toxic in our bodies are pure air, pure water and wholesome food. Anything else in our bodies is toxic and possibly a contributory cause of pathology.

Deodorants are extensively used in America, some one billion dollars worth annually. That's enough to mask quite a bit of body stench. Healthy people do not use deodorants because they emit relatively non-malodorous smells.

Deodorants and antiperspirants are used in minute amounts and the basic ingredients are quite toxic. They consist of a formulation of drugs designed to inhibit the body's secretory functions. This inhibition of body functions occurs because the deodorants are so toxic that the body keeps skin pores closed lest absorption of the toxic drugs occur.

Aside from their presence on the skin, deodorants give off particulates and vapors which are toxic to users and to others. They're particularly poisonous in homes because their pollutants tend to become cumulative. Air in homes, especially in winter, is retained for long periods of time and thus becomes stale as well as accumulating effluvia from the household.

Insect repellents are often used in homes. While they're not immediately as deadly to humans as to insects, the fact that they are deadly to insects establishes their poisonous relationship to all living things. Insect poisons should never be used in the home except under conditions of nonoccupancy.

As additional camouflage for odoriferousness and for its perfumes, many women use powder. Powders are formulated around a base of dust. There are toxic drugs in the formulation as a rule and the dust itself is also toxic. Its fumes or gases are toxic. Anything that gets into or on the body other than those substances normal to it are usually toxic and occasion irritation or intoxication. Usually their toxicity is on a low order, but they can cause pathology in sufficient concentrations. Added to other pathogenic factors of which there are multitudes in the human system and environment, maladies often develop. Certainly extraneous substances worsen and exacerbate existing pathology.

Carpeting can also be a source of pollutants. Long after the dust and odors that they normally give off may have subsided, the synthetics of which they're made decompose and pollute the air. The dust, dirt, filth and debris which carpets accumulate and the excreta that results due to their bacterial decomposition assault us. Among the poisons likely to accumulate in our homes from bacterial decompositon are carbon dioxide, methane gas and ammonia. Any decaying substance, whether it's garbage, meats or other foodstuffs, pollute the air with the byproducts of bacterial activity.

Electric motors in appliances give off pollution. Clothes driers give off carbon monoxide and nitrogen dioxide if they use gas. All drugs and "medicines," especially those that are sprayed into the mouth and nose, are toxic.

Preservatives and additives added to foods to enhance appearance, retard spoilage, etc., are toxic. In cooking their gases permeate our household air and are additional sources of pollution.

Volatile oils, especially from polishes; mustard oil, onions, garlic and other pungent herbs; teas and drinks, etc., are not wholesome in the lungs. If you eat an onion or a piece of garlic, the lungs are one of the eliminating organs through which their toxic components are expelled. The oils of frying foods are not only toxic and very carcinogenic, but, when inhaled, they tend to coat the lungs. Heated oils give off acrolein. While it may smell fine, it is really a trojan horse, for its pleasant odor is contrary to its toxic nature.

Cleansers are used almost universally. Most are chemical formulations that have a number of poisonous substances. Ammonias are usually a primary component, and they are very deadly.

It is possible for the airborne grease from frying foods to accumulate in the lungs. Workers in kitchens who fry food, even if they do not smoke, are likely to have lung problems faster than those who smoke. Grease is not easily expelled from the lungs. For example, a person who works in a fried chicken outlet and uses a fry-o-lator several hours each day may develop a chronic cough and even pneumonia from inhalation of aerated grease from cooking oils. (There are also many other causes of lung maladies and coughing.)

Mechanics get a different type of oil and grease on their hands. These oils are akin to the fats in foods. Mechanics do not leave oil and grease on their hands for very long, though many work with it throughout the day. They recognize the dangers because they suffer its irritations. Most mechanics scrub their hands frequently. Yet they suffer many problems, including skin cancer on their hands. Cells and tissues cannot withstand the unceasing assaults of oil toxicity.

Home air pollution occurs from anything that is burned, cooked or heated (except for boiling water). Stoves and heaters that produce heat by combustion within the home are especially heavy polluters. Wood stoves give off a lot of carbon dioxide, carbon monoxide, tars and other toxic particulates. If you can smell anything, you can be sure that the air is being polluted. However, some gaseous pollution is odorless. Combustion within homes is dangerous on two counts. Some of the pollution that occurs has just been listed. The other count is the partial use of oxygen from inside air. Partially deoxygenized air may not furnish our oxygen needs sufficiently.

Alcoholic drinks give off an effluvia that is unwholesome in the lungs. Of course, it is worse to drink alcohol. Alcohol, like the mustard oil of onions and allicin of garlic, is not used by the body because it is indigestible. The lungs are utilized as one of the avenues of excretion of alcohol. This is obvious because you can smell alcohol on the breath of anyone who has partaken of it. Breathing alcoholic fumes is not healthful and can occasion ill effects, especially for those subjected to breathing alcohol as in breweries.

Condiments, seasonings, spices, sauces and gravies are almost all toxic in the lungs. Black pepper, for instance, is toxic in the lungs, far more so than when in the stomach. All these substances stimulate and irritate when raw. But when heated their toxic components are liberated into the air, and some very toxic effects can result. Most condiments in the intestinal tract occasion irritation, indigestion and other discomfiting effects, especially laxative or diarrheal effects. These latter effects occur because the inflamed intestines rush the noxious matters, including food in the tract, to the nearest exit—the bowels. When condiments are in the air, due to diffusion in the air or due to heating, the irritation to the lungs is similar.

Perhaps you've heard of pruritus anus. This merely means itchiness of the anal region. It may be caused by body elimination of toxic materials through the skin in the anal region. However, it is more than likely due to the toxic components of condiments irritating the skin at the exit point. These can be deposited there by fecal matter before it is cleared from the area. Hot peppers and black pepper can cause this but so can any other condiment. The amount of irritation these occasion on the skin and in the anal region is an indication of their toxicity in the intestinal tract.

Cooking, brewing, boiling and baking of foodstuffs, especially as concocted in the average American home, occasions the pollution of home air with gases, particulates, tars and other unwholesome effluvia. Cooking destroys foodstuffs, and much of their substance is passed off into the air during the process. Cooked foods are harmful when ingested. Their aerial by-products are also harmful in the lungs no matter how much we say savor their fragrance.

Americans are inclined to bring all kinds of chemicals into their homes. Chemicals in the home, wherever stored, slowly oxidize and vaporize, unless tightly capped. But sooner or later they are opened for use. Some chemicals are quite common, notably toothpaste, gargles, lotions, cleansers, lighting fluids and antiseptics.

Antiseptics can also be called antibiotics. They're not in any way anti-septic because the term means "against poison." They're actually antibiotics for, indeed, they are destructive of life. They destroy bacteria wholesale. Likewise, antiseptics destroy living cells of skin, mouth and lungs. If any odor can be detected from so-called antiseptics, the substance will be harmful.

If all the foregoing sources of home pollution are not enough, there are human wastes and air usage to be considered. Humans give off toxic wastes from lungs and skin throughout the day and night. These wastes include carbon dioxide, carbonic acid and minute amounts of other exudates. Also, the air expelled from the lungs is oxygen-depleted. In closed homes (as they're likely to be in winter) the air becomes polluted from our own effluvia and de-oxygenized from breathing. We're likely to breathe and rebreathe spent air and its load of toxic wastes. All this, coupled with the multitude of other pollutants in homes and the outside air taken into homes makes the average American home a very polluted place.

As a health practitioner, you will want to recognize all the deleterious factors to which humans are customarily subjected. You will be looking for causes of problems from all sources. Knowing that the air quality in homes, outdoors and in factories can contribute to pathology is essential. You may take it for granted that most areas of inhabitation in America are polluted to some extent.

2.7 What We Can Do to Insure a Constant Supply of Fresh Air

By now you may be asking: "How can we insure that we get as much pure air as possible into our lungs in this polluted world?" Air that doesn't have more impurities than normal in nature is automatically pure.

Our message is that it is really impossible to have really pure air in this day and age. We can place ourselves in situations where we have the purest air possible. To get the freshest possible air we should keep our windows open. We should so live and conduct ourselves as to keep our home air free of all those processes and products that pollute it. There is no insurance that we'll have the best air possible no matter what we do or where we go but, relatively speaking, we can have pure air in the outdoors far from civilization, for nature is constantly cleansing the air.

If we live in colder climates where we must live in closed spaces for energy conservation, we can get heat exchangers. A heat exchanger brings in fresh air from the outside and removes air from the household. Through a dual piping and radiator system, the heat of the outside air is transferred to the incoming air to the point of equalization.

As an example, let's say the outgoing air is 72° and the incoming air is 32°. The air will tend to equalize at some temperature in between. The incoming air will tend to equalize at a temperature lower than their normal nominal midway point. This means some additional energy must be expended in heating incoming air to the desired temperature.

When you measure the benefits of heat exchangers in terms of health and the energy conserved through their employment, the cost is a good investment. In energy saved they're worth their cost in a few seasons. In terms of health they pay for themselves many times over very quickly.

Using a heat exchanger is just one thing we can do to insure more fresh air. Most of us can go out and exercise or play in fresh air most days. When we exercise heavily and vigorously in fresh air, we completely oxygenize our systems (in addition to gaining a multitude of numerous other benefits).

Exercise ventilates our entire body. Run, jog or walk. Play an outdoor sport. Any sustained activity that greatly accelerates body function will ventilate your system. Especially important is the oxygenation of our capillary system which results from exercise. Faster and more vigorous blood circulation insures better capillary health due to greater oxygen uptake and rejuvenation of function. Stagnation of the capillary system is a primary contributor to deterioration and disease. The intake of fresh air in conjunction with exercise is of inestimable value.

A device for improving air quality that is becoming popular is the negative ion generator. Research indicates that negative ion generators may have positive benefits, especially in the area of human response. Humans experience euphoria and well-being in ionized atmospheres. But little research has been done to determine whether the effects are beneficial or drug-like. No evidence has been developed to suggest that either negative or positive ions are any more or any less healthful than the other. What has been determined is that negative ions precipitate dust, participates and toxic materials from the air. If so, this is a positive benefit. I seriously doubt that ionized air gives a drug effect. In a very polluted home a negative ion generator might be helpful. Air cleaners that precipitate particulates, dust and other forms of pollutants are of benefit. Filters are also helpful. As health practitioners, you very well might have to live in or near a population center most of which are polluted, in order to reach more people. When we must place ourselves in a polluted environment, we must suffer the consequences. We can reduce the effect by employing all the technology we can in cleaning our air supply in polluted areas. Just as we are apt to close up our homes and pollute our air, likewise we can close up our home and bring in fresh air that has been purified or filtered. Then we should refrain from in any way contaminating our inside air supply.

Most auto pollution is along highways in most of our country and where there are concentrations of autos. In other areas the air is often stagnant and the exhaust pollutants of the auto become cumulative, sometimes until the air is deadly as in the Los Angeles area. The only suggestion we can make for avoiding carbon monoxide poisoning is to stay away from it. But this suggestion is of little value if you live in Los Angeles or New Jersey or similar areas. In low-pressure areas, carbon monoxide concentrates along the ground.

New Jersey, which is called "The Corridor State," has more auto traffic per square mile than any other state. It also has the most concentrated population. Further, it has heavy concentrations of chemical industries. So polluted is its air in industrial areas and along major highways that it is called "Cancer Alley." More cancer occurs in New Jersey than in any other state. Cancer among people who reside near highways in New Jersey is three to four times that of the average American.

These facts tend to indicate the dangers of, carbon monoxide. They are indicative that, along with all other causes of cancer, carbon monoxide and its concomitant pollution might be the additional straw that breaks the camel's back and causes cancer.

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3. Pure Water

Water deserves treatment equally as much as air. In fact, inasmuch as breathing is an automatic process and drinking is a consciously-directed process, water deserves more attention. Though every aspect of our well-being deserves adequate attention, those areas wherein our health is more likely to be endangered or undermined should receive the most detailed treatment. Getting the water we need is one of those areas.

Besides wholesome foods, only three items should ever be taken into our bodies. These are air (about which we've spoken), sunshine (which we'll speak about in another lesson), and water. We'll take up this subject next. At this stage suffice it to say that anything in or on the body other than wholesome foods, air, water and sunshine-all essential body nutrients—is unhealth! This stricture may seem severe. But we cannot exceed the limits of our adaptations. To do so is to subject ourselves to pathological consequences.

Your role as a health practitioner is to keep yourself and your clients in a regime of living as free as possible of the dangers inherent within the context of a "civilized" society. The word "civilization" is in quotes, for what kind of society can be said to be civilized if it harbors grave dangers for its members?

As promised, let's move on to the subject of water. What is water? What is its role in the body? Why do we need it so vitally? What kind or kinds of water should we have? What is the best source for our water requirements? As we get into the subject we'll endeavor to answer these questions.

The expression pure water is used throughout our treatment of the subject of water. If there's anything everyone wants, it is pure water. No one wants impure water. Yet, most people drink anything but pure water. Pure water is purely water-only water and nothing but water.

3.1 Best Sources for Humans

The purest water is distilled water. Inasmuch as an individual lives as he should he will get all or almost all his water needs from a diet of proper foods. Therefore, very little distilled water will ever need to be consumed. Distilled water should be a secondary source of water. Humans are not naturally water-drinking creatures, for they have absolutely no equipment for it as have natural water-drinking animals. Therefore, the proper diet for humans is necessarily water sufficient. A correct diet must contain the pure water that we require.

Fruits contain the purest water of all and also are the finest foods of all. The water in fruits is completely pure; that is, it is without any trace of inorganic minerals or other matters that are likely to combine with body fluids and clog up blood vessels, cells or interstitial spaces. Most Life Scientists are primarily and almost wholly fruit-eaters. (Bear in mind that many so-called vegetables are actually non-sweet fruits and that, technically, nuts are fruits, too.) Because we were almost exclusively fruit-eaters in a pristine state of nature and because a fruit diet is water sufficient, humans never developed water-drinking mechanisms.

Why does the body need water? What role does water play in the body? Why is impure water harmful to the body?

The primary role of water in the body is as a transport medium. It is also the medium for storage of needed organic compounds and electrolytes within the cells. This is accomplished by the water holding molecules and nutrient reserves in suspension.

Impure water harms the human organism because the impurities are invariably poisons. While our foods contain water, water from non-food sources is not our medium for food or nutrients. Minerals in water are dissolved from soil and rock and have no more virtue in the human body than if the soil or rock itself was eaten. The body simply cannot handle inorganic minerals. Inorganic minerals circulate in the body as poisons. Anything at all in water aside from wholesome foods is, therefore, a pollutant or a poison.

Thus, people who drink water are likely to imbibe a plethora of poisons. Different people drink water for different reasons. For instance, many health seekers drink spring water, well water, sea water and other kinds of water in the mistaken belief that it is healthful.

Let's take a closer look at water drinking in America and examine certain probabilities in regard to water-drinking.

- Some people, including Life Scientists, drink little water because they are primarily fruitarians. Their diet is water sufficient.
- Some people drink distilled water either because they are health-aware and want pure water or because their regular water supply is unsuitable for drinking. By far the larger number of Americans who drink distilled water do so because their regular water is so bad, not because of any overall health orientation. They may be said to be undertaking a healthful measure in preference to an obviously unwholesome practice. In either of these cases of people who drink distilled water, water drinking is indulged because of a more or less unwholesome diet (a cooked diet containing salt and other condiments). Our natural diet is water-sufficient.
- Some people deliberately drink mineralized waters in the mistaken belief that their bodies need all the minerals they can get. These are usually "health-oriented" persons who do not realize that

minerals in water as picked up from soil and water are the very same as the minerals in soil or powdered rock and are not used by the body. They shun chemicalized waters from water systems.

- The majority of people drink whatever water is available—mineralized; chemicalized; from their local water system, wells or springs. These people consume a diet that is either water-deficient or so unwholesome as to require heavy supplies of water.
- Life Scientists sometimes drink distilled water. They may do so because they are fasting and not taking in water from food sources, or they may drink distilled water to supplement the water present in their diet. In the latter case, extra water may be required during particularly hot weather, especially if the individual engages in vigorous physical activity.
- Tens of millions of Americans drink soft drinks, coffee, tea, cocoa and a host of other water-containing concoctions when thirsty. These people entertain and stimulate themselves in the process of getting their liquids. While pure water is, in itself, very satisfying to the thirsty, many seek other gratifications which they get by consuming the kinds of drinks just mentioned. All drinking of anything but pure water is less than ideal and most often is quite unwholesome and disease-producing. For instance, many drink fresh vegetable and fruit juices to quench their thirst. Juices, though fragmented foods, are, nevertheless, foods. They should not be used as substitutes for distilled water.

3.2 Chemicals Used in Water "Purification" Are Toxic

Most Americans drink liquids and most liquids taken contain inorganic minerals, fluorine, chlorine and other so-called "chemicals of purification." Bacteria in water are far less harmful than the chemicals that are used to destroy them. Their presence in water usually indicates that the water contains organic matter, but bacteria in water are no more harmful than those we constantly take in by air or those which populate our intestinal tracts. However, water we drink should be pure. No water system in this country furnishes pure water. Invariably it is polluted in some harmful way.

Drinking tap water is fraught with dangers. The US. Public Health Service released the results of research and surveys of waters from various water systems in the U.S. Over eighty carcinogens were found. Most of these were from the breakdown of chlorine in water systems or its combination with other chemicals. Chlorine itself is a carcinogen. Chemicals from agricultural fertilizers, chemical industries, pesticides and homes pollute our waters. Sulfur, iron, gypsum, calcium, magnesium and other inorganic minerals are toxic in themselves. Purification systems, so-called, do not remove these minerals. They are designed to remove bacteria, which are far less harmful. Purification systems add chemicals rather than remove them (except in some systems where the water supply is deadly at its source). This is especially true of some waters in Louisiana and New Jersey.

Fluorine is added to water, not as a purifier, but as a mass medication. This waste product of the chemical and metals industries has been rammed down our throats, so to speak, in the mistaken belief by many that it will prevent tooth decay. Obviously, it doesn't work, for tooth decay is just as rampant today as before—in fact, it t is worse than ever. Fluorine is in the water of more than half our population's water supplies. Inorganic fluorine compounds are carcinogenic and deadly. Poisons are never the basis of health. Our teeth are sabotaged by dietary practices also.

3.3 Spring and Well Water

As mentioned earlier, many people think mineral water, well water, spring water or other impure water is just what we need. Spring water, waters from mountain streams and waters to which certain minerals have been added are quite popular. In New York City and in some other places, such waters are the rage. Many people in these places will not touch their city water supply for drinking purposes. But processed waters which have had mineral concoctions added and waters from springs and mountain streams are in vogue. While these waters with their mineral content cannot possibly be as harmful as the mineralized and chemicalized water supplies, they are, nevertheless, very unwholesome. Distilled water is available in New York City but it is relatively neglected in favor of so-called natural waters.

Many waters, especially imported spring waters, are prized for their peculiar tastes. Some waters are carbonated to give them extra attraction. But all such waters are harmful. Pure water is pleasant to drink and has no taste or kick whatsoever. If you're thirsty, pure water is the most satisfying of all, even without any taste thrill.

Though you should get most of or all your water from your food, you should never try to get anything from water but water.

For the purposes of emphasis and enhanced understanding, we will repeat what has already been stated about water: Anything in water as drawn from tap, well, spring or stream is inorganic and harmful. The body cannot digest or metabolize inorganic substances. Other than air, water, and sunshine, the body cannot utilize anything except organic compounds as found in food. All else is poisonous. Inorganic materials cannot be utilized; they clog up our bodies if not eliminated, and they combine with body fluids, oils, compounds and wastes and form substances that cake our vascular system. They are deposited in our joints and muscles, interstitial spaces, organs and lymphatic system. Both deranged foods, that is, those that have been cooked and processed, and impure water contain inorganic minerals, which are harmful to our organism.

People with the debris of impure water and cooked food in their systems usually do not eliminate all of it. When these substances are in an active state, that is, when they are circulating in the system, the body is in a frenzy. Leucocytes (white blood cells) proliferate, pulse rates increase, and often enough, these people are stimulated. The stimulation usually begins within 15 to 30 minutes after drinking or ingestion and lasts until the materials are eliminated or sidetracked in the system—as in plaques which form in arteries.

Just as impure water contains harmful, non-usable inorganic minerals, so do cooked foods. This topic will be covered in depth in a later lesson.

There are several schools of thought in this country that advocate drinking mineral-containing water such as well water, spring water and mineral water. They say that mineral-containing water is needed because the body requires the minerals from it. In addition, they say that distilled water causes heart attacks and leeches needed minerals from the body, causing tooth decay, pyorrhea and osteoporosis and that distilled water is dead water and fish cannot live in it. They contend that water containing minerals will correct these problems as well as preventing them from happening in the first place.

Proponents of mineral-containing water attribute the superb health of the Hunzas to mineralized water. The Hunzas are one of the healthiest peoples in the world. They supposedly drink a frothy white mineralized water from glacial runoff.

Of course there are valid responses to these arguments. To the implication that we need the minerals in impure water, we point out that, if our diet is proper, we get more than we need of minerals of all kinds. Further, the minerals in water are totally unusable, thus making them a toxic burden within instead of nutritional. Water is needed in the body for itself, not for any incidental impurities it may have picked up from soil and rock.

Rather than distilled water causing heart attacks, it is the other way around. Distilled water does not leave behind any indigestible debris from unusable inorganic minerals. Those who drink mineral-containing water are often found to have heavy plaque in their systems. The rejected minerals which the body cannot use often combine with cholesterol and other fatty substances to form plaque. These block the arteries. The rejected minerals are also likely to be put aside in the body in spaces that exist. Notably is this so in the cranial cavity where the spaces of lost brain cells are filled in by minerals, thus leading to ossification of the brain. This is a cause of senility.

How pure water could leech minerals from the body has received a thorough refutation from physiologists. An important thing to remember about water and everything else put into the body is that it is done unto by the body. It does not do unto the body. Those substances which seem to act on the body, as in the case of unmanageable acids, compounds and chemicals, are poisons. The body is the master of its domain. Following this reasoning, soft water does not leech minerals from the body. The body uses water. Water doesn't use the body. Water and other foodstuffs are under the control of the body while in the body. The body does what it wants to with water. It excretes the water if it's not needed. Along with the water it excretes mineral matter that it no longer requires. The kidneys are the final arbiters of what will be excreted and what will be returned to the body economy for use. For instance, the body recycles about 95% of its iron regardless of the water we drink. It also recycles many other mineral compounds or salts. The body is very conservative with its nutrient supplies.

An example is eating watermelon. If you eat watermelon, your urine will be completely clear. There will be almost no mineral matter in it to color it. The very pure water of watermelon that is unneeded by the system is speedily expelled. Very little mineral or other matter will be in it, for the body is doing unto the water. The water does not circulate freely in the body. The body retains or expels the water according to its need.

On the other hand, if you are fasting or under any other condition in which you're not taking water from food and the body is conserving its water supply, your urine will become very dark yellow because the body is giving up more wastes and more mineral matter relative to the water it is expelling.

What the Hunzas (or North Pakistan) drink is not responsible for their health. Water is a need of life but total health is dependent on healthful living. Water is but one element of many. Travelers who have gone there find that the Hunzas really drink very little water. They're primarily fruit eaters. The water they do drink is permitted to settle first. As the glacial runoff comes rushing down the mountains it picks up minerals as debris rather than holding them in solution. That is, the water has silt in suspension rather than minerals in solution. This silt is the basis of Hunza health, true, but because it is deposited on their fertile gardens, not because they drink soil and rock in their water. The water itself comes from relatively pure snow. Very few minerals are in solution by the time it has rushed from the heights to their catch basins below. Only a few minutes of time in contact with minerals accounts for the mineral complement of these waters.

Again, how can waters be responsible for a condition of health? If drinking water was the secret for great health, then all we'd have to do is drink the kind of water we need and not worry about food, exercise, sleep or anything else. Water would take care of everything. Healthful living would be unnecessary.

Next let's examine the argument that pure water is dead water and that fish can't live in it. As you know, many fish live in the ocean. We can't drink sea water, for we'd quickly die. It has a heavy complement of minerals - sea water is richer in minerals than any water in the world. Other fish live in rivers, creeks, ponds and lakes. You don't drink water out of rivers, ponds and other places where fish live. Such waters contain the excrement of fish and other creatures, decaying leaves and other organic matter. In fact, we don't drink from fishy waters for a very good reason: It's unfit to drink. Further, water, whether fish live in it or not, cannot be described as living or as dead. In short, there can be no living water, for it is an inert lifeless compound at all times.

It is true fish cannot live in distilled water. Distilled water has no air in it. Neither does it have the food supply a fish requires. Thus it can be seen the argument is without any merit.

To repeat: If we're eating the diet to which we're biologically adapted, we do not have to drink water except on those occasions when we must use unusual amounts of it to refrigerate ourselves as in heavy physical labor in hot weather.

Why do most Americans drink so much water and other liquids? Cooked food eaters require copious amounts of water. People who take in so many irritants or poisons as found in heat-deranged foods; in condiments, especially salt and other seasonings; and in unsuitable foods such as grain and animal foods, need this water to help hold toxic materials in suspension so that they offer less harm to cells and tissues.

People who eat a wholesome diet require less water than people who eat an unwholesome diet. On wholesome diets there is usually sufficient water in the foods to meet all needs whereas, on an unwholesome diet, abnormal amounts of water are required to help cope with the irritants, stimulants, excitants or poisons within.

Edema or dropsy, for instance, is a disease of those who eat cooked foods and/or salts and other condiments. The body takes on extra water to hold these toxic materials in suspension. Until the body can dump these they are stored in likely areas, often the feet and legs. A few days of fasting enables the body to catch up on its housecleaning. It thus will expel the waters and purify its fluids and tissues.

This concludes our examination in depth of the first two essentials of life, air and water. In the next lesson we'll keep up consideration of other of life's essentials.

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4. Questions & Answers

With the catalog of things you've listed I feel uptight even considering using a bar of soap around the house. Isn't there anything we can use that is non-polluting with which to clean house, floors, clothes, dishes and our bodies?

> Yes, there are products that are relatively non-polluting and which yield excellent results. For cleaning clothes you should consider Basic-L from Shaklee products. For cleaning floors, dishes and even cars a solution of Shaklee's Basic-H will do wonders. Amway and other companies also produce similar non-polluting biodegradable products.
>
> For your body you need no soap or cleanser. A good fiber brush or washcloth is all you need while under a shower or in a bathtub. If you want to use a cleaner on your body, Shaklee's Basic-H is fine.

Can't we use any cosmetics at all?

> Of course you can use cosmetics, but keep in mind that not one is healthful. Moreover they are unneeded by a healthy person. They detract rather than add to beauty. And they only compound skin problems for an unhealthy person. Beauty is natural. When in health your eyes and skin radiate their condition, just as they look sallow, pallid and in poor tone when unhealthy. We advise against the use of cosmetics under all conditions. Also, skin creams and oils of all sorts, including suntan oils and lotions only complicate the problem they are used for and cripple the body's oil producing ability.

I have a friend who smokes a pack and a half of cigarettes daily, drinks beer and eats junky foods. He appears to be in excellent health and is quite active. By all that you've said he should be a corpse. How can you explain something like this?

> How old is your friend?
>
> **34.**

Your friend is still, obviously, only a babe relative to potential and is still living on youthful capital. He might continue this pattern for another five, ten or even twenty years, but the penalty for not meeting life's needs correctly must sooner or later be suffered.

When you read the disease statistics and see the human wreckage resulting from the tobacco, alcohol and junk food habits, you'll know that most humans exhaust their endowments rather quickly, even in their thirties, and succumb to cardiovascular problems, chronic cough, cancer or other degenerative diseases.

Most smokers know the dangers of their habits but feel themselves to be exempt from them —it's something that always happens to the other person. All sins against our bodies must be paid. There is no dispensation in nature.

You've condemned deodorants. Are they very harmful? What is a person to do to control body odor?

Deodorants are poisonous. Their toxic effects cause the skin pores at points of application to close up so as to exclude their chemicals from the inner sanctum. This prevents body perspiration and exudation. They are properly called anti-perspirants for this reason. A person who has body odor should strive to go to the source of the problem. Body odor is not natural. Healthy persons do not have body odors. Foul smells are produced by a foul system. Clean up the body and it ceases to exude unpleasant smells.

Do you mean that people who have body odors, bad breath and so on are really sick inside?

That is the case. Healthy cells, tissues, fluids and organs do not smell rotten or foul. Obnoxious odors come from decomposing materials.

Just the other day I read that distilled water, because it's heated in the distillation process, causes leukocytosis just as cooked food does. As you advocate distilled water, what do you say to this?

This is untrue. Leukocytosis, the proliferation of white blood corpuscles, results from poisons entering the bloodstream. The inorganic debris resulting from cooked foods will cause this malady, but distilled water causes no decomposition or poisonous substances. The distilled water was water before, during and after the process of distilling. It was not changed except that impurities it held before distilling have been left behind. The truth is that mineralized water causes leukocytosis. The inorganic minerals of water are toxic and cause a toxic reaction by the body. Leukocytosis is but one of the body's defensive mechanisms against toxic materials. Those who employ this argument are trying to defend the use of mineralized waters, but there is no defense for using impure waters.

I've heard it said that distilled water will cause heart attacks. In fact, this claim was made as a result of a scientific study in England. Do you deny this?

Yes, investigators of the report found that, in a certain English city whose people drank hard (heavily-mineralized) water, the death rate from heart attack per 100,000 was 436 per year. The death rate in a nearby city that had soft water (water with fewer minerals) was 448 per year, just 12 deaths more. This implies that perhaps soft water causes heart attacks and minerals in solution prevents them. But these investigators found the following significant omissions from the report: The soft water drinkers had a lead pipe system throughout the city whereas the hard water drinkers had a copper pipe system for the most part. Lead is much more toxic than copper.

Does fluoridation really make teeth stronger and healthier?

> Absolutely not! Fluorides in an inorganic form are toxic. Ingested fluorides have an affinity for calcium. Insofar as they unite with calcium they destroy bone and teeth. The body defends against fluorides by, at first, hardening the bones and teeth. Then they become brittle and break down under ordinary eating. St. David's, Arizona, has natural fluorides to the extent of about eight parts per million of its drinking water. Perhaps there is no worse example of poor teeth in America than there. About 50% of America's drinking water has been fluoridated for some 30 years. For all that, America's collective mouth is still the biggest disaster area of the body! Nearly 99% of Americans have bad teeth. One in every seven have no teeth at all. Inasmuch as almost all of these are adults, that means one in every five adults have no natural teeth.

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Article #1: The Importance Of Pure Water by John H. Tilden, M.D

Water is not looked upon as food by laymen, but it should be classed with food. It certainly is fully as important. An individual may live 40 to 100 days without food whereas survival beyond seven days without water is unlikely.

Water should be obtained from normal food sources as much as possible. It is easy enough to get our water needs from fresh fruits and vegetables, as most of these foods carry about 90% water.

The amount of water taken into the system by the average person amounts to from three to four pints daily. This can vary under different circumstances. In the summer more fluid is used than in the winter. Water is utilized by the body as a refrigerant through evaporation and, consequently, we require more in the summer. On the other hand we are more inclined to consume higher water content foods in the summer such as melons, peaches, grapes, tomatoes, etc.

Laborers consume more water, of course, because physical labor generates internal heat that must be reduced through evaporating water from the lungs and skin.

Water Is Actually a Food

Water enters into the composition of every tissue and forms about 65% of the weight of the body. It is obvious that this percentage must vary in different individuals for many reasons.

Water should be recognized as one of the most important foods, for it is essential to the body.

Water Should Be Pure

Rainwater is soft and supposed to be the purest of natural water, though this is doubtful due to widespread air pollution. Few people relish the taste of rainwater, for it has a peculiar taste. The fact of the matter is that most people are accustomed to water with some mineral content that gives it a little taste; but, on the other hand, they will shun waters of heavy mineral content, especially if those minerals be gypsum, sulphur, iron, etc.

Minerals in Water Clog Up Body

What is called "hard water" is in fact water that is heavily laden with minerals. Wells in limy sections of the world furnish water heavily charged with lime. Such water is not good to drink. People in such locales will be troubled with limy deposits in the body if they drink such water.

It is necessary to secure as pure water as possible. It is just as necessary as securing pure food. Nothing should be taken into the body that is not as pure as can be had. Impure water is the source of many diseases and general body degeneration.

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Article #2: Are Humans Drinking Creatures? by Dr. Herbert M. Shelton

"What a stupid question!" exclaims the reader, "Everybody knows that humans are drinking creatures and always have been."

It is quite true that universally, throughout history, in all countries, in all climates, at all seasons of the year and at all ages of life, humans have been drinking animals. It is equally true that all the evidence afforded us by protohistory reveals that throughout the protohistoric period, humans were universally drinking animals. Existing so-called savage cultures are commonly looked upon as survivals of prehistory. If this position is a valid one, then the evidence that is afforded us of the practices of prehistoric humans would reveal that they were universally drinking creatures.

Drinking Not Natural to Humans

If we view the animal kingdom, we discover that there are animals that drink and animals that do not drink. Even many desert animals do not drink water. There are also animals that do not inhabit the deserts that do not drink. It has been seriously suggested that by his constitutional nature man belongs to the non-drinking section of the animal kingdom. This is to say, water drinking by man is an acquired and not a native practice. Many have taken this suggestion seriously and have refrained from drinking water for periods of years and have advocated the non-drinking practice for all.

Dehydrated protoplasm is lifeless dust. It seems to be true that where there is no water, there is no life for plants and animals and microscopic beings require Water in order to carry on the functions of life, that they may live. Nobody denies this. The question in issue is not the reed for water, but the source from which it is to be derived and the manner in which it is to be taken.

Evidence Indicates Drinking as Perversion

In 1815 a book by William Lambe, M.D. of London was published under the title *Water and Vegetable Diet*. In this book Dr. Lambe attempted to show the advantages of a vegetable diet over a flesh diet or a mixed diet and the advantages of pure soft water over hard water. At the same time and in this same book he raised the question: Is man a drinking animal?

Perhaps no one had asked this question before. But the question has been argued both pro and con by numerous intelligent men and women since Dr. Lambe propounded it, and it is still being argued, sometimes rather heatedly. Let us, at this time, consider some of the reasons put forth by Dr. Lambe for considering water drinking an acquired practice.

Historic Attitudes Toward Water

As was the custom of his time, Lambe begins his consideration by quotations from the ancient works attributed to the legendary Hippocrates and reveals the fear of water in acute disease which gripped the profession for so long had its origin at the very beginning of the medical system. He quotes "Hippocrates" as saying: "I have nothing to say in favor of water drinking in acute diseases: It neither eases the cough, nor promotes expectoration in inflammation of the lungs; and, least of all, in those who are used to it. It does not quench thirst, but increases it. In bilious habits it increases bile and oppresses the stomach; and is the most pernicious, sickening and debilitating, in a state of inanition. It increases inflammations of the liver and spleen. It passes slowly, by reason of its coldness and crudeness; and does not readily find a passage either by the bowels or kidney."

Following the quotation from Hippocrates, he quotes Van Swieten as saying: "While girls are daily sipping tepid water liquors, how weak and how flaccid do they become!" Lambe says: "And the same writer positively affirms that, by the abuse of tea, coffee and similar liquors, he had seen many so enervate their bodies that they could scarcely drag their limbs; and many had from this cause been seized with apoplexies and palsies."

Thus it will be seen that the evils that flow from drinking tea and coffee are attributed, not to the poisons contained in these brews, but to the water which composes most of the brew. Water and not caffeine and theine and the other poisons of tea and coffee is the evil.

Impure Waters Pathogenic

Lambe next considers popular prejudices and tastes concerning water and its salubrity or lack of it as it is derived from various sources and contains, according to its source, different mineral or organic matter. He points out that many people in many parts of the world are very fastidious in their selection of the water which they drink, preferring water from one well or one stream or one spring and rejecting water from other sources. Lambe examines the drinking of mineral laden waters from marshes and swamps and the drinking of stagnant water and ascribes many evils to this habit. Many of the things he attributes to such water drinking are now known to be due to other causes; but even if he had been correct in all of his guesses, these facts could not properly be used to condemn water drinking. They condemn, not water, but impurities sometimes contained in water and form a basis for the condemnation of drinking, not water, but impure water.

Lambe suggests that the evil effects of water drinking have been the chief cause that has induced man to turn to alcoholic liquors. To escape from the evils of water drinking man plunged into the greater evils of alcoholism. It is not to be doubted that in some parts of the world where the inhabitants drink much beer and wine, there is a strong tendency to refrain from water drinking, not because water is regarded as essentially unhealthful, but because the waters of these areas are regarded as impure and unwholesome. Let us turn, however, to Dr. Lambe's effort to establish the soundness of his no-drinking plan.

He says:

> "Having condemned water and attempted to show experimentally its noxious influence upon the system; having condemned spirits and fermented liquors, from the authority of the most enlightened medical writers and the common experience of mankind, it must follow that there is no species of drinking which I approve. And, indeed, I have already ventured to assert that drinking is an unnatural habit; in other words, that man is not naturally a drinking animal.
>
> "To those who cannot raise their views above the passing scene, who think that human nature must necessarily be in every situation the same as they observe it in their own town or village; to those, in short, who look for knowledge in the prattling of the drawing room, or the gossip of the grocer's shop, I know that this appears a strange, if not a ridiculous assertion. We say, with great confidence, that water is absolutely necessary both to man and beast. But the strength of the evidence is not equal to the positiveness of the assertion.

> "In fact, we know very little about the habits of animals, except of those whose natures we have changed and corrupted by domestication. All that the natural historian can do with regard to the wild species is to describe their forms and such of their qualities as have fallen under observations; these last must of necessity be very imperfect. Imperfect, however, as it is, we know enough to be certain that the assertion of the necessity of the use of water to animals is, to the extent to which it is carried, absolutely groundless."

Many Animal Species Do Not Drink Water

" 'I have known an owl of this species,' (the brown owl) says M. White, 'live a full year without any water. Perhaps the case may be the same with all birds of prey.' There was a llama of Peru shown in London, a year or two ago, which lived wholly without liquids; it would not touch water. In some of the small islands on our coast, on whir-there is not a drop of water to be found, there are, I am told, rabbit warrens. Bruce says, 'That although Zimmer (an island of the Red Sea) is said to be without water, yet there are antelopes upon it, and also hyenas in numbers.' To account for this, he suspects that there must be water in some subterraneous caves or clefts of the rocks. This, however, is only supposition. The argali, or wild sheep, from the country in which it is found, it is certain, does not drink. Mr. Pallas says of it, 'This animal lives upon desert mountains, which are dry and without wood, and upon rocks where there are many bitter and acrid plants.' He further says of it, 'There are no deer so wild as the argali; it is almost impossible to come near it in hunting. They have an astonishing lightness and quickness in the chase, and they hold it for a long time.' How wonderfully, therefore, is this animal deteriorated by domestication, and by being forced to live in situations and to adopt habits unsuited to its nature!"

Humans Have No Natural Drinking Equipment

"Let us, therefore, consider man again, for a moment, as we may suppose him fresh from the hands of his Maker, and depending upon his physical powers only for his subsistence. We must suppose every animal so circumstanced, to be furnished by nature with organs suited to its physical necessities. Now I see that man has the head elevated above the ground, and to bring the mouth to the earth requires a strained and a painful effort. Moreover, the mouth is flat and the nose prominent, circumstances which make the effort still more difficult. In this position the act of swallowing a fluid is so painful and constrained that it can hardly be performed. He has therefore no organ which is naturally suited to drinking. He cannot convey a fluid into his mouth without the aid of some artificial instrument. The artifice is very simple, it is true. But still the body must be nourished anterior to all artificial knowledge. Nature seems therefore fully to have done her part toward keeping men from the use of liquids. And doubtless on a diet of fruits and vegetables there would be no necessity for the use of liquids.

"If it be true therefore that other animals require water, it would not follow that man, whose organization is different, would require it likewise. But we, in fact, know very little about the habits of animals. Our common domestic animals certainly drink. But it appears, as far as my information extends, that common water has the same effect upon them as upon man; and that they are more or less healthy, according to the purity of the water which they use."

Observations Upon Humans' Water Needs

Dr. Lambe violates one of the cardinal principles of logic, to wit: Nothing can be used as evidence until it is known, when he predicates his argument for man as a non-drinking animal upon what was not known about the drinking habits of animals. Some of the observations which he records were faulty and these constitute a very insecure basis upon which to found important conclusions. It is now well known that many of the animals which he considers non-drinking animals do drink in the wild state. It should also be noted that animals that do not drink, many of them living upon the desert, do not become dehydrated for lack of drink, whereas man, under the same circumstances, dies from dehydration as certainly as does the cow or horse. His argument that if man were intended to drink, he should have been born with a plastic straw in his mouth or a silver chalice in his hands, is hardly valid. It is true, however, as he points out, that with an abundance of juicy fruits and succulent vegetables in his diet, man can go, under ordinary circumstances, for long periods without drinking. In doing so, he does not go without water, but obtains his water free of organic and mineral contamination, in the form of fruit juices and vegetable juices. It is doubtful that this would suffice on the desert; it is certain that hard physical labor in the summer's sun will create a demand for water that such eating will not provide. Under such circumstances, one may be able to obtain all the fluid necessary by drinking fruit and vegetable juices between meals, but this constitutes eating between meals and is certainly a greater evil than would be the drinking of occasional glasses of distilled water.

Juices Are Food

Fruit and vegetable juices should be regarded as food, not as drink, and should be taken as part of the fruits or vegetables containing them. Separated from the organic combination in which they occur, they lose much of their value. Drinking fruit and vegetable juices between meals definitely leads to overeating and most certainly disturbs the process of digestion.

It would be folly to try to meet the demand for water in the fever patient by filling him with fruit and vegetable juices. Pure soft water certainly does not have the effect in these cases described by the legendary Hippocrates. Neither does water affect the fasting individual in the manner described in the so-called Hippocratic writings. To condemn water drinking because in certain pathological states drinking distresses the patient is similar to condemning food because in certain pathological states eating causes distress. It is similar to condemning sunlight because in certain diseases of the eye, exposure to light causes distress and pain. The true test, as all Hygienists know, of the value of any substance or practice is its use or its rejection by the healthy organism.

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Article #3: Ama Says Fresh Air Bad For You by Frances Adelhardt

In the February issue of *Moneysworth* appears the headline "Too Much Fresh Air Can Become Health Problem." The article is based on a report in the *Journal of the American Medical Association*.

What ills are attributed to fresh air? Listed in this article are insomnia, nightmares, weakness, exhaustion, heart irregularities, dizziness, numbness of hands and feet, shortness of breath, chest pains, yawning, stomach discomforts, muscle cramps, stiffness and anxiety.

This report is of the same warp and woof of a previous report that was discussed in Issue 3 of *Total Well-Being*: Medical opinion holds that "oversleeping" is unhealthful. Medical opinion here is that the body will "oversleep" if permitted and that sleep beyond 7 to 8 hours will lead to assorted illnesses—substantially the same ones as fresh air supposedly causes!

We need to breathe and we need to sleep to stay alive, but the medicos are telling us that we mustn't overdo it! They apparently put breathing and sleeping in the same category as eating, which we must also do to stay alive. We all know that overeating is harmful. But eating is a voluntary action. We are always consciously aware of it. If we would eat only when hungry and stop eating when hunger disappeared, we could not overeat. The body is self-regulating when its instincts are followed. But we eat for other reasons than hunger and genuine need, so our overeating results in health problems.

Now what about sleeping? This normal bodily need and function is also regulated naturally. We become sleepy when sleep is needed. If we don't fight it off by taking pep pills or coffee, we naturally drop off into a state oi unconsciousness when our bodies need sleep. And we win remain in this state until our nerve energy is sufficiently recovered—unless our sleep is prematurely put to an end by a jangling alarm clock or other disturbing influence. It is impossible to sleep if we do not need sleep. Sleep cannot be "stored up" for future use.

Air is another of the normal needs of life, and breathing is nature's way of supplying our bodies with air. Breathing is the most automatic and unconscious of all our bodily functions that supply life's needs from outside sources. We can go for weeks or months without food and for days without water, but going for only a few minutes without air results in death. Air is such a constant necessity that breathing must be done unconsciously while we sleep.

Now medical expertise is telling us in this article that if we breathe too much fresh air we can become sick!

To be sure, there *is* such a thing as overbreathing. We can do forced deep breathing, but after a few minutes of it the body responds to our folly by cutting off oxygen to the brain. Hallucination and unconsciousness follow, putting an end to the conscious forced breathing, after which normalcy is restored.

This overbreathing is not what the physicians are talking about, for they say, "Hyperventilation—taking in air in excess of that required to maintain normal oxygen levels in the blood—is an *unconscious* action on the part of the individual..." How do they say we can "over-breathe?" By getting too much oxygen in our air. This is why they claim that too much fresh air is bad for us.

Just what is fresh air? It is the opposite of stale air. Stale air is air that has been breathed and expelled. The life-giving oxygen has been appropriated by the body, and carbon dioxide, a waste product, is given off along with other waste gases of elimination. If one had his head enclosed in a plastic bag that was sealed at the neck and he had to constantly breathe and rebreathe the same air, he would not live long. It would be much the same as trying to live on one's own feces and urine. Stale air, then, is polluted air. The air that most of us breathe in unventilated buildings and outdoors in metropolitan areas is further polluted by tobacco smoke, factory smoke, automobile exhaust, aerosol sprays and many other contaminants. Fresh air is air that is without such pollutants. Country air is called fresh because plants and trees growing there absorb the carbon dioxide and expel oxygen. What a wonderful symbiosis exists here! Plant life and animal life are constantly supplying each other with the needs of life. The air waste product of one is the necessity of the other.

Are the medicos telling us that nature goofed? Is there too much oxygen in the air for our health? Did nature mess up on her proportions? And should we regulate this imbalance ourselves by making sure that we breathe enough stale polluted air along with our fresh air? Well, they have actually stated that too much fresh air can cause health problems, so they really mean that we can get sick if the air that we are breathing does not contain some pollutants. Now aren't all the cigarette smokers going to love that! When they blow smoke in our faces or cloud up the offices that we must work in, they can tell us that they are performing a service for us, for haven't physicians said that air too fresh and pure is a health hazard? And this after the same medical profession has told us that smoking can cause cancer—and made the cigarette manufacturers post a warning on cigarette packages.

Physicians have observed that certain ailments and discomforts follow a person's change from a stale-air situation to a fresh-air situation, and so, without understanding the nature of these changes or the reasons for them, they conclude that fresh air is bad for us. What they fail to recognize is this salutory physiological principle: When the body's condition is improved, the body begins improving itself!

Most of us are living at only part of our health potential. Our bodies are clogged up with uneliminated debris and toxins. This morbid matter cannot be eliminated because of lack of vitality, and vitality is lacking because the body is getting insufficient rest, sleep, fresh air, etc.

The body begins a housecleaning when its circumstances are improved. When the body gets more sleep, better food, more rest and more fresh air, its vitality is enhanced. With increased vitality the body is better able to cope with life-threatening toxins. The expulsion of accumulated toxic matters occasions symptoms which are commonly mislabeled disease and recognized as dangerous. If we believed that such symptoms (which are actually healing crises) really were dangerous, then we should also believe that drug addiction is healthful and getting off drugs is a health hazard because the withdrawal symptoms experienced are pains, headaches, nausea and other illnesses. We should also believe that smoking is healthful because smokers who don't get their accustomed dose of nicotine suffer nervousness, irritability, sleeplessness, headaches, etc. Fortunately, we know that drug addiction and smoking are injurious to our health, and we know that it takes a bit of pain and discomfort to break such habits. We also know that it is desirable to do so and not a health hazard.

It should occur to us that polluted air is also a drug—a poison—and most of us are so steeped in air pollution that s it amounts to an addiction. So when we indulge in fresh pure air and fail to get our usual dose of contaminants, we may suffer various discomforts which are actually "withdrawal symptoms" similar to those suffered by the dope addict. In both cases the real disease is toxemia, while the withdrawal pains, which are symptoms of toxin elimination, are a healthful sign.

If we will but suffer through these discomforts and the bodily housecleaning that they indicate, we will soon be more vital than before—just as the dope addict is in better health after he quits his habit.

It should be self-evident that no amount of polluted air could ever be healthful. The kind of illogical reasoning which says that pure air is unhealthy might be expected from those who have dethroned reason and ask us to believe that drugs restore health. It dates back to the previous century when medical advice would have us keep doors and windows shut while sleeping. Remember-the night air was supposed to be bad. At that time it was also popular medical practice to keep doors closed and shades drawn in sick rooms. Patients were denied fresh air and light and left to languish in their own effluvia. When feverish and suffering from thirst, they were denied water. No wonder so many of them died.

Be assured that fresh air is a healthful agency, and the symptoms it begets as noted in the AMA report are evidences of body improvement-not body destruction. Don't be taken in by error just because such reports are published in a prestigious journal.

Physicians think that they can regulate all our natural functions. They want us to think that they are wiser than the intelligence of the body when they tell us how much we should sleep, how many calorics we should eat, how many glasses of water per day we should drink, and now, how much fresh air we should breathe!

Our own instincts, reason and common sense are far better guides than any such advice that comes from the medical profession. Remember the AMA is a trade association that is in business to make money. Their business flourishes on sick people—not healthy ones. Their advice and their ministrations can make us worse, but they can never make us better (except in the case of mechanical repairs). Under no circumstances can they confer upon us improved health. Only our own practices can lead to health.

So use your own good sense. Sleep when sleepy, drink water when thirsty, eat only when hungry and breathe the cleanest, purest air you can.

Article #4: The Breath Of Death by Prof. Hilton Hotema

Our scientists agree that city air today is a deadly mixture of smoke, soot and fumes, which include carbon monoxide gas, sulphuric acid gas, benzene, methane, sulphur compounds and other dangerous chemicals too numerous to mention.

In addition, city air is saturated with the fumes of motor cars, trucks, buses, gas engines, etc. This exhaust consists of carbon monoxide, carbon dioxide, lead oxide, lead carbonates, free gasoline and complicated benzene chain compounds of the hydrocarbon series.

Let us consider just one of these many poisonous gases, carbon monoxide, and tell only a small part of the damage it does to the body. Tasteless, colorless, odorless, invisible to the eye, this gas takes and has taken a terrible toll of lives in our cities.

The large cities have a huge smoke-blanket over them that holds down these toxic gases and particulates. Especially is this so in damp weather. It tends to smother the people in it.

U.S. authorities have demonstrated a concentration of 0.62 parts of carbon monoxide per 10,000 cubic centimeters of air at street level in busy sections of cities of 500,000 population or more.

There are few poisons more deadly than carbon monoxide. Air containing as little as 150th of one per cent will cause headache, and 120th of one per cent may cause total collapse.

Dr. L. Burns examined blood specimens of more than 20,000 persons to discover the effect of carbon monoxide gas on the body. He said: "Carbon monoxide gas seeps into the blood through the lungs and mixes with the hemoglobin to such an extent that the blood cannot perform its normal function of carrying oxygen to the rest of the body."

The hemoglobin of blood has an affinity for this gas about 300 times greater than for oxygen, making the absorption of the gas by the blood very rapid indeed.

The first symptoms of this poisoning are headache and weakness. More serious symptoms appear as the condition progresses. People are told in food propaganda to eat this and that kind of food to offset weaknesses, as that could overcome poisoning effects.

Scientists at Harvard found that the average man can endure carbon monoxide only until his blood is one-third saturated. The danger of the gas was shown by the way it affected one of the scientists. He had just completed some tests requiring a high degree of skill and was feeling no ill effects of the gas when he suddenly collapsed and had to be carried out and revived.

Small concentrations of the gas can soon bring a man to the breaking point. Five per cent of autos and closed trucks on the roads have sufficient concentrations of the gas to be a menace to drivers and passengers. There is no natural nor acquired immunity to the gas. Repeated exposures produce the same effect each time.

The Chicago Health Department reported that in certain sections of that city the sulphuric acid gas in the air rots clothes hung on wash lines and eats away building stone and metal guttering.

These acids and gases in the air corrode and destroy in time everything they touch. They eat up stone and steel; they eat up clothing and metal guttering; they eat up the body by destroying cells and tissue. Many symptoms of the eating process appear as "mysterious diseases unknown to medical science."

The corrosive acids in the air attack cells and tissues, throat, nose, lungs, brain. They attack the heart, liver, spleen, kidneys and sex organs.

They attack the blood corpuscles and cripple them so seriously that they cannot carry on their normal function. That condition medical art terms "anemia." And for that they prescribe various iron preparations, vitamin B-12 and other nostrums.

These acids and gases affect the nerves, and the resulting pains medical art calls "neuritis." As the nerves weaken, paralysis may result in whole or in part. And they have treatments for that while the cause continues. They affect the cells of the muscles, producing dull pains that puzzle medical art, and medical doctors cover up by terming it "rheumatism."

The acids and gases attack the tissues of the joints and the medical art calls it "arthritis." They attack the tissues of the air cavities of the cranial bones, and medical art calls it "sinusitis." They attack the throat, and medical art calls it "laryngitis," "tonsilitis," "diptheria," etc. Hoarseness often follows, and in time one's voice weakens, or may be entirely lost.

Sulphuric acids and gases attack the cells of the blood vessels of the heart and medical art calls it "heart disease." They attack the cells of the pancreas, and medical art calls it "diabetes." They attack the cells of the lungs, and medical art calls it "tuberculosis."

Names, names—names that mean nothing aside from indicating the part of the body wherein degeneration is most serious and active from the action of the poisons absorbed from the air. Medical art, ruled largely by superstition and guesswork, and being nothing more than an updated version of ancient voodooism, makes a confusing mystery of what it calls disease. They do this for greed and profit, often, and sometimes from ignorance. The problem is readily solved by recognition of a few simple, basic principles.

The air of the Los Angeles area is exceptionally bad. The Los Angeles Herald said: "Heavy clouds of smoke close to the ground, intermingled smarting fumes that make people bleary-eyed and gasp for breath."

That account stated that "bleary-eyed men" were watching the factory chimneys to discover the source of damaging acrid fumes that killed small animals in the affected areas. During the worst of the "gas attack," nine out of ten persons on the streets were "bleary-eyed" from the smarting fumes. This black pall of smoke makes a ceiling over Los Angeles from 1,500 to 2,000 feet thick and extends outwards for as many as sixty miles.

John F. Gernhardt, M.D., of Los Angeles, stated that more than 30 persons died in the city of heart attack in 24 hours. Polluted air was the cause. It paralyzes the breathing centers of the brain and breathing stops. That is not heart attack.

The press reported that Southern California has lost about 60 percent of its valuable sunlight due to the smoke pall hanging over that area.

Still air, like still water, grows stale, stagnant and poisonous. Doctors appear not to know much about this. The maladies it causes are still attributed to viruses and germs.

Windstorms, tornados and hurricances are cosmic processes of air purification. And plants continuously detoxify and reoxygenize our air. These are yet other secrets of nature not yet discovered by the medical art.

But the discovery was made by a layman who did some thinking. He wrote a book that was published in 1944. It was titled *Floating Air*. It is hard to get a copy now, as medical art dreaded the valuable health guidance it contained and high-pressured the Post Office Department to put it out of circulation.

This man first tested his theory on poultry and was able to relieve in a few hours bad cases of croup and kindred respiratory ailments. That was bad news for medical art, and it had to be suppressed. There were no money-making possibilities in prescribing fresh unpolluted air.

In his chicken house this man put an electric fan to keep the air in motion, thus dissipating the foul fumes of poultry droppings, the inhalation of which makes chickens sick. How many poultry raisers know that?

Very simple. Too simple, It's a deep dark secret of nature the doctors seem not to have discovered. We can be poisoned by the fumes of our own effluvia.

Many who drop dead or die suddenly are not afflicted with heart disorders as doctors claim. The cause of death is foul air.

The annual report of the Bernard Free Skin and Cancer Hospital asserts that city dwellers, breathing polluted air, "develop lung cancer" at a rate three times greater than inhabitants of rural districts.

The Mellon Institute of Pittsburgh issued a report of a two-year survey covering the damaging effect of polluted air on human health. The report said: "The inhalation of polluted air results in a gradual absorption by the body of the poisonous products. The insensible intake results in a condition of slow-poisoning which insidiously eats away at vital tissues."

Physicians go the other way. They favor still air. They favor the bad and condemn the good. They seem instinctively aware of what's good for their practice.

This man who knew that what applied to chickens also applied to humans put an electric fan and ventilators in his bedroom. This drew in fresh outside air and drove out the stale inside air.

Most homes and bedrooms are filled with stale air, unfit to breathe. People follow the advice of doctors and keep windows closed to keep out those "deadly drafts" of fresh outside air.

Even the gases and vapors expelled by the body are poisonous and pollute the home and bedroom, regardless of whether from lungs, or bowels, or the pores of the skin. When these facts are known, it is easy to understand why people get up in the morning with cold, sore throat and other respiratory disorders.

They blame the weather; so do the physicians. But it does not affect the animals who live out in it! The actual cause is the polluted air in home and bedroom.

So remarkable were the good results this man obtained that he was inspired to build his "miracle cabinet," consisting of a bed with enclosed sides and top, well ventiliated and introducing air electrically with a fan through special vents.

He used the cabinet first for patients with respiratory ailments such as colds, hay fever, sore throat, diptheria, asthma, influenza, pneumonia and tuberculosis. The good results were amazing, and he was encouraged to treat in the same manner patients with all kinds of disorders: fever, mumps, measles, rheumatism, neuritis, diabetes, etc.

His remarkable success proved that good, fresh air in motion will "cure" the sick who failed under other regimens that left them in the same polluted air. He got patients well after medical doctors had declared them incurable physical wrecks. He proved what a few great Doctors have declared: that there is no disease. There are just two conditions of the body—good health and the lack of it.

The symptoms of bad health the doctors are trained to study, group together and give them names (diagnosis) that mean nothing and term them diseases that are trying to kill the patient.

The scheme is supported by centuries of false teaching by which medical art has created a false psychology. They have taught that diseases are "entities" that attack us and mean to kill us. We enlist their aid in fighting these armies of invaders intent on our demise. For them this is very profitable. And just the opposite for us. Medical art is one of the biggest frauds on earth.

The truth bears repeating: Sicknesses are the body's cleansing and reparative efforts. They are friends, not enemies. If you would avoid the crisis of sickness, then don't indulge the causes of sickness. Polluted air is a primary cause of illness and disease.

The surprising results of the man's work and air shocked the medical art. Drugs, vaccines and serums would become obsolete if people learned of this. Something had to be done.

It was better that one good "man should die for the people," than that the medical art should perish. So the heat was turned on the Post Office Department and "this man died for the people." His great work of helping the sick, after medical doctors had failed, came to a sudden and inglorious end.

In such cases big publications carry lying propaganda that a certain quack who was a menace to the people has been cast into oblivion. And the people believe this. Medical propaganda leads people to believe that medical art is trying to rid the world of so-called disease. In truth they are trying to end their competition. Who can be so silly as to believe that any organization or institution is working to bring about its own end?

The reason why people do believe it is because "better schools make better communities." That is another one of the lies taught in the schools, and people just grow up in it from childhood.

The facts show that all methods not taught in orthodox medical schools, regardless of their value and effectiveness, are banned and crushed by the medical art and their allies, and unorthodox practitioners are usually put in prison—all for the protection of the public health.

This may not be Russia, but many Russian methods are used to dispose of those who interfere with the money-making schemes of big business.

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Lesson 4 - Introducing The Life Science System For Perfect Health, Part II

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1. A Survey Of The Lesson

The first two lessons dealt with the Life Science outlook on health and disease. The third lesson stated the essentials of life and presented in-depth scrutiny of two of these needs, namely air and water.

This fourth lesson encompasses seventeen other essentials of life in summary form. Exhaustive treatment of any single aspect of life's needs is not intended. Rather, it is intended to acquaint you preliminarily with each life need presented. Subsequent lessons will plumb the depths of the essentials treated in this lesson.

Assuring your body of all its needs might be likened to the care that must be lavished upon highly complex jet liners. Every item of equipment aboard the jet must be in working order and have an adequate supply of its needs in order to operate as designed. The jet may operate with many of its systems knocked out but it is crippled. Crippling of certain systems may send it to its doom. And so it is with the body.

The human body consists of approximately 125 trillion cells which live together harmoniously. Cells live both for themselves and for the welfare of the organism of which they are a part, and they are specialized into tissues and tissue organizations that perform services for every other cell and cell organization throughout the organism.

As a health professional aware of the many faculties of the body and the full needs of the organism, you'll undertake to assess your clients' compliances and transgressions of their needs. You'll endeavor to guide your clients into thoroughgoing compliance with their biological needs and total rejection of their transgressions.

With this purview in mind, we proceed to consider an important essential of life: Body cleanliness.

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2. Cleanliness Is An Essential Of Life

2.1 The Need for Cleanliness

The body operates most efficiently when it is unfettered. Filth on the outside of the body most people will not tolerate. They readily appreciate external cleanliness and most keep themselves impeccably clean. While there is much to be desired regarding the ways in which most people maintain external cleanliness, nonetheless they are imbued with the necessity of a clean body—at least on the outside.

However, more important than external cleanliness is internal purity. Internal filth damages the body in two ways:

1. The mere physical presence of pollutants clogs and interferes with body processes. They hinder operations much as a crowd of people in a street hampers automotive traffic.
2. All contaminants within are poisonous! The body not only objects violently to the physical presence of filth but it also objects to its chemical presence. The body tries to maintain physical and chemical integrity. Anything that alters the consistency of body elaborated fluids and compounds; anything that threatens cell well-being due to its chemical nature is anti-vital, hence poisonous.

Thus we can see that for best performance the body must not be hampered physically or chemically in its operations.

2.2 A Clean Body Is Necessary to Health

The sum total of all the processes whereby the body is cleansed or kept pure is called elimination or drainage. Elimination is the sequel of feeding or alimentation. Ideally the body must eliminate the unusable debris from food ingestion, spent cells, the wastes of metabolism and extraneous substances that may be admitted in some manner. The more thoroughly elimination is effected, the purer is the body.

A thoroughly clean body is necessary to realize the highest level of function—to achieve the highest level of health. Inasmuch as the basic cause of disease is body toxicity, we need to realize the importance of keeping our bodies clean internally as well as externally.

2.3 Body Elimination Must Be Equal to the Need

Obviously, to remain free of burdensome accumulations, both physical and chemical in nature, the body must have full use of its eliminative faculties. If these faculties are impaired by lack of nerve energy, if they have been disabled by toxic materials or if ingestion of toxic matters exceeds ability to cope, then elimination is likewise impaired. Accumulations further vitiate the elimination process until the body must undertake an eliminative crisis (disease) to free itself of its morbid load.

We Americans are habituated to many eating and drinking practices that fill our bodies with alien materials that must be eliminated. Alien materials always take their toll on the eliminative organs. Nonfood materials are usually inherently toxic, especially the alien substances the average American eats and drinks. A constant load of toxic materials taxes the eliminative faculties. Thus we Americans wallow in toxic materials from exogenous sources and, due to their impairing influences, from endogenous sources, too.

By waste we mean all end-products of all the metabolic activities occurring in every cell and organ of the body. Elimination must equal the processes of supply if balance and health are to be maintained. Just as we can be made sick by living in rooms with our fecal and urinary accumulations, so, too, can we be made sick internally if elimination does not occur apace.

To cope with its eliminative needs, the body must enjoy conditions favorable to elimination. As well, it should not be taxed with toxic materials from without.

2.4 The Body's Daily Cleansing Cycle

Eliminative processes never cease. Every exhaled breath is an act of elimination of toxic gases. The skin exudes some small amount of wastes continuously. But there is one time in each day when the body heightens its eliminative processes. This time is, roughly, from three to four o'clock in the morning until from ten to twelve o'clock noon.

The body's stepped up elimination during this time is evidenced in many ways. A particularly toxic person may have a furred tongue upon arising. Hunger will not be in evidence. But, if the body is fed just the same, the eliminative processes are depressed though the tongue may still remain somewhat furred.

The body passes through rather distinct cycles daily. These are roughly as follows:

4:00 a.m. to 12:00 a.m. — eliminative

12:00 a.m. to 8:00 p.m. — alimentary

8:00 p.m. to 4:00 a.m. — assimilative

In view that few studies of these phases of physiological activity have been made, little is known about them. The information presented here comes from studies made in Switzerland. These cycles are consistent, more or less, with the way things are with healthy humans who observe the natural norm of working days and sleeping nights. Thus we eat when hungry. This is followed by body assimilation and, upon completion, the body turns its energies to elimination of wastes.

2.5 A Brief Look at the Body's Primary Organs of Elimination

You should strive to master physiology and anatomy to understand the body and how it operates. You will learn much about these subjects as called for in each lesson. Nonetheless, it would be wise to consult basic books on anatomy and physiology. Despite its medical orientation, Reader's Digest publishes some excellent books on how the body works. We advise you to acquire and study them.

The organs of elimination are as follows:

1. Lymphatic system (adenoids, tonsils, appendix, spleen, nodes, vessels, etc.). These chemicalize wastes in such a manner as to render them less toxic in preparation for expulsion. The lymphatic system also plays other roles.
2. Liver. The liver further detoxifies wastes. It is the largest organ and performs myriad nutritive and eliminative tasks.
3. Kidneys. The renal system filters non-utile wastes from the blood and dispatches it to the bladder. The kidneys perform many other functions as well.
4. Lungs. The lungs, like most body organs, perform a dual role as supplier and eliminator. They obtain oxygen from the air and supply it to the bloodstream In addition, they remove carbon dioxide and certain other wastes from the bloodstream.
5. Bowels or colon. The bowels perform few nutritive tasks other than supplying the body with water in emergencies, and electrolytes should the body require them. On the other hand it carries out of the body digestive wastes and metabolic wastes as may be excreted into it by tubes from other organs.
6. Skin. The skin is the most extensive organ of the human body. Among its many functions are protection of the body from outside influences that would disturb homeostasis, temperature maintenance, cooling and warming and elimination of certain wastes in extremely small amounts. In vicarious eliminative processes such as acne, boils, psoriasis, eczema, rashes, measles, poxes, itches, etc. the skin is used as an organ of elimination. The skin performs a nutritive role in receiving sunlight for conversion into vitamin D.
7. The tongue is sometimes used by the body as an extraordinary organ of elimination. This is very noticeable when you have a furred tongue. The tongue is not a regular organ of elimination but incidentally one in vicarious processes of extraordinary elimination.

There are occasions when the body will undertake massive eliminative measures. The respiratory system and mouth may be utilized in vomiting; the bowels in diarrhea; the mucous membranes as outlets from the circulatory systems (lymph and blood); the kidneys are used for diuresis; and the skin is sometimes used for diaphoresis and eruptions.

2.6 Supplementary Organs of Elimination

We have cited the regular organs of elimination. Those nonregular organs through which the body eliminates in crises are called vicarious organs of elimination. As mentioned, the tongue, skin, respiratory system and mucous membranes (internal skin) are pressed into eliminative tasks in emergencies. The body can cause ulcers or lesions for the purpose of elimination, or it may utilize ulcers caused by tissue destruction as an extraordinary outlet. In emergencies the body may press any tissue system or organ into service as a vicarious organ of elimination. These may be the eyes, sinuses, bronchioles, lungs and so on.

2.7 The Liver as an Organ of Detoxification

The liver detoxifies internal wastes and also attempts to detoxify exogenous poisons. It passes these detoxified materials either through tubes to the small intestine for passing on to the colon or back to the bloodstream for forwarding to the kidneys where they will be excreted in the urine.

An example of liver detoxification may be seen in the case of alcohol ingestion or its formation within the body by bacteria due to indigestion. The stomach and intestines do not digest alcohol. Alcohol is absorbed into the bloodstream as alcohol and circulates until eliminated. The liver detoxifies the alcohol to a great extent and passes it on to the kidneys for excretion. The liver, the body's foremost chemical factory, varies its chemicals to the need in neutralizing or detoxifying poisons in the blood which pass through it.

2.8 Cleanliness at the Cellular Level

A book we heartily recommend you acquire is Dr. Lewis Thomas' *The Lives of a Cell*. Though the cell is generally regarded as the basic unit of life it may not be, for it contains bacteria-like components that act as living entities.

So varied and multitudinous are the functions within a cell that one can spend a lifetime of fascinating study of them. It is said that their operations are more complicated than the most marvelous computer systems—more varied and complicated than the activities in a major city like New York City.

The cells take on supplies and they defecate. It is the lymphatic system, not the bloodstream, that constantly bathes the cells in a liquid medium. From the lymph fluids the cells derive their nutrients by diffusion, pinocytosis and phagocytosis. The cells pass their wastes back into the lymph. Cell wastes are partially detoxified by the lymph organs in preparation for passing them into the bloodstream. The bloodstream, in turn, transports the wastes to the lungs, liver and kidneys for excretion.

Cells are self-cleansing of their metabolic debris. They expel it to the lymph fluids through carriers that, our physiology books tell us, are not yet clearly understood.

2.9 Illnesses as a Cleansing Process

The body keeps itself clean by thousands of different techniques employed by an army of faculties. A hundred trillion cells represents quite a population to be served. It is an unimaginably large aggregation of living units cooperating as an entitative organism for the good of each and every cell and for the organism as a whole.

Due to unnatural practices or influences, humans frequently accumulate toxic substances in their bodies beyond normal capacity for elimination. When the accumulation becomes intolerable within the context of residual vitality, the body will preempt its nerve energy and redirect it to the task of extraordinary elimination or cleansing. When the body does this, disease exists. Acute disease is a body process. The energies normally available for muscular or nervous (brain) activities, digestion, etc. are preempted and redirected. Hence, the sick person has little or no energy for normal pursuits.

When a person is ill, fasting is indicated as a remedial measure. People should also fast periodically even when not ill to help the body effect extraordinary cleansing and healing.

2.10 How the Body Becomes Befouled

There are more ways to accumulate filth in the body than we can chart. Basically, all unwholesome influences and practices debilitate body eliminative faculties and especially lower the body's supply of nerve energy. The key to keeping the body clean is a way of life that neither distresses nor pollutes it.

2.11 Normal Activities of Life Essential to Internal Cleanliness

The eliminative capacity of the body is truly immense. The body has over-capacity in almost all its faculties. We can live well with one lung, one kidney, etc. The organism thus has safety margins to insure survival.

Most of the world's people manage to exceed their generous capacity for elimination. Therefore, the necessity for illness or healing crises in order to remove excesses that accumulate. If we live within our capacities as developed in nature, our system will never become befouled in the first place; hence, there is never the necessity for a healing or eliminative crisis—disease.

The living practices that are attuned to our adaptations will not fetter the organism; rather, they will enable us to thrive optimally. Those acts and indulgences which are contrary to human adaptations are bound to interfere with normal functions in many ways, the result of which is to burden the organism with uneliminated toxic materials.

Health depends on internal purity, and this, in turn, depends on practices that promote health rather than practices that result in the retention of morbid matters.

2.12 Fasting as an Extraordinary "Housecleaning" Measure

Whether the organism is befouled or not, fasting is a constructive condition! During the disease process, fasting is imperative to efficiently restore high-level function. In health, fasting rests the faculties, rejuvenates the cells and heightens functions.

Since all diseases have the same underlying cause; that is, body intoxication, there is a nigh universal remedy for the condition. Fasting affords the body the rest it needs so that it may redirect its energies to the task of "housecleaning." Under the condition of the fast the body will expel retained wastes and impurities. A thoroughgoing rest is, thusly, an almost 100% effective remedial measure.

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3. Temperature Maintenance

3.1 The Need for Temperature Maintenance

The human body has been developed in nature over eons of time to maintain homeostasis, chemical and mechanical consistency and a consistent temperature. The body operates best at a temperature range between 97° and 99°F. Various parts of the body vary in temperature.

Warm-blooded animals have many mechanisms that maintain temperature. Skin, hair and wool act as insulators to help maintain body temperature. Overheating is guarded against by perspiration and respiration. The body, in an intoxicated condition, may institute accelerated function to free itself of unwelcome toxicity. In this case it may also increase the metabolic rate, hence increase temperature. Heightened temperature is called fever.

The body maintains temperature through a basal metabolism controlled by many sensors throughout the body that act as thermostats.

3.2 Normal Temperature Is the Best Functioning Temperature

While bodies have been drastically reduced in temperature and overheated greatly and survived, the prevailing view is that serious deviation from normal temperature will cause the body to fail in some way to supply cells with needed oxygen and nutrients, thus impairing them. Notably is this true of brain cells which, if destroyed for any reason, are not regenerated. They are lost forever. It is generally accepted that a brain temperature exceeding 108-110°F destroys brain cells. While cases of overheating beyond this range have been recorded without damage, overheating is to be avoided. Cooling is far less harmful than overheating. At a temperature of 118°F enzymes begin to be destroyed and other body fluids become labile.

Frequenters of turkish baths and saunas sometimes experience surface temperatures of 140 degrees without apparent damage, but it is doubtful if the skin temperature actually ever reaches more than 110-115°F due to the body's capacity to cool itself. Needless to say, all overheating is unhealthful. Those who live in climates that reach 110-120°F during the day are not in danger, for the body can easily maintain its temperature by its refrigerating faculties, especially in view that humidity is usually low in most areas where such high temperatures are likely to occur. High humidity inhibits evaporation which is necessary to body cooling.

3.3 Questions as to What Constitutes Normalcy of Temperature

The generally accepted normal body temperature is 98.6°F. We do not have a uniform temperature at all times. At or near the end of a night's rest, with lowered metabolism the pulse is considerably lower than when active and the body temperature may be somewhat lower.

When the body has been vigorously active for an extended period, as in sprinting or running, the internal body temperature may rise to 105°F. This is not dangerous, for the body quickly normalizes this temperature when a state of relative rest is resumed. The body creates fevers that have been known to go as high as 108°F. The body will not create conditions that will injure itself.

3.4 Keeping the Body at a Comfortable Temperature

It has been observed that, when they are crippled, humans will devise crutches. The use of crutches further cripples the organism. This may be readily observed in individuals who use a crutch because one leg has been disabled. The disabled and unused leg will atrophy while the extraordinarily used leg will overdevelop.

Humans have become dependent on artificial means of temperature maintenance. In nature humans can live at extremes of temperature comfortably in their naked condition. Indians survive temperatures in the freezing range with vigor in many areas of South America.

But, because most of us are not physically able to cope with extreme cold, we must employ clothing to help maintain warmth. Warmth must be maintained lest we suffer functional disturbances due to reduced temperatures.

A comfortable temperature must always be maintained. Deliberate cooling or heating of the body is exhausting of nerve energy and lowers the body's functional abilities.

3.5 Some Problems of Temperature Maintenance

There are conditions under which temperature maintenance is difficult. One such condition is the fast. A person who is fasting must be kept warm. While fasting, a person can easily become chilled. The body's lowered metabolic rate will not produce sufficient heat to maintain warmth under all conditions. It is, therefore, important that fasters have sufficient clothing and bedding to maintain warmth.

3.6 Types of Clothing to Use for Warmth

Clothing should be loose fitting, as a rule. Being bound by tight-fitting clothing is unhealthful. Clothes should be equal to the warming task required. If you live in Alaska, heavy wool clothing may be required, whereas in Texas light cottons do for most of the year.

Cotton, linen and wool are to be preferred over other type of materials though silk and other natural fibers are also very good.

Clothing that is white or light-colored is preferred over dark colors because they admit more light. Natural light on the body (and eyes) is healthful.

3.7 Pathological Effects of Clothing

Clothing that is binding, tight fitting or otherwise constricting is unhealthful. Belts, girdles, garters, etc. should be avoided.

Synthetics sometimes cause poisonous reactions in the body. Synthetic clothing and plastics should not come into contact with the skin.

Porous clothing made of natural fibers are always to be used when possible for both wear and bedding.

3.8 Temperature as a Factor in Toxin Retention

When the body becomes chilled the skin pores close and other body reactions take place to protect against chilling as much as possible. In these instances, energies being redirected to temperature maintenance may result in temporary neglect of regular chores of elimination. The skin normally respires and the closing of pores throws an additional burden of elimination onto the respiratory system. If the body is already toxic, the added toxin retention may reach a level that will trigger a body cleansing crisis, such as a cold or flu.

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4. Sleep Is An Essential Of Life—The Role Of Sleep In Life

Inasmuch as there are other lessons devoted specifically to the subject of sleep and its great significance, we'll touch upon sleep only briefly here.

Sleep is the condition under which the brain generates nerve energy with which to conduct body activities. The deeper the stage of sleep into which the body enters, the more efficiently can nerve energy be generated. There are five stages of sleep if we include the R.E.M stage, popularly called the dream stage, when there are rapid eye movements. Other stages are named after the brain wave frequency. The threshold stage of sleep is the alpha stage and the deepest stage is delta wave sleep.

As nerve energy is the spark of vitality for vigorous activity and high level function generally, adequate sleep is very essential to well-being.

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5. Food Is An Essential Of Life—The Role Of Food In Health

Several later lessons are devoted to the subject of food. We will not, therefore, treat it extensively here.

In no other area of life practices are our transgressions against ourselves so great as in the food we ingest. Consequently, most diseases of humanity arise largely because of eating wrong foods.

Food supplies us with essential nutrients other than the three inorganic ones we need. Even water, an inorganic food, can normally be obtained in quantities needed from a proper diet.

Correct diet consists of mostly fruits. Constitutionally humans are frugivores or fruitarians. Wholesome ripe fruits contain all the food factors necessary to sustain human life at the highest level.

All our food should be eaten raw as nature delivers it to us. All heating of foods destroys vital nutrients.

Suffice it to say that nature did not equip humans or any other animals with stoves.

The essential categories of nutrients we require are as follows: (NOTE! These percentages are relative to total food intake by DRY WEIGHT!!!! Further, they are approximations.)

- 85% to 90% simple carbohydrates for fuel. Simple carbohydrates and monosaccharides such as glucose, fructose (levulose), galactose, etc. If complex carbohydrates are taken, the body must break them down into monosaccharides before absorption.
- 1% to 5% fats, which supply fuel and other needs, especially essential fatty acids (EFA).
- 4% to 8% protein.
- 3% to 5% mineral matter in organic form.
- 1% in vitamins, auxones and other catalytic nutrients.

Like water, fibers in food are a neutral factor. Cellulose, of which fiber is composed, is indigestible and is passed on through the body. Contrary to popular impressions, we do not have to have a high fiber diet in order to have bowel movements. We are not defecating machines—neither are we hay balers. Wastes will be expelled as they accumulate sufficiently to require voiding.

Condiments, seasonings, free oils—in short, anything and everything except whole ripe fruits with some vegetables, nuts and seeds, all in the raw state, should never pass the lips.

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6. Excersise And Activity Are Essential To Well-Being

Humans live to function and functioning is the very essence of life. That which is not used is abused. Human faculties were developed for use. Disuse results in atrophy and loss of function. Without exercise, well-being ceases.

Abilities, intelligence and every aspect of well-being are greatly enhanced by exercise. Almost every account of exercise speaks of its marvelous benefits to the body. Activities should be daily indulged that bring all the body's some 700 muscles into play.

The subject of exercise is exhaustively treated in a later lesson.

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7. Rest And Relaxation Are Essential To Health

In present-day society there are many tensions and stress-producing situations. Relaxation, which also involves rest, should be indulged two to four times daily for periods of from 15 to 30 minutes. The body recoups under rest and relaxation.

If eyes are bleary or the eyelids heavy, relaxation for a few minutes with the eyes closed will accomplish wonders. A nap is even better, for little revitalizes the body as well as sleep.

Sleep should be obtained daily to the extent that sleepiness dictates, whether this be as little as six hours or as much as ten hours. The healthier an individual, the less sleep required (to a point). As a concomitant to sleep the body obtains rest. Rest enables the body to catch up on its eliminative activities and to resupply its stores of body starch (glycogen) for the following day's energy needs.

While sleep regenerates a fund of nerve energy, rest enables the body to restock physical stores as well as to "clean house." Relaxation relieves tension buildup. A period of vigorous exercise followed by relaxation will perform even more dramatic results.

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8. Sunshine Is An Essential Of Health

While it is known that vitamin D is created through the agency of sunshine and ergosterol in the cutaneous tissues, little else is known of the benefits of sunlight. Of late it has been discovered that natural light from the sun is of immense benefit in vision compared to vision debility under unnatural light.

Another lesson will present the subject of sunshine in depth.

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9. Recreation And Play Are Health Essentials

Just as the body is rejuvenated by rest, sleep, relaxation, fasting and other healthful measures, it is also kept young by constructive games, hobbies and participation sports.

Americans are more likely to dissipate themselves during leisure hours than participate in body and character building activities. The pursuit of sex in an overstimulated society is of a debilitating nature. Watching TV for the most part amounts to adult babysitting.

There are many Americans who swim, run, play ball, enjoy hobbies, participate in drama, attend cultural events, hike, participate in sports, garden, master musical instruments, compete in games that require strength and so on. Unfortunately they are a minority. Most Americans are inclined to spectator rather than participant activities. Even many of the participant activities such as drinking, carousing, etc. are destructive of human faculties.

Recreation and play can further the development of humans. In the fresh air and sunshine we can participate in numerous games of play, sports and exercise that are truly healthful and that promote well-being. Unfortunately, most of our people seek out sensuosity for its sake and suffer as a result.

They bring suffering and inconvenience upon those who make better use of themselves too, for, in society, acknowledge it or not, we are our brother's keeper more than we realize.

In reviewing your clients' habits, it is always wise to have a look into their leisure time pursuits. Many may be dissipating and debilitating.

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10. Emotional And Mental Well-Being Are Necessary To Health

While emotional and mental well-being are born of the physical conditions of the body already cited, they are also vitally dependent upon other influences. While emotional and mental well-being are dependent on physical well-being, physical well-being is also dependent upon emotional and mental well-being.

Our division of humans into a multitude of entities (physical, mental, emotional, etc.) is erroneous. Rather, we are a unitary organism with many aspects to our being. Nonetheless, we use these categorizations for the sake of convenience in communication.

"Feeling like a million" is an emotional and mental condition which is the exhibition and expression of the well-being of our tout ensemble or our faculties in toto. Just as nutrition is dependent upon the condition of all body faculties, so, too, are all body faculties dependent upon nutritive repleteness. The emotional and mental aspects of our lives will be treated in depth in a later lesson.

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11. Assurance Of Life And Its Means Is Necessary To Health

Humans are creatures of providence almost the whole world over. Equatorial peoples have no need of providing for the future as have northern peoples but are, nevertheless, provident in many ways. On the other hand, northern peoples are often overly provident. They provide against needs, both real and imagined. This has made many northern peoples acquisitive at the expense of humaneness. Of course acquisitiveness in itself is not the sole evil but is a contributing factor to valuing possessions over fellow beings.

Our basic needs are food and shelter and the productive facilities for making them. We have yet other needs which we strive to satisfy plus many pursuits that engender yet other wants.

Ours is a society of abundance. Within the capabilities of our means of production is a surfeit of goods and services beyond our capacity to use and consume them. Our distribution system is not compatible with our productive capacities, hence there are gross inequities in the amount of the goods and necessities various of the world's peoples receive. Some are almost totally deprived by circumstances attendant upon these inequities while others are surfeited beyond any possible need.

These inequities give rise to anxieties, worries and concerns that seriously impair health. Even many in what would be considered good circumstances are assailed by fears that they will not be able to maintain their circumstances. Qualms, fears and concerns about loss of the requisites of life are a drain upon the mental and emotional well-being of a majority of people. Worry is a disease of our society.

In tropical climes we see tribes and groups of people living "hand-to-mouth" among plenitude. They always have the needs of life at hand. They are carefree, happy and playful. They do not work much, for their style of life does not require much.

The farther north we travel, the more humans become provident and acquisitive until we reach such a harsh environment that almost all endeavors are directed at providing the basic needs of life and little more.

In conducting your professional practice, you may find it wise to delve into your clients' economic and social concerns as sources of tension, stress and enervation. This will be explored further in subsequent lessons.

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12. Pleasant Environment Is Necessary To Well-Being

Humans fare better in environments in which the needs of life are abundant. However, these needs are so varied within the context of our culture as to be difficult of ment in this lesson.

Environment means the total context of our setting. It includes not only our homes, grounds, climate, geography, etc. but also our family, neighbors, associates, acquaintances and, indeed, everything and everyone that makes up the social and economic atmosphere in which we live.

Humans are naturally aesthetic and love beauty in everything. Beauty in environment is essential, not only in the physical surroundings, but also in the persons who people it. Happy people beget happiness in the lives of those whom they touch.

Our social environment is far more important than our physical environment. Humans always dream of better physical environments but achieve happiness primarily within the context of their social circle regardless of climate and geography. Inasmuch as human industry creates special environments for living that are pleasing, we can live rather happily while insulated from the harshness and sparseness of clime and geography.

Thus it can be seen that the environment of most concern relates to the social circle in which we situate ourselves.

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13. Creative Useful Work And Its Role In Life

Naturally and normally humans have within them certain qualities that we regard as virtues. All are naturally imbued to perform those labors that are productive of their needs. This is readily seen in tribal societies. Within complex societies where we lose sight of the products of our productive efforts-where we have been instilled with ambitions to consume without corresponding opportunities to produce, we tend to parasitism upon the productive efforts of others.

Unfortunately, our society legalizes parasitism upon the economic body. That is one of the characteristics of our society that begets inequities that breed crime, ugliness, poverty and other life-sapping features.

Work which we can directly relate to fulfilling a need is most deeply satisfying. If it calls upon our innermost resources and abilities, it is even more satisfying and fulfilling. People most happy and contented are those who have created lovely homes with gardens, orchards and beautiful flowerbeds and grounds.

When our creative urges are elicited, we humans can create wonders, not only for our enjoyment and welfare, but also for the pleasure of those with whom we are associated.

In your relationships with your clients you'll find that some absorbing pursuit may be suggested that will greatly benefit their health and well-being. In this society creativity is lacking in too many lives. Encourage some creative and productive hobby or pursuit in the lives of those whom you serve.

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14. Self-Mastery Is Necessary To Best Well-Being

Self-mastery means self-control. It means keeping passional influences within the bounds of propriety. Intelligently guided responses to situations and yearnings that may arise within our vitiated society—a society with inhumane and unhealthful values—is essential to our welfare. Unbridled pursuits in any direction, especially those that have been commercially tied to our appetencies for food, sex and sensualism are usually exhausting of our precious resources, further pervert and vitiate us and beget conditions of disease and suffering.

The joys of self-mastery are unknown to most. Most of our people are apt to act unthinkingly in response to impulse and an aroused appetency for some sensual delight. You might well explore the qualities of self-mastery your clients exert in their lives. Wisdom dictates that you encourage in them self-discipline for their better well-being.

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15. Gregariousness Is An Element Of Health

Humans are social creatures. To achieve our highest level of happiness and well-being, we must belong to a group or circle. We must be in association with others in some manner. Sheer aloneness or being forsaken is deadly to well-being. Even the mental giants amongst us suffer. There are very few Robinson Crusoes.

Our requirement is for associates with whom we can identify. In this day of specialization we tend to restrict ourselves to circles that run along cultural, occupational or special interests. In rural areas neighbors are the basis for associations even though occupations may be different. In large cities cultural pursuits and special interests may be the basis for associations and, more so, occupational lines.

While people can survive rather well alone if they develop some consuming hobby or pursuit, most people are not capable of this within today's society.

You'll do well to probe the social life of your clients. Lack of social life in any form can be a detriment to welfare. Likewise, people of dour dispositions can adversely affect those with whom they associate. It may be a case of "not what's wrong with you but who's wrong with you."

Encourage your clients to participate in social activities in conjunction with friends or acquaintances.

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16. Motivation: Having Purposes Or Causes To Serve

Few humans are content with feelings that the world will not be a better place for their having been in it. Most of us are imbued with urges to improve and excel. Most humans strive to better both themselves and their environment. Failure to cultivate goals leaves an individual indifferent and most likely a useless drone in life and society, neither good for self or society. People without ambition and objectives are usually dullards and dissipators.

In observing others whom we serve, it is wise to assess their drives and ambitions. If they lack these, the will to live may also be lacking. People who consult others in health matters have a will to live but may not be sufficiently endowed with aims in life to make living a challenge.

Needless to say, the healthiest and happiest people amongst us are those who are striving to fulfill ambitions and meet life's challenges.

Just as you may be motivated by an urge to help others and receive reward and recognition for it, others are motivated by any of a multitude of objectives. A great artist may thrive on recognition and appreciation while a ditch digger may have pride not only in his service but in some hobby or other constructive activity.

Without purpose in life there is little drive to live it. We Life Scientists hold that life is sacred and should be imbued with meaningfulness.

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17. Expression Of Natural Instincts Relative To Health

This is rather broad territory. While we have instincts to survive and thrive which have had prior considerations in this and the previous lesson, there is also the instinct to procreate our kind. This instinct must be given voice if we are to realize the utmost well-being. While self-discipline can normally control the mating instinct so that it does not exceed its need, it must, nevertheless, have adequate expression. Few there are amongst us who can sublimate an excessive primal urge to more constructive pursuits.

Next to our transgressions in food indulgence stands our collective dissipation in pursuit of sexuality. Most of this amounts, not to satiation of actual need for sexual expression, but satiety of a sexual appetite aroused and stimulated in a society gone awry. Our society regards sexual sensuousness and indulgence as an end in itself and it is stimulated to overindulgence because of dietary and other factors that represent life-threatening factors. The body responds to these life-threatening factors by bringing to the fore and emphasizing survival mechanisms, the act of reproduction being one of the foremost.

Basically, the instinct to reproduction is for one purpose only—the perpetuation of the species. In animals the sexual act occurs only during that time when the female ova are ripe for impregnation. Only in humans has the instinct been perverted and then only within the context of certain societies, ours being among them.

You, as a health professional, need to recognize the heavy role sexuality plays in well-being. There are many among us who feel inadequate because they cannot enjoy mating as often as they would like. The urge may be for excessive indulgence or it may spring from inadequacy. In any event, the role of unsatisfactory sexual relationships in disease and poor health must be recognized. A return to health always restores sexuality but, in the face of overindulgence, it is not possible to restore health. Reorientation of the client must be made so that limitations in this area are recognized and respected.

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18. Aestethic Well-Being

Why should a fruit-laden orchard of aromatic fragrance be so lovely and beautiful? Why should a dry barren rocky gulch present such an inhospitable and ugly facade?

Anything that promotes life and its values is appreciated, treasured and deemed beautiful. Anything that is untenable and harmful to life is looked upon as ugly with but few exceptions.

In keeping with this, it would seem that all creatures have standards of beauty. But the greatest capacity for appreciation of beauty is inherent in those creatures that have the greatest capacity for life. We proclaim ourselves undisputed aesthetes among all in the animal kingdom. This is not necessarily true. Almost everything in nature has great beauty. Dolphins (porpoises), whales and other creatures have a very high order of intelligence and likewise appreciate beauty.

That which is fit for food is beautiful to us as it is available to us in nature. That which is poisonous and unfit for food usually has no aesthetic appeal. For purposes of food we do not ascribe beauty to a squirrel. Yet the squirrel fascinates as a lovable and beautiful creature. A peacock is a beautiful and lovely bird. We admire it for its great beauty. Yet it is difficult for us to visualize ourselves breaking its neck, stripping it of feathers and eating it as natural as meat-eaters do—skin, bone, flesh and guts, all raw and uncooked. We can't do that. The picture is an ugly one. It is in discord with our welfare.

The human sense of beauty is, as far as we know, unparalleled. The visual and sonic arts have been highly cultivated. The development of art has been constructive, healthful and ennobling for humankind.

In assessing your clients' practices, it is wise to survey their cultural dispositions. Everyone has an aesthetic sense —everyone has a sense of beauty. This is a saving grace, for it is an inroad to inspiring and motivating people. Almost everyone appreciates beauty in themselves most of all! Life Science as a way of life will restore health. Simultaneous with rejuvenation, much beauty is restored.

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19. About This Survey Of Life's Essentials

The list of the essentials of life presented here is not complete. These are some of the salient ones. Also, some aspects of life's essentials presented may be somewhat redundant, for some imply others presented.

But, as you will have noted, the needs of life are simple! Nothing is complicated about it. It seems self-evident that these are the essential means for a happy and healthy life. We can see that the science of health does not come from so-called scientific laboratories but, instead, proceeds from the lap of nature.

As Life Scientists or Hygienists we maintain that these requisites were developed in our sojourn in nature and that, just because we have exceeded natures's provisions with our own industry, we have not exempted ourselves from need of these basic essentials.

In yourself and your clients you can pursue no wiser course than invest these factors and influences in your life and theirs.

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20. Questions & Answers

How many cells are in the body? Does anyone really know?

> It's generally agreed that a mature adult possesses cells somewhere in the 100 trillion range. Some medical texts proclaim as few as 75 trillion and others as many as 125 trillion. No one can, of course, really say.

Why do cleansed bodies need less sleep than toxic bodies. Isn't eight hours of sleep the norm for everyone?

> Perhaps I can begin an answer by citing an illustrative example. Lions normally sleep 18 to 20 hours daily. Their dietary consists of almost all flesh, bones and other animal parts which contain many toxic substances. On the other hand cattle sleep only two to four hours daily. Their diet is grass which has almost no toxic substances whatsoever.
>
> In humans we find those who eat meat, cooked foods and condiments, and who habitually overeat, often requiring from seven to ten hours of sleep daily. And they're often sluggish at that, a condition often labelled hypoglycemic. Those who live on fruitarian and vegetarian fare sleep one to three hours less and are usually much more vital and active. People who are fasting usually sleep about two or three hours less than those who are eating.
>
> Sleep is a condition under which the brain regenerates nerve energy for the body's needs. It appears obvious that a toxic body requires more nerve energy than a body relatively free of toxin. The more work the body must do, the more nerve energy is required. Sleep varies in length with the amount of nerve energy that must be generated and also by the ratio of efficiency with which nerve energy is generated during sleep.

I've heard of the body having a biological clock and I am familiar with circadian rhythms. This is the first I've heard of certain body processes being conducted more intensely at certain times of the day. Why should anyone become hungry in the morning if the body is in an eliminative phase?

> Hunger in the morning is not natural. The body has been marshalling its resources during a night of rest. Liver and cells are charged with some 2,000 calories of glycogen for the following day's consumption and hunger is not likely to occur until the brain's appestat notes a considerable depletion of blood nutrients.

Most people have never experienced natural hunger in their lives. Eating in the morning after a night's rest and sleep when the body has ushered in a heavy eliminative phase that is incompatible with hunger reminds me of a smoker's need for a fix immediately upon arising. When the body is toxic because of habits such as coffee, tobacco, condiments, cooked foods, animal products and so on, a prolonged absence of ingestion gives the body more opportunity to begin the unpleasant task of housecleaning.

When the body begins the eliminative phase, feelings are those of lethargy, headache and dullness. These are but a few of the symptoms of pronounced elimination. Those who toxify their bodies with alcohol call eliminative symptoms a hangover. Those who toxify their bodies with opium, heroin and other drugs call eliminative struggles withdrawal symptoms. But the symptoms are not much different for coffee drinkers, cigarette smokers, condiment eaters, cooked food eaters, overeaters and so on. When the body has a heavy toxic load and it has entered the eliminative phase the symptoms are unpleasant.

Rather than hunger being experienced in the morning, the urges to eat are morbid just as are the smoker's urge to smoke, the coffee drinker's urge to drink and so on. When the "fix" is again indulged, the body must divert its energies from extraordinary elimination to the task in hand of processing the new incoming load of food or drug. When its energies are thus diverted the unpleasant symptoms experienced while elimination was heavy cease. This, incidentally, explains the nature of addictions—new fixes are desired to palliate the pathogenic effects of old fixes.

Hunger does not naturally occur in the morning except in rare cases.

You've said the body can recycle about 70% of its protein wastes. How does this happen?

When cells disintegrate from the action of lysosomes upon their death, the debris floats in the lymph. The lymph is the media of supply and drainage for the cells. Other cells may remove proteinacious debris from the lymph by the processes of phagocytosis or pinocytosis if the amino acid supply is otherwise insufficient. The cells then break down the proteins into their amino acid constituents in a special little vesicle or stomach they have created for the process. Then the amino acids are diffused into the cells for use just as if they been absorbed as amino acids from the intercellular fluids in the first place.

The kidneys play a role in eliminating protein wastes normally, but, if there is a protein shortage, it will recover protein wastes and recycle them into the blood for reuse. The liver prepares wastes for excretion, also. It is involved in innumerable body chemical processes. However, protein recovery is primarily a cell activity rather than that of kidneys and liver.

I fasted for my first time last weekend for two days. I got a horrible headache and a terrible taste in my mouth. I become so weak for the last day I could hardly get around. Is this the usual thing? My bowels didn't move. Is it possible I absorbed some poisons from there?

What you experienced were the symptoms of extraordinary body elimination. Should you have fasted to repletion, your tongue would have cleared up. In fact, your headaches would have soon ceased. The fact that you experienced such marked symptoms is some indication of the amount of filth you're carrying around in your body and of the great need for a much longer fast. In two days the body has eliminated relatively little of its accumulated toxins in a first time faster.

In some Hygienists who fast the tongue may not become coated at all. Their breath may not become strong. Nor do they experience headaches, lassitude, lethargy, weakness nor any other symptoms of elimination. This condition throughout a fast means the tissues, cells, organs and fluids are not polluted. Most Americans, even those who are Hygienists, will have a coated tongue within 24 hours after their last meal, indicating accumulated morbid matters within.

Your bowels are a one-way street out of the body. The colon's skin and walls are developed to hold back all normal wastes and toxic materials that body and bacterial flora generate. Only water and electrolytes are withdrawn by the body through the colon walls and nothing else.

Why do you advocate a low-fiber diet? For years now the importance of a high-fiber diet has been publicized.

I do not advocate a high-fiber or a low-fiber diet. I advocate a diet of our best foods regardless of their fiber content. It seems those who advocate a high-fiber diet are persuaded that the objectives of eating is for the purpose of defecating. We are not defecating machines. We eat for purposes of nourishment. Waste materials will be excreted by the bowels, however much or little. The body is excellently equipped to deal with fermentative waste whether they be in the bowels 24 hours or 24 days. Those who overeat on proteins or eat them in incompatible combinations have a putrefactive colonic environment. While the bowel walls are still proof against the entry of toxins into the body, some terrible diseases can result from a chronic putrefactive state of the colon. Colitis, bowel cancer, hemorrhoids and numerous other destructive diseases can result.

If we can't have condiments, what should ft we use to make our salads tasty? I love a little vinegar and oil on my salad.

The fact that you find salads not very tasty in an unadorned state indicates that you're not an herbivore. Of course salads of green leaves are extraordinarily nutritious except in caloric values. Many of us do cultivate a taste for salad greens. I consider an occasional salad worthwhile, for they contain far more nutrients than do fruits, pound for pound. It's not that fruits do not furnish enough nutrients—it's that many of us eat salads to be satisfied we're getting enough of the variety of nutrient factors we need.

In a vinegar and oil addition you're stimulating your taste buds, not enhancing the taste of the salad. You can get better condiment effects with wholesome foods such as tomatoes. They will give you an acid flavor tastier and more wholesome than vinegar. Avocados or ground nuts as an oil will prove extremely pleasing. You can make a meal of this kind of salad.

Vinegar is indigestible and will retard digestion of other foods considerably. Fragmented oils require a long time for digestion in the first place, whereas salad ingredients normally are digested and passed on within two hours. Free fatty acids from salad oils coat other foods and retard their digestion, also.

Avocados, nuts and tomatoes, on the other hand, are compatible with green salads though they do slow up digestion somewhat.

Many fruitarians thrive in good health and eat few vegetables.

Article #1: The Importance Of Body Temperature by Dr. Herbert M. Shelton

Warmth is one of the necessities of life. Vital activities are possible only between certain narrowly defined limits of temperature. Cold inhibits and excessive heat suspends them. Body heat is energy. It is employed not just in resisting cold, but also in accelerating cellular activities. Temperature, within certain narrow limits, is so absolutely essential to life that all functions are excited by any attempt at its variation. Animals are roughly divided into two major classes: warm-blooded and cold-blooded. This is according to whether they have means of producing and maintaining their own temperature or are dependent upon the surrounding medium (water or air) to provide it.

The invertebrates, although they breathe oxygen and circulate fluids throughout their bodies, have no red blood corpuscles and are cold-blooded animals. Fishes and reptiles, vertebrates with red blood cells, are also called cold-blooded animals, although they are able to maintain an internal temperature above that of the surrounding water or air. Invertebrates have no heat of their own, but receive their temperature from the surrounding media and adapt to it. Except for fishes and reptiles, whose heat-producing and heat-regulating powers are very limited, we may say that all vertebrates are warm-blooded, having red corpuscles, while the reverse is true of the invertebrates which have no red corpuscles.

It may be suggested that since animals can live without red corpuscles and exist without internal heat, the primary office of respiration is more universal than to provide for the production of animal heat. Using a popular phrase in biology, heat production is only a "secondary adaptation."

If we look at a large number of lower animals, we find them to be small and living in water. This medium directly and powerfully reduces them to its own temperature, and they are surrounded and permeated with water. In the radiata water actually mingles in large quantities with their digested food, so that they must of necessity remain at or very near water temperature. Even if they possessed sources of heat within themselves, it becomes evident that heat production cannot be the great end of respiration in these animals. Its primary function must be something very different from this.

If we take a second look at these animals, we discover that large numbers of them, especially those that live in fresh water, vary in temperature with the medium in which they live. Often they vary to a great extent, being sometimes near the freezing point and at other times fifty to one hundred degrees above it. Although a particular temperature may be best for each of them, still, many of them can live an active life in temperatures seventy, sixty, fifty and even forty degrees less. It is obvious that the small extent they could raise the temperature of their bodies above that of the water, when it is forty or fifty degrees, would be of no great importance. In their case at least, there must be some more important end for respiration than production of heat.

Heat supplies a necessary condition of vital activity. The activities of cold-blooded animals rise and fall as the temperature goes up or down. The higher the temperature, providing it does not go so high so as to destroy life, the greater the activity. If it becomes very cold, they suspend activity. It is not in inorganic chemistry alone that heat promotes the energy and intensity of action. In "vital chemistry," that is, in living functions, the same phenomenon is observed. An elevation of temperature accelerates all vital functions, both in the cold-blooded and in the warm-blooded animals. A similar thing is seen in plants.

Acceleration of activity increases with the rise in temperature until the temperature reaches a certain variable optimum, after which any added increase in temperature reduces activity. The rate of activity for some of the lower forms may become so great as the temperature rises that they "live too fast" and wear themselves out.

When temperature is lowered, vital activities are lowered. In the cold-blooded animals, some of which may be frozen for long periods and then revived, all activity ceases after the temperature is reduced below a certain variable minimum. Most of the warm-blooded animals die when frozen, their vital activities ceasing before they reach the state of freezing.

Higher animals are not so dependent upon the surrounding temperature. They are not only equipped with internal sources of heat and mechanisms to control its production and radiation, but they also in most instances have outer coats of hair, feathers or wool to protect them from the cold. They possess means of lowering heat production and increasing heat radiation if the external temperature or their own internal heat due to activity is increased. (By the operation of the same internal heat-regulating mechanism they produce fever when needed.)

Thus, while the very form and habits of the lower orders of life are determined by external surroundings, the forms and habits of life of the higher animals are very largely determined by powers within them. These often prevail over powerful antagonistic forces without.

The lower animals are more or less slaves to the external world; the higher animals make the external world serve them. It should be noted that this independence of the higher animals, this internal energy, is in great measure due to a capacity for maintaining their normal temperatures amid the changes in that of the surrounding water and air.

The uniform temperatures maintained by higher animals promote and secure a constancy, precision and energy in the nutrition of their tissues, and in the vital functions that supply the animal with resources to carry on active life in the face of opposing influences in the world.

A brief glance at the method of maintaining body temperature may be helpful. In the chapter on respiration we learned of the office of oxidation in the production of heat. It is necessary that we understand that the body is capable of both increasing and decreasing its rate of heat production as the external temperature falls or rises. These processes are rigidly controlled by the nervous system and fail only in greatly enervated and diseased organisms.

But the body also increases and decreases the radiation of heat from the body as need arises. While oxidation warms the body, evaporation (as in sweating) cools it. These physiological processes are carried on in relation to vital wants. The human body, to narrow our considerations at this point, is based upon a system of self-regulation and equipoise, and its temperature relations are beautifully provided for. In a cool atmosphere less heat is lost by evaporation and more produced within the body, while a reverse process is seen in a warm temperature.

In all changes of temperature outside the body, some compensatory effort is required. But if our other relations are correct, the internal heat-regulating capacity of the body will be efficient. The maintenance of the heat-making mechanism of the body is an indispensable condition of health. Feeble and sick individuals who find it difficult or impossible to maintain normal temperature in a cold climate need to be kept warm. Chilling inhibits all functions of life and reduces their already greatly reduced stock of energy. The escape to a warm climate is no mere luxury for such persons. Warmth of some degree is certainly a normal requisite of life. But experience and experiment have shown that when the temperature of the surroundings is out of all proportion to the needs of the body and to its capacity to adjust itself, the body must and does suffer. There is not only discomfort, which normally causes us to seek relief from extremes of heat or cold, but there is some expenditure of energy in resisting extreme temperature.

In lands where fogs, frost and darkness cramp the energies of man, as well as in regions where excessive and long-continued heat depresses his vital activities, life is handicapped. By means of clothing, housing and artificial heating arrangements, we are able to live in cold climates. By means of cooling systems and a reduction of clothing, we live more comfortably in hot regions and seasons. But none of these arrangements are ideal. A warm climate serves man best; first-class habits of living enable him to live better in whatever climate he resides.

Article #2: Are You Suited For Health by Mike Benton

Do you dress for success? Are you a fashion follower or a "clothes horse?" Is your clothing bought for style and status or comfort and durability?

Like food, shelter and the other necessities of life, clothing can be as natural or unnatural as we choose. Just as the businessman who orders steak at a luncheon to impress others with his financial success, there are people who wear the latest styles in clothing and name brands to make impressions.

However, from the body's standpoint, clothing serves two functions only: 1) To protect us from climatic variations, and 2) To protect the skin from injuries. Clothing is not a necessity if we live in an agreeable climate and a non-threatening environment. If we need to cover the body, clothing should be chosen for only these reasons:

1. Comfort;
2. Environmental harmony;
3. Aesthetic pleasure.

Clothing is comfortable if it allows unrestricted natural movement. High-heel shoes are not comfortable. They throw the body out of alignment and place undue strain on the feet and calves. They make a woman's natural gait into a wiggling, mincing movement which prevents full strides. Neckties are not comfortable. They serve no protective function. Instead, they may restrict circulation about the neck and create tension and headaches.

All tight clothing, be it jeans or pantyhose, prevent natural air circulation over the body. Vaginitis and yeast infections have increased as rapidly as the popularity of the smothering pantyhose. All underwear, especially, should be of light natural fibers that allow the skin to breathe.

Most shoes are made from leather and are tightly-laced or high-topped. Again fresh air is shut off from the skin and fungus and odors result. Belts bind the waist. Brasieres constrict the chest. In fact, fainting was very widespread in the nineteenth century not because of the gentility of the women, but because the corsets they wore were so tight they could not take a deep breath.

The human metabolism depends upon the free flow of air over the exposed skin. Tight, constrictive clothing blocks air and sunshine. We become trapped in an envelope of toxic gases emitted from the skin during its process of elimination.

If we desire harmony with our environment, we must wear clothes made from natural fibers. Synthetic materials do not allow the skin to "breathe" and are responsible for many of the heat rashes experienced in the summer. The plastic diapers used on babies are the culprits behind diaper rash. Our skin is repelled by the synthetic clothes that prevent natural body moisture from evaporating.

Synthetic fibers are also made from non-renewable resources and harm the environment. Such "natural" materials as leather and furs require the slaughter of animals, either directly or indirectly. Wearing leather and furs while espousing a meatless diet makes the ethical vegetarian an unconscious hypocrite.

This leaves us with cotton, linen, straw, and wool as optimum materials for clothing. These are from renewable resources (wool does not involve the killing of the sheep), and they allow the skin to breathe. They require no undue exploitation of the environment or animals.

Aesthetic pleasure is also a valid reason for choosing our clothes. We humans have a deep love of beauty and this love should be expressed in our living surroundings and personal effects. Clothing should be pleasant to the eye, colorful, and pretty without being merely ornamental. Beautiful clothes, of course, cannot hide the ugliness of a diseased body or unhappy mind, nor should beauty be confused with fickle style.

The most aesthetically pleasing clothes are those that are simple and have stood the test of time. Sexual attributes should not be emphasized by clothing, nor should they be hidden, unduly. No piece of clothing in the world is as beautiful as the healthy body. Neither artifice nor deception can improve upon nature's work.

So, are you suited for health?

You are if you wear clothing made from natural fibers which are comfortable, pleasing to the eye, and simple. Give your body as much freedom from clothes as possible. Nudity, when weather and personal feelings permit, can be an important factor in regaining health. Overdressing is much like overeating—it weakens the body's natural vitality.

A warm smile, sparkling eyes, healthy hair and a radiant complexion are the best attributes in your wardrobe. The rest is only window dressing.

Home > Lesson 4 - Introducing The Life Science System For Perfect Health, Part II > Article #3: Mental And Emotional Poise by Lee Bauer

Article #3: Mental And Emotional Poise by Lee Bauer

You may eat the finest food, get daily exercise, sunshine, fresh air, pure water, proper rest and sleep, live in a near-perfect climate, and yet be miserable and unhappy. Why? Because life is more than bread alone, more than creature comforts, more than well-disciplined physical health procedures. Total health and well-being depends upon so many factors—each important and necessary. Each demands a share of our time and energy. But, unless we watch our mind and emotions at work, our psychological responses, our inner urges and demands, a complete state of health and happiness will surely elude us. This is to say that the physical and mental are tied together as one. They are not separate. But, much of the time we treat them as if they were. Actually, we can only separate them for the purpose of discussion. Since, as Dr. Shelton has remarked, "The human being is a physical, mental, emotional and spiritual unit, and not a mere bundle of separate and more or less antagonistic elements. Health is a matter of vital, nutritive and physical hygiene."

So let's examine that part of us which is not too often talked about at our conventions, or written about in Hygienic literature. Perhaps this may be because of the complexity, the vastness, and the difficulty usually experienced in trying to explain it satisfactorily. By no means do I consider myself an expert in this field. I am merely a bystander, noticing what is going on with myself, wondering about it, and asking questions which have led me to some rather satisfying answers over the years. I would like to share them with you.

Let's begin at the beginning. What is it that most of us are seeking? What are we after? Why is it that we often go from one religion to another? Why are we engaged in trying different disciplines, gurus, masters and mystics? Could it be that most of us are searching for a permanent state of peace, happiness, satisfaction, security, or the ultimate: God? Whatever it is, it is described by many names. But, since the name is not the thing, it really doesn't matter what we call it. Maybe we could simply refer to it as permanent happiness. Before we get involved in the search, as to whether there is such a thing, should we not want to understand the person that seeks this happiness?

Know Thyself!

In order to know the seeker, I must first know myself. I must want to see how my mind works: why I think as I do, react as I do, and so on. No book, no person, regardless of how intelligent, gifted or famous can help me. It's a do-it-yourself process. I must see it for myself, first hand. No other method that I know of has been found that works unless I step in the direction of knowing myself. If I can see that my mind works as it does, because of my conditioning, I have taken a giant step towards freedom and eventual transformation. Conditioning is the cause of my beliefs, my patriotism, my politics, my attitude towards others, and towards the world. In fact, I am the world! Getting in touch with this knowledge of myself reveals why I think in the particular way that I do. It exposes to me the background of all my thoughts. It enables me to perceive the reasons for my hurts, bitterness, jealousy, and disappointments. It reveals the source of my conditioning, which lies behind all my relationships.

Tracing Our Conditioning

We come into the world, as a baby, equipped to start life as a human being. Within us are all the human characteristics and attributes which have been in existence for over two million years. Along with these, we also inherit the tendencies and instincts of the animal. They go back and back, into the timeless past, perhaps to the origin of life on earth. And, before that, to life in the sea, where it is possible that all life began.

Our subconscious or unconscious mind contains the images and memories that lead to self-preservation, fear and violence. These are gleaned from the lives of our ancestors who have preceded us. From the moment of birth, or even before birth, we begin to gather knowledge through our senses. We learn by observation, imitation and instruction. The conscious mind now makes its appearance. It becomes evident that both subconscious and conscious are one.

History and further study reveals that in spite of some two million years of human life, and 2,000 years of religious training, the animal instinct of even the cream of society is still the driving factor. In the course of time we are cautioned to resist these animal emotions as they come up, and to subdue them or control them. To get this message across to us, we are instructed in various ways. In religion, for example, we absorb the instruction through pictures, sayings, books and in places of worship. Depending on where we grow up, in what part of the world, we learn about Jesus, Allah, Buddha and so on. So that, at an early age the Christian child has no doubts about Christ being the true God. In turn, the Muslim boy or girl will think of Allah as being the only God. And, as a member of a Buddhist family, the youngsters grow up regarding Buddha as the Most Compassionate One. Children of other religions are also brought up in a similar way. Thus, each child is indoctrinated with the faith and beliefs given to him by his parents and teachers. As they grow and mature, most of them stand ready to lay down their life for these beliefs. Conditioning is now well underway. It goes on in every area of our lives, from birth to the grave. It colors our thinking and actions. It touches our lives in so many subtle and obvious ways. It motivates our feelings, our political leanings, our way of speaking, walking, eating, going to the bathroom, and even our dreams.

I Really Don't Know

As we grow up we begin to take a stand on issues. We gather a few facts and figures and then come to a decision. It's either right or wrong, so help me God. Our decisions become more solid as we grow older. With some of us, we write them in granite. We become fixed as the stones on which they are inscribed. We defend and justify them, sometimes even to the end. Examples in any field could be used, but since we moved into our conditioning through religion, mentioned before, let's pursue the matter further.

For instance, some say emphatically that there is a God. Others, just as strongly point out that there is no God. Both cannot be right. If one is true, the other is false. To see the truth, we are not in a position to accept or deny. If we do either, that ends the investigation. To find out for sure, I must admit that I do not know. I really don't! True research begins from there.

About Listening

Now, how do we go about our search for the truth? Much depends on how we investigate, but even more important is—how do we listen? Say we go to a lecture or talk. The speaker says something. Immediately we tend to agree or disagree. Or, we compare him with someone else, and what he is saying, with something we may have read or heard. Accordingly, we nod and shake our heads. Throughout the talk our mind continues to talk also. Have you noticed how the mind is continually yakking with us? This constant chatter of the mind causes our attention to be divided between what the speaker says and what our mind is saying. If our listening is to put us in touch with the facts, we must give our entire attention to what is being said. In this way, and this way only, do we come to understand the speaker and what he is really saying.

We find ourselves agreeing or disagreeing according to our conditioning. Listening, that is proper listening, demands that we be aware of what is being said without the bias of our conditioning. In other words, being aware, without choice is necessary to get the full impact. I must neither agree nor disagree, as I listen. I must not judge or evaluate to any degree. I must listen, pay attention, be aware, with my whole heart, mind, body, nerves, senses, everything!

If I am able to do this, I see that eventually my mind and its chatter slows down. I listen and watch my thoughts as they pass through my mind, as I would watch a movie. I greet each thought as a friend. Welcome it to my mind. Investigate it. Challenge it. Question it. Pursue it to the very end, without hurry or anxiety. See it for what it is, and then let it move on, pass away, drop dead, to return no more. If I am successful in following each thought from rise to fall, I soon begin to take notice a slowing of the thinking process. This entirely normal way of handling thought is within the ability of everyone. After a period of time, perhaps several weeks, a month or so, depending on your interest and attention, the mind becomes silent. Thinking comes to an end. There is no further chatter to disturb our listening and observing. If, perchance, a thought does enter the mind, see it for what it is, treat it hospitably, and let it die away. These moments of non-thinking will gradually lengthen. The ease of doing this extends itself. This could be called a state of pure listening, pure observing. Pure because there are no thoughts to contaminate the mind while it is listening and attending to the speaker, or the situation at hand.

So far as I know, this is the only way to be in direct touch with a speaker. It works effectively when used in any situation or relationship. You don't have to use any effort to do this. It happens by itself. There is no method or system to bring it about. One merely listens, watches, observes, becomes aware, gives his complete attention to the thought at hand, to the feeling experienced, and notices its passing. Understanding our thoughts leads to further understanding of ourselves. And, by understanding ourselves, we can better understand the other fellow. Eventually, this culminates in a radical change or transformation within, which radiates outward, and extends to every facet of our life. So that the things we are unhappy about, clear up in the process of daily living. We don't have to use willpower, control or any tricky stuff. Pure listening and observing without the distraction of thought, puts us in touch, moment by moment, with exactly what is taking place.

There's More I Must Learn

There's a lot more to experiencing mental and emotional poise. I must find out who I really am. I must discover that the ego, the self, the "I" is not an entity, but merely my memory. That thinking is great when applied to everyday use, for solving problems, technical engineering, finding my way home, recognizing friends and family...but it gets in the way when we want to observe, be aware and sensitive to life that is going on all around us.

Poise means balance, equilibrium, stability, ease of mind and body. Mental and emotional poise is a normal state of being, in which we experience harmony and ease within ourselves. It does not mean we have no challenges or problems. We are faced with these even in the vigorously healthy state of being at peace. It means we need not be hurt or disturbed in any way by them. It means also that life is a joy, and each moment offers us another opportunity to learn, to love, and to understand.

Lesson 5 - Introduction To Nutritional Science

- 1. What Constitutes Nutrition? (Definitions And Concepts)
- 2. Food Is An Element Of Nutrition
- 3. Physiological Criteria Foods Must Meet
- 4. Nonfood Nutritional Factors
- 5. Discussion Of Conventional Nutritional Teachings
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- Article #1: The Paradise Diet by Dr. Herbert M. Shelton
- Article #2: The Elements Of Nutrition by Dr. Herbert M. Shelton
- Article #3: Nutrition, A Hygienic Perspective by Ralph C. Cinque, D.C.

1. What Constitutes Nutrition (Definitions And Concepts)

Conventional attitudes regard nutrition as being almost exclusively involved with foods and feeding, but this is only one facet of the nutritional scene (albeit an important one). At the outset it is prudent to define what nutrition is and, in view of the many misconceptions, what nutrition is not.

1.1 Nutrition Is the Sum of All Processes That Promote Growth and Function

Nutrition does not mean food only. Nutrition is the sum of all the processes that supply, develop and sustain an organism's faculties and functions at the optimal level of existence. In short, nutrition is the total of all that supplies life's needs. It embraces all requirements for perfect health and supplying these requirements constitutes nutrition.

1.2 Nutrition Is Modified By the Entire Spectrum of Life Conditions and Activities

The sum of nutritional processes adds up to our health quotient; that is, our state of health equals the total of the nutritional processes that created it.

Anything that modifies nutrition or the processes of supply and usage also modifies health. Everything we get involved in or do in all spheres of life affects in some way our nutritive disposition, either for the better, for the worse or equivalently.

With respect to foods and feeding, we have specific adaptations for acquiring and processing particular foods to meet our nutritive needs. Anything that changes in the whole process affects our nutrition and, consequently, our health.

Because of its importance, we re-emphasize: Nutrition is largely dependent upon our health and, likewise, our health is dependent on nutrition.

1.3 Nutrition Involves the Processes of Growth, Development, Supply and Invigoration

Dr. Herbert M. Shelton has defined nutrition as follows:

> *Perfect nutrition is dependent on perfect organs, perfect functions and normal health. Each is dependent upon and grows out of the other. All processes and functions are interdependent and interact harmoniously for mutual well-being. They cannot be taken apart and categorized. Every aspect of life is but a part of a unified whole.*
>
> *This idea of interdependence and interaction leads to the principle that the appropriate way to recover and develop strength and vigor is through the activities and processes that give rise to growth. We recover arid develop strength and vigor in the same way that we keep well, in the same way that a babe grows into vigor and adulthood. The powers and forces that brought us into being, that sustain us in existence, that cause us to grow through all the phases of life to manhood and womanhood, are sufficient to restore us if health becomes impaired.*

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2. Food Is An Element Of Nutrition

As stated earlier, food constitutes only a part of the needs of life. It constitutes some of the raw materials which become part of the overall nutritive processes. When the body receives food, it breaks it down mechanically and chemically into components which can be absorbed and synthesized by the organism into special substances to meet the special needs of the organism.

2.1 Food Is an Inert Substance—Merely Raw Materials

Many people believe that foods have different actions in the body. However, this is erroneous. Foods do not act in the body but are, instead, acted upon by the body. To be appropriated the food must lose all its character. It is mechanically crushed, comminuted and mixed with digestive fluids, then chemically reduced to basic components for absorption, synthesis and use.

Let us again review nutrition as Dr. Shelton has expressed it in yet another definition:

> *Nutrition is a vital process carried on only by a living organism. It is a process of growth, development and invigoration. To eat good food and enough of it, to drink pure water and breathe pure air, in and of themselves, are very desirable, but something more is needed in order to acquire health, strength and vigor. Nutrition is dependent on function. We can have better nutritive function only when we have a capacity for better nutrition.*
>
> *Food is of value only in its physiological connections with air, water, sunshine, rest and sleep, exercise or activity, cleanliness and wholesome mental and moral influences—in short, all the natural or normal circumstances which we know to be necessary for the preservation of health.*

What Dr. Shelton is saying is but a reiteration of what has been emphasized here, that the better your health the better will be your nutrition and the better your nutrition the better will be your health. Every factor and condition of life must be supplied optimally to assure best health.

Again, to highlight its importance, we repeat that food does not use the body or do anything to the body. The body does unto the food and uses it. In creating foods, plant life designed them to be utilized by animals in exchange for a service to the plant. This is symbiosis. Human service to plants is the incidental broadcast of their seeds. Was ever a reward so great for such a small service?

As a nutritionist you must ever keep this in mind: Foods do nothing in the body. They have no powers of cleansing, healing or anything else. Foods have no will or purposes of their own. To be consumed and used is their inherent design.

2.2 Food Use Is Subject to the Body's Ability to Process, Appropriate, Assimilate, Metabolize and Eliminate

A body that is impaired is unable to properly process and use food. To the extent that the impairment causes withdrawal of functional energies from digestive processes, the body is unable to be fed. When the body's nutritive functions are in any way impaired, and this will usually be evidenced by depressed or lost appetite, make this a standing rule: do not partake of food. Guide clients away from food. Missing a meal or a few meals is most constructive.

If the body is in any abnormal condition, food should not be taken or given. In fever, pain, emotional upset, fatigue, worry, sleeplessness and many other conditions, the body is unable to muster the needed energies for the processes of digestion, appropriation, and assimilation. In such conditions the body does not create the condition of hunger or give rise to appetency.

2.3 Food Is But One of Many Needs in Nutrition

Our capacity to receive, process and assimilate food is necessary to the nutritive process. In the absence of functional energies in these areas, feeding results in lowered body energies and the waste of foodstuffs. It is passed on to the bowels and the body is worse off for it.

To appropriately receive, digest and assimilate foods, other physiological needs must also be present. Oxygen, water, digestive fluids, nerve energy and a multitude of other factors and influences must favorably coalesce to effect these processes. Should any impairment in the nutritive faculties exist, the interference may prove insurmountable and result in indigestion.

This leads to this inescapable conclusion which you must ever bear in mind: proper nutrition is dependent upon and is affected by the entire spectrum of the organism's activities and conditions.

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3. Physiological Criteria Foods Must Meet

Every creature in nature has become adapted to securing and nourishing itself on particular foods. All natural equipment and faculties dispose to this specialization. Humans are not exceptions to this rule. Because we have developed tools using our capabilities and can supply ourselves with an abundance of anything on earth as food does not in any way alter our physiological adaptations and specializations.

Every creature has basic nutritive requirements. Our biology books detail these rather impartially and correctly for animals. But the books and teachings that concern human nutrition do not deal impartially with the subject. Our educational establishment is the captive of our mammoth industrial complex. This means they prostitute their teachings to cater to the needs of those whose grants support them. Thus, human nutrition as taught in our society is dictated, not by physiological faculties and needs, but by the wishes of those food industries that stand to gain from the miseducation that panders to their products.

3.1 Food Adaptations of Various Species

The food specializations of various species are categorized by general designation. Some of these categories are as follows:

- Herbivores (grass and vegetable eaters such as cattle, sheep, goats, deer, horses, rabbits, etc.)
- Graminivores (animals that subsist on grains—birds primarily)
- Insectivores (bats, birds and creatures that subsist on insects)
- Frugivores (fruit-eating animals—primates and anthropoids, humans, orangutans, apes, monkeys, etc.)
- Carnivores (animals that live on the flesh, bone, offal, etc. of other animals—cats, dogs, lions, tigers, wolves, buzzards, hawks, eagles, jackals, etc.)
- Omnivores (animals such as swine (pigs, hogs) that live off a mixed diet of fruits, vegetables, grains, flesh, offal, etc.)

As you're aware, the bee lives on the nectar of blossoms and flowers and the pollen with which it becomes incidentally contaminated. All the bee's equipment befit it to seek out flowers, land upon or hover over them, withdraw nectar the flower has secreted especially for the bee, and to return to its hive where it shares its harvest with other bees, the surplus being stored as honey. The bee is excellently equipped to meet its needs amply in this manner. Humans cannot meet their needs this way. Neither can cattle, horses or pigs. They're equipped in their own special ways to meet the needs of their adaptations.

As a sidelight on the symbiotic relationship of life, we might note that the flower created the nectar for the bee in exchange for a service. The flower or blossom is a step in the plant's creation of seeds. Before a seed can be formed, fertilization must take place and to insure this fertilization the bee is enticed by nectar. Incidental to the taking of nectar the bee contaminates itself with pollen. At the next flower the bee contaminates the flower's pistil with this pollen. This incidental fertilization is the service the plant induced the bee to perform with the nectar secretion. Who said plants weren't smart?

3.2 Range of Food Processing Capabilities

Humans are endowed with certain natural capacities and limitations in the acquisition, processing and utilization of foods. Human development (which endowed us with our faculties and capabilities) specialized and restricted our equipment and capabilities for food gathering and processing to certain foods just as in the case of other animals. The faculties of most creatures are developed so as to make disposition of surpluses or to survive scarcities. Surpluses are either stored as reserves or are excreted. Redundancies beyond needs and ability to readily excrete founder humans and other animals that are so unwise as to overeat.

In ascertaining the criteria that a food must have to satisfy human needs, we must be cognizant of the capacities and capabilities of the organism as well as the properties of the food.

3.3 Food Adaptations of Humans

Humans are classified as frugivores because they have the equipment to harvest and efficiently process only a class of foods called fruits. Humans are not alone in this class. For millions of years humans subsisted solely, exclusively and only on fruits. That is the way it was expressed by Dr. Alan Walker of Johns Hopkins University, an anthropologist who conducted extensive research into the dietary background of humans. Even though humans have eaten foods outside their dietary adaptations off and on for perhaps hundreds of thousands of years and have eaten some cooked foods for tens of thousands of years, there has been no physiological change that would justify straying from our natural dietary.

Our adaptations are strictly as fruit-eaters as you will see in subsequent lessons.

3.4 The Dietary Requirements That Determine Our Ideal Foods

Natural foods for humans must satisfy the following criteria and nutrient needs:

Foods Must Be Non-Toxic

First and foremost the food must be toxin-free. None of the compounds and substances in the food should present a digestive problem. The body must have enzymes adapted to handle every substance within the food. Toxic substances are those which the body cannot use as food. Substances that the body cannot use but which it cannot prevent absorption of (as in alcohol, cholesterol, drugs, etc.) are toxic.

Foods Must Be Edible in the Raw State

The food must be edible in its living or raw state as nature delivers it up for us as food. If we cannot eat our fill of a food in its raw state with relish and make a meal of it that meets all or most of our nutrient needs, then it is not a natural food for humans and should be shunned in favor of foods that do.

Foods Must Have Sensory Appeal

Foods of our adaptation have great sensory appeal. They are a delight to the eye, their aromas tantalize the sense of smell and their substance is an unqualified gustatory delight.

Foods Must Be Digested Easily When Eaten Alone or Properly Combined

Foods of human adaptation undergo practically no digestion in the stomach and humans can absorb the chyme and chyle of their natural foods with very little chemical elaboration in the stomach and small intestine.

Foods Must Be Digested Efficiently

While ease of digestion necessarily also implies efficiency of digestion, this entry relates to another aspect of efficiency. That which is eaten represents a certain amount of energy potential. To derive this energy from food, the body must expend energy to obtain it. The ratio of energy obtained relative to energy expenditure determines the ratio of efficiency.

For instance, we spend a mere 30 calories of energy in the process of appropriation, chewing, absorbing, transporting and assimilating 400 calories of watermelon. On the other hand, we may spend 280 calories in the digesting meat to obtain 400 calories. The efficiency with which we handle foods with monosaccharides versus the inefficiency with which we handle protein foods indicates most emphatically the types of food to which we are naturally adapted.

In processing food for use, we expend two kinds of energy. We expend metabolic energy, which is the chemical and mechanical energies expended, and we expend nerve energy. For instance, we use very little nerve energy in digesting watermelon. But, in processing foods to which we are not biologically adapted, an enormous expenditure of nerve energy is occasioned. Meats may cause nervous exhaustion due to the body's frenzied activities in dealing with proteins, uric acids and other toxic substances in them. Though we may feel exhilarated while expending nervous energy just as we feel "a pick-me-up" when taking coffee (which really drains nerve energy), the stimulation occasioned by eating unsuitable foods such as meat is an indication of the inefficiency with which the body handles it.

Foods Must Have Protein Adequacy

Our natural foods must supply us with our protein requirements of about 25 grams daily. The less protein eaten down to the point of adequacy, the better. Protein is taken into the body for replenishing amino acid components needed for a multitude of applications. There are three things you should keep in mind relative to protein digestion:

1. the body can recycle up to two-thirds of its proteinacious wastes to meet its needs;
2. protein digestion requires an expenditure of energy equivalent to about 70% of its total caloric content; and
3. neutralization and elimination of the toxins of protein degeneration (putrefaction) uses up vast amounts of nerve energy which, though stimulating at the time, exhausts and debilitates the body.

We must not feel compelled to eat protein foods as such in order to achieve protein adequacy. Almost every food natural to humans has about 4% protein dry weight, an ample amount to supply our needs. Further, most of our natural foods contain the amino acids we need.

Foods Must Be Adequate in Vitamin Content

Some 30 vitamins have been determined to be needed in various quantities in the human diet. The vitamins must be in the diet in an organic context with other nutrients to be useful.

Foods Must Be Adequate in Mineral Salts

Our only source of the minerals of life is from food. Only in food are they in the organic context which we can use. Under no circumstances can the body make use of inorganic minerals as might be ingested with water, supplements or powdered rock (as with dolomite).

Natural Foods Must Supply Our Needs for Essential Fatty Acids

Those food factors which the body requires but cannot itself synthesize are said to be essential. The essential fatty acids are linoleic, linolenic and arachidonic. Essential fatty acids are unsaturated fats. They occur in practically every fruit, nut, seed and vegetable in ample quantities to supply human needs.

Natural Foods Must Supply Our Needs for Caloric Values

The energy we expend must be derived from our food intake. The foods which most efficiently and easily supply our caloric needs are those with high monosaccharide content. Sweet fruits are at the top of the list in meeting these requisites.

Natural Foods Are Water-Sufficient to Meet Our Needs in Most Cases

Foods to which we are biologically adapted normally meet all our water needs. This is obvious, for we have no water-drinking faculties other than suction which is necessary for swallowing food. Fruitarian species normally do not drink water.

Natural Foods Are Alkaline in Metabolic Reaction

We require foods that are alkaline- or base-forming when metabolized. Almost every food of our adaptation is base-forming, even if it has an acid pH in its natural state. Should we eat any acid-forming foods, such as nuts, they should be offset at the same meal with alkaline-forming foods such as green leaves or other vegetable fare.

These are the criteria or requirements for foods that are natural to the human dietary. Only fruits, and especially sugar-containing fruits, meet all these needs ideally. Nothing else meets all these requirements. As further lessons will demonstrate, the requisites of life can be amply met on a totally fruitarian regime.

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4. Nonfood Nutritional Factors

The first part of this lesson has emphasized the great breadth of the nutritional scope and perspective. This introduction is but a preview of some nutritional factors. In-depth treatment is given to most aspects of nutrition in subsequent lessons.

Among the nonfood nutritional factors are the following:

- Sunlight and natural light
- Fresh air and the oxygen it supplies
- Pure water
- Exercise, play and recreation
- Rest and relaxation
- Sleep
- Emotional poise
- Other requisites of life
- General body conditions

Inasmuch as you've already had a glimpse of nineteen essential factors and influences for great health in a previous lesson, and they included the above, the details will not be repeated here. You may refer back to lessons three and four if necessary. The above listing is to emphasize the great dependence of proper nutrition upon other needs of the body (besides food) being appropriately met. Nutrition does not occur in a vacuum. It is not an independent process. It involves the organism in every aspect of its being.

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5. Discussion Of Conventional Nutritional Teachings

As perhaps you know or may have long suspected, and as was stated earlier in this lesson, conventional nutritional teachings are distorted to accommodate the "food" industries that dominate America. In fact, these distortions and fabrications predominate, not only in America, but also in most of the Western world.

If we follow conventional nutrition, we are bound to end up with malnutrition and toxemia and the pathologies they lead to. As Life Science serves no commercial masters, it has no interests to be served in teaching you false concepts. Further, we do have the benefit of knowing the truth. With respect to conventional nutritionists, it might be said that "It is better to be ignorant than to know so much that isn't so."

5.1 Do RDAs Represent Our Actual Needs?

The recommended dietary allowances of the Food and Nutrition Board of the National Research Council reflect the many fallacies to which a wrong philosophy of nutrition leads.

First, the RDAs are educated estimates and are sometimes revised upwards or downwards in view of "new findings."

Second, the board has been very liberal in its allowances. In almost every case, the allowance or suggested daily intake is two to ten times the amount needed by healthy persons. Likewise, they are far in excess of the needs of unhealthy persons, for unhealthy persons usually have impaired nutritive faculties, do not function as efficiently as do healthy individuals and should have a physiological rest in the form of a fast.

Third, the allowances are based on conventional diets which are comprised largely of cooked foods. Not only are cooked foods so deranged that a substantial portion of their nutrients are not usable, but they so vitiate the nutritive faculties as to impair them and lower their efficiency.

Healthy individuals eating a raw diet of proper foods have highly efficient nutritive faculties and thrive on a fraction of the intake on which the RDAs are based for conventional eaters.

5.2 The Concepts of the Basic Four Food Groups

The pathology and suffering resulting from the abominable nutritional concept of the four basic food groups is a national disaster! This concept and its promotion stems from a national policy of catering to industrial behemoths rather than to the welfare of consumers. While today's "food" industries are outgrowths of incorrect eating going back into the past, the justification for them is relatively recent in origin. The concept has been to acclaim as science the eating of "foods" that cover, not human needs, but the gamut of foods produced by powerful food interests.

The basic four food groups are as follows:

1. The milk group, which includes milk and all milk products.
2. The meat group, which includes meat, eggs, fish, legumes and nuts.
3. The bread-cereal group, which includes grains and grain products.
4. The fruit-vegetable group, which includes all fruit and vegetable fare excepting nuts and legumes which are in the meat group because of their protein content.

Eating specified amounts from each of these groups daily is proclaimed "balanced nutrition." In truth it is a "balanced market" for the commercial "food" interests that share the food market. The selection of foods in the typical American diet has nothing to do with meeting human needs. The typical American diet is gravely pathogenic and is mostly responsible for our deplorably diseased population.

In subsequent lessons you'll learn why milk and all milk products are unfit for human consumption and the physiological grounds for this unfitness. You'll also learn why all meats, eggs, fish (and legumes except sprouted) should be rejected as items of diet. Additionally, the relative unsuitability of grains and grain products (compared with fruits, vegetables, nuts and seeds) in the diet will be highlighted. Bread, cereals and other starchy foods, if included in the diet, are a far less than ideal part of the diet.

To comment on group four, we point out that some vegetables can be added to the human diet with benefit, though their rich content of nutrients is really unneeded if we partake liberally of fresh raw fruits (and abstain from eating unwholesome foods).

Tubers such as potatoes constitute a large portion of the vegetable intake in America. Inasmuch as most tubers are cooked to make them palatable, and cooking significantly lowers the nutritive value of the food, they, like cereal grains, are less than ideal as foods. In addition, many other vegetables, such as onions, garlic, radishes, spinach and others contain toxic substances (such as mustard oil in onions and garlic and oxalic acid in spinach) that make them unsuitable as foods.

So, while certain vegetables (such as lettuce, celery, broccoli, cabbage and others) may supply "nutrient insurance," many, if not most, vegetables have liabilities that make them less than ideal, even undesirable, as foods. Besides, we can obtain most, if not all, the nutrients we need from fresh ripe fruits, especially if we also include the non-sweet fruits often called vegetables (such as tomatoes, bell peppers, cucumbers, etc.) plus a few nuts and seeds in our diet of fresh fruits.

It bears reiterating that the items of diet to which we are not biologically adapted are, to some degree, pathogenic. Subsequent lessons will probe the ill effects of wrong diet in greater depth.

5.3 Eating Practices of Americans

Most of us are keenly aware of American eating practices. A typical breakfast may include every member of the four basic food groups. The typical American breakfast usually includes from the meat group ham, bacon or sausages and eggs, from the grain or cereal group bread (toasted or untoasted) and/or some pastry or perhaps a donut, and a bowl of cereal. From the fruit and vegetable group may be an "appetizer" in the form of grapefruit, an orange, orange juice or cantaloupe. Also from this group may be some fried potatoes and possibly banana or other fruit on top of the cereal. From the milk group there is usually milk for cereal, cream for the coffee, butter for the toast and perhaps a glass of milk on the side. Sugar, salt, pepper and other sweeteners and condiments may be added.

An American lunch usually includes a meat dish with servings of vegetables, tubers or grains on the side. It usually includes bread and may include milk, ice cream, butter and other dairy products. An American dinner is not substantially different than an American lunch except there's usually more of it.

The typical American diet is heavy on members of the four food groups promoted in America as nutritious fare. There has not been in all history more pathogenic fare than this!

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6. Discussion Of Human Eating Habits The World Over

Diets vary widely over the face of the globe. We have the Lapps and the Eskimos who live pretty much as carnivores on one end of the spectrum, and we have groups of peoples in the equatorial regions who live as almost total fruitarians at the other end of the spectrum.

6.1 The Origins of Paradises and Edens

Up until relatively recent times in human history, humans have been primarily fruitarians. To this day in Java and other Malaysian islands there are enclosures known as para desas where people live among fruit-bearing trees. (The word paradise derives therefrom.)

All over Europe and much of the Far East there were walled enclosures of heavy stone where people resided and tended orchards. These were called paradises or edens. The walls kept out animals, helped capture and retain the sun's heat and protected against winds and frosts.

Many words with roots of ava, and aval (such as Valhalla and avalon) evolved from terms born of a fruit culture. Valhalla originally meant apple hole or a place where apples were stored. Avalon merely meant the land of apples. The cultivation of fruits had attained scientific status long before formal histories were kept. We know of them through folklore legends and the remains of the incredible stone walls of these edens.

6.2 The Origins of Today's Eating Practices

If humans are natural fruitarians, how have they come to stray from the diet of their physiological adaptation? .

In nature, such animals as gorillas, cattle and horses will die of starvation rather than eat flesh; but chimpanzees and some other fruit-eating animals will rend and eat another animal on occasion.

Humans, in addition to being possessed of a strong survival instinct, possess extraordinary intelligence to employ in support of that instinct. About three to four million years ago humans begin wandering out of their homelands in tropical regions. In time they peopled most of the earth accessible to them. Over the whole globe, according to geological records, climate was hospitable and favored their frugivorous habits. The remains of tropical plants have been found in Alaska and other northerly latitudes.

Due to some cataclysmic event or events that resulted in cold and freezing temperatures and ice ages, humans in northerly climes retreated south. Those that remained had to survive on the fare available to them or perish. For a part, this meant meat and animal products. Humans had to learn providence against the seasons and to survive on the foods available in harsh seasons or disappear from the scene. This led to meat-eating and to the use of non-fruit foods. These dietary perversions, born of necessity, became fixed in many peoples and gradually spread to people who had no necessity to resort to non-fruitarian diets. Despite this, many pockets of people throughout the world never deserted their natural fruit diet and remain fruitarians unto this day.

Even such a harsh seasonal climate as found at the 8,000 foot level in the Himalayas in Northeast Pakistan has a fruitarian culture, that of the Hunzas. While the Hunzas do partake of some pulses and grains, theirs is primarily an ecoculture of orchards, and their dietary consists mostly of apples, apricots and other fruits that thrive in their climate and growing season.

The use of meat and animal products, grains, roots and other non-fruitarian fare has arisen in relatively recent times in human history and undoubtedly originated in the adversity humans faced in certain climates, especially northerly ones. The cultivation of grasses for grain is only a few thousand years old, perhaps less than ten thousand.

6.3 A Look at Some Diets over the World

If you were a Mongolian you'd probably be a nomadic appendage to an animal flock. You'd have some vegetables but, for the most part, you'd fare on meats, cheeses, milks and milk products.

If you were among groups of people in tropical Brazil and other tropical cultures, you might live almost entirely on a banana diet, on breadfruit or on some other fruit. The same might be true if you lived on many Pacific islands or Indian Ocean cultures.

If you lived in Southern China you might adopt a diet heavy in fruits, rice and vegetables, whereas in Northern China you might adopt a diet heavy in fruits, soybeans and vegetables.

Eskimos and Lapplanders live almost exclusively on animal fare. With the exception of some areas where fish is consumed extensively, most Asian cultures are vegetarian and fruitarian. Most Asian countries have what is called a rice economy, though some Asian cultures utilize other grains and legumes as staples.

Europeans, immediate ancestors for most Americans, are heavily into grain culture and make it a substantial part of their diet, though they also partake heavily of fruits and vegetables. Meat and animal products form but a small part of the diets of most Europeans. English-speaking people the world over are the heaviest meat-eaters with the exception of Argentinians and Finlanders.

When we look at the world's healthiest people we observe the Hunzas, Vilcabambians, Abkhasians and other primarily fruitarian cultures. These peoples are healthy for more reasons than just fruit-eating, however. They also live mostly in the outdoors in rather unstressful circumstances.

Wherever you look at cultures and their dietary practices of long standing, you find that people have adopted as foods that which they can most easily cultivate and harvest in their regions. They fare well or poorly in accord with the beneficence or lack of it in their dietary.

6.4 Do Different Dietary Habits Change Human Physiology?

Faculties usually require hundreds of thousands of years to develop. Who knows how many millions of years were required to develop human hands to the present stage? In some of our primate relatives the hands have yet to reach the facile stage which humans have attained.

In physiology changes are equally slow in coming about. Humans may eventually adapt to cooked foods and meats just as jackals and buzzards adapted to the roles of scavengers of dead rotting meats. But we might first become extinct! Many creatures have not survived drastic dietary changes. The weakness and diseased condition of most present-day humans is ample warning that our dietary is incorrect and death-dealing with portents of disaster for that part of humanity that indulges in it. The evolvement of adaptations to new foods may not occur at all or so slowly as to be of no good consequence.

In view of the ecological and health benefits of fruit culture and its ease of cultivation, it behooves humans to stay with the diet that developed them into the magnificent creatures that they were, that some are and all can be. By consuming fruits we'll thrive and, at the same time, place a demand on the marketplace that will spur the development of orchards and even more fruit!

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7. Negative Nutrition: Harmful Foods And Practices

Foods have varying degrees of beneficence in the human diet. They also have varying degrees of pathogenicity in the diet. Our finest foods are the raw materials of our nutritive processes. Our worst foods are vitality-sapping junk the body must struggle to contend with.

7.1 Condiments Are Drugs

Condiments are substances used to enhance or modify flavors and tastes. That could include sugar, lemon juice, salt, pepper, vinegar, onions or anything else added to a dish to alter its flavor. In using the term today, we mean specifically pungent substances that are excitants, not whole foods that we'd eat liberally of for their own sake.

If we cut up bananas and then mix in some diced mango, the flavor enhancement is really stunning. Yet we would, not refer to the mango as a condiment. It is a food that we could make a meal of for its own sake. Likewise, tomatoes and nuts or avocado added to a vegetable salad really give the salad zest. Yet we do not usually call tomatoes, nuts or avocados condiments, for they are whole foods, any of which we can easily eat alone as a meal.

Thus condiments narrow down to those substances that are used exclusively and only to modify flavors. Vinegar, salt, pepper, basil, MSG, mint, sage, garlic and hundreds of other herbs and substances are used only as excitants to the taste buds.

There is one quality about all condiments that make them unfit for the human diet: they are all pathogenic. As excitants or stimulants they are inherently poisonous. The body has thousands of guardian angels. The fact that taste buds and other cells and senses of the mouth, esophagus and stomach are put into a frenzy by certain substances is a warning. Accelerated functions and senses make us more aware of flavors in the foods condiments are combined with, but the excitation is a guardian faculty broadcasting an alarm. If you were trying to eat salt, pepper or vinegar in and of itself, you wouldn't get very far. They have no food value at all and, in fact, are indigestible! And that's the key to the body's objection to them. Body senses can detect the difference between foods and nonfoods. Foods are welcome and those items which the body cannot utilize for lack of enzymes to digest them or because of an outright anti-vital character, the body becomes excited or stimulated as a response. Unfortunately, humans have become so perverted as to seek this excitement as an end in itself. Many, if not most, people are seeking kicks.

Anything which the body treats as an anti-vital substance; anything which it cannot digest and use easily and efficiently; anything that presents problems by making chemical unions with body fluids and cells that excite and stimulate, are to be shunned. They all fulfill the definition of drugs which is another name of poisons. Discontinuance of them by habitues begets "withdrawal" symptoms just as occurs in deprived drug addicts.

Nature seasons foods natural to our palates with all the taste-satisfying nutrients we require. Flavors galore abound in them. Artificial seasonings do not really enhance their taste. Only a perverted palate seeks the kicks and "thrills" that are unnatural to our dietary.

7.2 Cooking Is Pathogenic

Cooking creates diseases on several counts. The most salient are as follows:

1. Cooking deranges and destroys nutrients. To the extent that this occurs, we are denied needed vitamins, minerals, proteins, essential fatty acids and other nutrient factors.
2. The deranged nutrients become, via cooking, unusable substances that are toxic in the system. This is readily evidenced by the doubling and tripling of the leukocyte count in the blood in half an hour to an hour after eating a meal of cooked foods. Any poison or drug taken into the body occasions the same body response.
3. The body must expend tremendously of its nerve and other energies to expel the offending substances of cooked foods and to clear itself of their contamination. Cooked food eaters have "hangovers" and "withdrawal" symptoms just as do drinkers of coffee, tobacco smokers or other drug addicts who forego their regular round of stimulation.

The body cannot build really healthy cells and tissues with poor quality materials. That which must be cooked to be palatable is not worthy of the human diet. Cooking makes it less so! Shun cooked foods and guide your clients to raw foods. Living foods of our adaptation are the road to magnificent health, and anything less than the ideal results in development, growth and functions that are less than ideal.

Thus cooked foods as articles of diet are pathogenic in that they poison us on one count and result in deficiencies on yet another count.

7.3 Processed, Refined and Preserved Foods

Anything used as food that is not in its original natural state has been tampered with.

Processing is altering or preparing foods or both.

Refining means "making finer" or reduction to a purer state. Thus white flour is refined wheat. Though some chemical processes are used in making it white, essentially the process of refining of wheat flour is mechanically accomplished by milling. Refining sugar is the extraction of sugar from sugar cane or beets and, through cooking and chemical processes, obtaining sucrose.

Preserving involves treating foods so they will be usable for a much greater length of time than is normal in nature.

The processing of foods involves anything that alters foods (including steps that do not alter them significantly or nutritionally). While the shelling and vacuum packing of nuts is processing, these processes do not detract from the value of the nuts. On the other hand, cooking fruits and adding sugar, preservative chemicals such as salt, etc., and then sealing them in cans and jars are very destructive processes. Drying the same fruits alters the fruits so that they can be preserved but does not alter them so significantly that they're, a liability in the human diet. Most processed foods in the marketplace are unsuitable in the human diet in the first place before any alteration, refining or preserving occurs. Examples of this are processed meats, refined cereals, pasteurized and homogenized milk, etc.

Canned foods have a shelf life of years and years. But they are not acceptable in the human diet even if they were good foods prior to canning. They might be acceptable only against the reality of eating them or starving to death. If canned foods only are eaten, death is rather quick and certain. That happened to many who were involved in the great Alaska gold rush, to those who were involved in the digging of the Panama Canal and to others in similar projects. This contrasts with excellent health that results from a diet of proper foods eaten in the raw state.

Freezing is a method of preserving foods. Frozen foods are not as wholesome as fresh foods. Their primary drawback is that the freezing bursts many cells and occasions degeneration due to oxidation. Freezing does not affect some foods at all, notably foods with low water content or very oily in texture. Dates, dried fruits, nuts and seeds may be frozen and kept fresher. Dried fruits, though not as wholesome as their fresh counterparts, are wholesome. Nuts and seeds are well-preserved by lack of moisture and air in their own shells. Vacuum packing and a nitrogen media do not harm many foods and preserve them with food values intact.

Some foods are coated with paraffin, oils, waxes and other preservatives. If these substances have not penetrated the protective skin or covering and can be readily removed, they are suitable for food if they meet other dietary criteria. Removal may be accomplished by a bath in a mild solution of hydrochloric acid, vinegar, chlorox or even very warm water in some cases. If the solution is warm it will be chemically more active and more readily unite with the oils, waxes or paraffins. Moreover, the warmer the solution the more likely waxes and paraffins are to liquify.

Processing, refining and preserving are done commercially to give foods longer shelf life, to change their structure so as to make them marketable, to make them more palatable, to enhance flavors or for a number of other reasons. However, refining renders foods deficient in one or more ways even if they were suitable items of diet to start with.

But the final insult is in "embalming" foods with preservatives to protect from spoilage, bacterial degeneration or oxidation. Preservatives are, one and all, poisonous. That is the character of a preservative. It must be an antibiotic, an antioxidant or have some quality to maintain appearances of wholesomeness. Needless to say, that which is poisonous to bacteria is likewise poisonous to human cells. That which is poisonous interferes with digestion as much as do deranged portions of cooked foods.

As a rule/steer away from all preserved foods and give preference to fresh ripe fruits with some vegetables, seeds and nuts.

Food processing is also done in the home, as well as commercially, for, as stated earlier, it comprises anything done to alter foods from their original form. Cooking, grinding, chopping cutting, peeling and blending are all at-home food-altering processes. Of these, however, cooking is by far the most destructive of foods' nutritional value and is, therefore, the primary at-home process to avoid (or keep to a minimum). Even the other at-home processing should be limited to some extent. For example, you may serve juices sometimes but whole fruits (and vegetables) most of the time. Or you may prepare cut-up salads sometimes but, serve whole fruits or vegetables most of the time. A larger portion of the nutrients are left intact in whole foods as a rule. One notable exception to this, however, is sesame seeds. Because they are so tiny, they normally do not get thoroughly masticated, even by very conscientious eaters. Therefore, grinding them and using them immediately may be a beneficial at-home process. Food preparation will be studied in depth in a future lesson.

7.4 Foods Not Suited to the Human Dietary

Any food that does not meet all the criteria heretofore cited is not a food of our natural adaptation. Foods of our adaptation meet our needs in every respect. Only fruits meet all our various needs.

Humans would not survive very long on a total meat diet. Shorter yet would be our lives if we ate a meat diet that had been cooked—well-done. We can survive two to three times as long on our fat reserves as we can upon an exclusive diet of meat. The body lives very poorly on a protein diet, being only about 30% efficient in converting proteins into fuels (carbohydrates), our primary need. This compares with about 90% to 95% efficiency in converting the sugars of fruits into energy.

Humans cannot live on condiments and seasonings, raw of cooked. Condiments are used for their poison content, not for their nutrient content. Nor are we physiologically equipped to live on milk or milk products, eggs, fish or other animal products. Also, we are not suited to handle a diet heavy in fats and proteins, even if they are consumed totally raw, something most unlikely in our society because it can abide unnatural foods only if denatured by cooking. We need fats and proteins only in small amounts. Larger amounts are a toxic burden, tax our digestive systems and use up too much vital energy.

Humans cannot live on herbs in the current frame of reference because they, like condiments, are toxic and do not possess food values for the most part. Vegetables or plant fare as leaves, stalks, stems, grasses, etc. cannot comprise the mainstay of the human dietary because we cannot obtain our caloric needs from these types of foods. Few vegetables appeal to the palate as such anyway. Some vegetables, notably lettuce, are prized because of their relative sweetness and texture. Chlorophyll is normally bitter and we're turned off by bitter substances. Our natural foods appeal to our senses, and none appeal to our senses as do fruits, a sure indication that fruits are our natural preference because of natural adaptation. In the cooked state, vegetables appeal more because of the conversion of their starches to dextrin, a form of sugar.

A diet consisting almost entirely of oily foods is not suited to our needs. We can utilize a small amount of oil with benefit. This need can be met incidental to primarily carbohydrate fare. Oily foods are handled very slowly. (Digestion usually takes four to six hours.)

While oils are highly concentrated sources of calories, the body cannot make use of them with the facility it utilizes monosaccharides. Those who eat heavily of nuts and oily fruits exhibit problems and are not as healthy and vigorous as those on primarily carbohydrate fare.

There are groups of people who practically exist on coconuts. But they are eaten at a stage when the oils have not been formed to any extent. The coconuts are still primarily carbohydrates.

Starches also comprise an incidental part of our diet. We cannot survive on an exclusive diet of raw starches. First, we have a very limited capacity to digest raw starches. In light of this capacity, we cannot meet our needs for fuels and other nutrients on a raw starch diet. Secondly, most starches are contained in microglobules of cellulose that neither chewing nor digestion will break down. Hence we are not naturally equipped to eat raw starches as are birds with craws or animals that have a plethora of starch-splitting enzymes.

Our ability to utilize grains, tubers and other starchy foods relies upon the agency of cooking. However, some of these foods, notably the turnip, rutabaga, sweet potato, carrot and others, can be utilized raw only because of their sugar content. The traditional potato is entirely unsuitable, being repulsive to normal tastes when raw. Raw grains are repulsive to normal tastes for the same reason—we reject starch foods naturally with our natural equipment that evaluates foods beneath a conscious level. We can force ourselves to eat these foods and even pervert ourselves to the point we value them just as we value condiments and drugs. But this is contrary to our nature, not in accord with it.

Humans cannot utilize milk in its raw or cooked state. Raw we do not have the enzymes (rennin which ceases to be secreted in humans at about age three, the proper weaning age) to break down casein with which milk proteins, calcium and other nutrients are bound. At about the same age we lose the ability to secrete lactase, an enzyme that reduces lactose, the milk sugar, to monosaccharides. Therefore, most of our people are said to be "lactose intolerant." We cannot utilize fermented milk products because lactic acid and putrefaction by-products are toxic to humans just as they are to the bacteria that excreted fermentation by-products as bacterial defecation. There are very few products of bacterial activity that we can use. (Vitamin B-12 is a notable exception.)

Humans cannot live well on exclusive vegetarian fare even if it includes fruits referred to as vegetables (such as tomatoes, cucumbers, peppers, eggplants, squashes, pumpkins, etc.). Foods that must be cooked are third- and fourth-rate foods and should form no part of the dietary. Only the stark reality of being deprived for inordinately long periods of proper foods should force us to eat foods that are less than ideal in the diet.

7.5 Dietary Follies of Health Seekers

Seeking out wholesome organic foods free of unnatural fertilization and pesticides is most laudable. But it is relatively meaningless and ineffective if a person then proceeds to take organic foods and cook them. Much of the advantage is wiped out. Organically grown foods are always superior to their nonorganic counterparts undergoing the same amount of processing, cooking, etc. But it is preferable healthwise to eat conventional produce uncooked than organic produce in a cooked state.

Many health seekers believe food supplements are necessary because we have deficient soils. We do have truly deficient soils, as they would not produce foods that require the minerals in which they're deficient. We have many soils, even in their virgin state, that are deficient in something or other that makes them unsuitable for certain plants or trees. We have many soils that have lost the capability of growing corn, potatoes, wheat and other staples but which will still grow grasses and legumes. These soils can be built up very quickly if certain minerals are judiciously added (using organic methods). The deficient soil/deficient food complex is fostered among health seekers by fractionated food purveyors who are peddling a synthetic manufactured supplement or so-called natural supplements, both of which are far inferior to whole foods. Supplements can in no way make good any partial deficiency that may exist. The synthetic supplements are not usable in any circumstances, and the body treats them as drugs. It is the stimulus of drug effects that we mistake for health effects. We mistake the energy an exhausted horse shows under the whip as beneficient when, in fact, it is pathogenic. Even if part of the supplements are obtained from organic sources (as a fraction of a given supplement, say 5 to 10% only) so they can be represented as natural, they are still worthless. They're also worthless if extracted entirely from organic sources. The body uses nutrients in context with other nutrients as a team. The shameful reality is that these supplements are obtained, as a rule, from the same products grown on the same "deficient" soils about which they warn us.

Health seekers often buy waste products that are sold as health products. An example of this is the beer manufacturers' waste product—brewers yeast. Another example is the waste product of sugar manufacturers—molasses, which is a totally unusable and harmful product. Some health seekers buy or have bought the wastes of other manufacturers, too, especially the wastes of cheese manufacturers and meat processors. Whey, liver, gelatin and other wastes are thought to be healthful when, in reality, they are worse than worthless.

Many health seekers also buy minerals from unusuable sources. Many drink sea water, eat sea salt, drink hard mineralized waters, eat molasses, dolomite and/or take mineral supplements. All these contain inorganic minerals which are not only not usable by the body but which harm it grievously. In seeking health, many people fall victim to pathogenic practices foisted upon them in the name of health.

Many health seekers are likely to (or do) fall victim to alternate schemes of drugging. They are often persuaded to take a multitude of herbs and toxic plants because they are supposed to cure or prevent disease. Molasses and other waste products are also touted as medications. However, the truth is that health is built only by healthful practices. Diseases do not have to be prevented for the body will not initiate and conduct diseases unless the need exists. If everyone discontinued those practices that pollute their bodies, there would be no occasion for disease. In any event, so-called medication can never help and will only cause further harm to the body.

Among the many pernicious plants and herbs touted as healthful because of their toxin content, not their food content, are onions, garlic, comfrey, aloe, cayenne peppers, mints and innumerable others. In seeking health, many concerned individuals end up further polluting their bodies, thus creating more disease.

7.6 Drinking Habits Are Damaging to Health

Humans are not naturally drinking animals, for we have no natural equipment for that practice. Drinking is done artificially with the aid of tools. Our natural diet is usually water sufficient.

In addition, drinking as practiced today is almost totally pathogenic. Drinking pure (distilled) water is not pathogenic, but substances which occasion its drinking are usually pathogenic. (Sometimes, of course, extraordinary heat and/or vigorous activity lay the bases for drinking pure water.)

Most drinking is of poisoned drinks. Sugared and flavored drinks are toxic, as are coffees, cocoas, sodas, beers, wines, whiskeys, teas of all kinds, etc. Even fruit and vegetable juices are far less than ideal because they represent fragmented rather than whole foods.

Most drinking amounts to drug habits rather than acts supplying needed water. It bears reiterating that almost all drinking is pathogenic.

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8. A Survey Of Unconventional Dietic Schools And Their Fallacies

There are many schools of thought concerning the content of the human diet. We have viewed conventional eating which embraces the concept of the four basic food groups. Other schools are called macrobiotic, vegetarian, fruitarian, vegan and yet others. Let's take a brief look at some of these one by one.

8.1 The Macrobiotic School

This school was founded by George Oshawa, a native of Japan. The emphasis is on a so-called perfect diet consisting mainly of cooked rice, along with some cooked vegetables. Such a heavy diet of cooked rice provides primarily fuel (carbohydrates), but carbohydrates from cooked foods also render the toxic by-products of heat degeneration. Very few fruits are included in this diet, and, while the macrobiotic diet is a great improvement over conventional diets on many counts, it is far from ideal.

Even a brief discussion of the macrobiotic diet would be incomplete without the mention of the concepts of yin and yang. These concepts represent many sets of qualities, such as acid & alkaline, sweet and salty, and hot and cold. Without going into the subject, suffice it to say that, in macrobiotics, determinations of wholesome foods are made based on this yin-yang concept.

8.2 Supplementation and Special Foods

This might well be called the megavitamin or megafeeding school. Even though the only way to render a deficient diet adequate is to eat a diet adequate in natural nutrient factors, this school goes beyond that.

They say that if it's a good thing there is no such thing as too much. For example, the RDA for vitamin C may be 60 milligrams daily. People in this school, such as Dr. Linus Pauling, advocate up to 10,000 milligrams daily. If 4,000 international units of vitamin A are the RDA, the megavitamin people advocate 100,000 to 200,000 units daily.

However, the body cannot use more than it needs, and it must excrete that which is in excess of needs. But the massiveness of the dosages is just one aspect of the harm wreaked by the supplementation advocates. The synthetic products that dominate the market are treated as outright drugs by the body! Even if these supplements were extracted entirely from natural sources, they'd still be unusable. The body uses foods, not individual nutrients. It uses them synergistically as nature puts them up, not as extracted or laboratory synthesized and compounded in imitation of nature.

8.3 Herbs Used as Alternate Medications

Some health seekers eat poisonous plants daily in the belief that they need "medicines" for health. Entrepreneurs harvest weeds from the wilds and from cultivated fields by the hundreds of tons for people who believe in "natural medicines."

Herbs are not consumed for their nutrients and none could be consumed as foods in themselves. Death could result from an "overdose" if too much of any of these were eaten as a food. People have died on rather small amounts of some herbs.

8.4 The Vegetarians

There are about 25 million people in this country who eat only fruits and vegetables or who consume either what is known as an ovo- or a lacto-ovo vegetarian diet. Vegetarians who eat no animal foods whatsoever are called *vegans*; lacto-vegetarians include dairy foods in their diet; ovo-vegetarians include eggs but not dairy products; and lacto-ovo vegetarians include both eggs and dairy foods in their diet.

Many, if not most, vegetarians are ethical vegetarians, but this is especially so with the vegans, as they refuse to cause suffering to animals. Vegetarians may eat lots of cooked foods, or they may consume an all-raw or almost all-raw diet. Many, if not most, vegetarians use herbs, especially if they are vegetarians for, or partly for, health reasons. Some vegans are Natural Hygienists. The common bond of vegans is non-exploitation of animals.

Vegetarians generally are healthier than the population at large, for, while many of their practices are not healthful, per se, they are less harmful than those of conventional eaters. Some vegetarians will eat just about any kind of non-animal food, even alcoholic beverages (really drugs and not foods) and junk foods (also more like drugs than foods in the system). These people are vegetarians, not for health reasons, but for moral reasons relating to the killing of animals. However, most people who are vegetarians are more health oriented than non-vegetarians.

8.5 The Bircher-Benner School

This school is essentially a vegetarian school that is heavy on grains with some fruits.

8.6 The Mucusless Diet

The founder of this school, Arnold Ehret, reasoned that anything which results in mucus formation is unhealthy. This reasoning is correct, for anything that causes the system to secrete mucus is an indication that toxic or unwelcome materials are in the organism. Ehret thought that the foods themselves formed mucus, however, when, in fact, the organism creates the mucus in response to unwelcome foods.

Through trial and error Ehret discovered that a diet of non-oily fruits and some vegetables built high-level health and function and did not result in mucus formation. Thus he called his diet the mucusless diet.

8.7 The Waerlanders

Ebba Waerland of Sweden spent most of his life studying the touchstones of health. He was greatly influenced by the Bircher-Benner school and advanced their dietary philosophy to include more fresh raw vegetables and fruits. However, though he still advocated the use of various grains, he recommended they be prepared in a more conservative manner.

In many of his teachings Waerland added to the science of nutrition and health and paralleled the teachings of the Natural Hygienists. As a worldwide traveler and a deep student, he undoubtedly was well acquainted with the philosophy and practice of Natural Hygiene and added to his own system those features he liked. Especially did he advocate fasting as a course to follow during illness (and in good health!) as a health measure.

8.8 The Fruitarians

There are relatively few raw food fruitarians, but there is much interest in fruitarianism and sentiment for it. Humans are naturally frugivores and there is a sound basis for fruitarianism. But, except for the most ardent of fruitarians, most are likely to eat some nuts and vegetables. Many fruitarians are Natural Hygienists, though many Natural Hygienists are not fruitarians. The primary difference between the fruitarians and the fruit-eating Hygienists is that many fruitarians do not adhere to principles of compatible food combining. Raw food fruitarianism is a fast burgeoning element in our society though, as yet, their numbers are only in the thousands.

8.9 The Natural Hygienists

This dietary school embraces many divergent outlooks on dietary fare. All Hygienists advocate a mostly raw diet of fruits, vegetables, nuts, seeds and sprouts, although some advocate the eating of cheese and raw egg yolks. Some Hygienists advocate "complex carbohydrates" as important items of fare. They feel that conservatively cooked rice, squashes, potatoes, yams and other starches are good in the diet if eaten in conjunction with hearty vegetable salads. Likewise, they are often heavy eaters of nuts and avocados if consumed in conjunction with a hearty salad of green leafy vegetables and some fruit fare popularly considered vegetables.

Hygienists originated and fostered the concepts and practices of food combining. Also, they advocate regimes in which diet comprises only a part. As a Life Scientist you'll also call yourself a Natural Hygienist, for these are identical philosophies. But the dietary score has yet to be settled in practice although many Hygienists are idealistic raw fruitarians. It is our endeavor in this course to present data sufficient to settle this score for you. Even the least healthful Hygienic diet is such a great improvement over conventional diets that those who adopt it must improve their health. Almost no one is so far down the road of life that they cannot improve dramatically upon the adoption of the Hygienic regime, even if they adopt a less than ideal version of it.

As a health professional you must keep in mind that anything less than ideal begets less than ideal results. But, on the other hand, every improvement you inspire in your clients will result in corresponding improvement in well-being.

8.10 Foods as Medicines

Like the herbal school which looks upon herbs as medicines, this school tries to employ foods as therapeutic tools. There are those who swear by the use of raw egg yolks; there are those who swear by blended salads, often with egg yolk. Many look upon fruits as cleansing foods. A multitude of foods are taken with the idea that they will prevent or "cure" diseases.

We must repeat that foods are raw materials which the organism acts upon. They have no actions of their own, much less cleansing and healing abilities.

8.11 The Juice Therapy School

This school advocates a diet heavy in or consisting primarily of juices extracted from fruits and vegetables. It was founded nearly a century ago, and Benedict Lust was one of its luminaries. Today N. W. Walker is perhaps its most articulate exponent.

Juices are fractionated foods subject to oxidative deterioration. Oxidation occurs quickly. For example, orange juice can lose up to 60% of its vitamin C within an hour after juicing. Iron is oxidized very quickly in all foods. This may be observed visually if an apple is broken open and exposed to air. Oxidation creates toxic byproducts. An example of this is cooking, which is a much accelerated process of oxidation as well as heat degeneration.

Juices are not whole foods. Many valuable nutrients are lost in the pulp. Further, those who "drink" their foods are often guilty of consuming inordinate amounts of it to secure satiety. While we can safely partake of several pounds of watermelon and like amounts of some juices, there are other juices that a few pounds of constitutes far too much food. Carrot juice drinkers are notorious over-eaters.

Nature did not furnish humans with juicers outside of those implicit in chewing.

8.12 The Blended Salad Diet

There is a small school that believes that blended salads three times a day are beneficial in the human dietary. While blending involves the whole food, it still has the objection of oxidation and enzymic degeneration.

Blended foods are never as tasty as their whole counterparts, even if eaten immediately after blending because enzymes and oxygen degenerate foods and destroy their goodness so quickly.

8.13 Conclusion

As you can see, there are many different schools of thought on diet and nutrition. The macrobiotic school is based on the concept of yin and yang and is rooted in Oriental tradition; vegetarian diets are based either on the ethics of killing animals or on the unhealthfulness of meat (and, for some vegetarians, dairy foods and/or eggs) or both; the mucusless diet is determined by which foods do and don't result in mucus formation by the body; and the herbalists and "foods as medicines" schools base their diets on the supposed curative properties of foods.

However, the only diet that is totally based on sound physiological principles, that is based on science and not on tradition, is the Natural Hygienic diet, which is the same as the Life Science diet. Some Hygienists are fruitarians, most are vegans and all are vegetarians. Oftentimes individuals adopt and popularize diets that reflect their own individual ideas and experiences with diet, and the best of these diets have some commonalities with the Hygienic diet.

The diet of the Natural Hygienists is the only one that is particularly concerned with food combining, and this aspect of the diet is not only unique, but it is based on physiological principles.

9. The Physiological Necessity Of Proper Food Combining

One of the cardinal principles around which Natural Hygiene/Life Science is built in dietary practices is that of food combining when more than one food is eaten at a meal. Humans are capable of digesting with great ease a single food of their adaptation. However, when more than one food is consumed at a meal, the foods thus combined must be compatible in their digestive chemistry.

If the digestion of a meal's various items requires differing digestive tasks, digestion will suffer. Digestion may be retarded and vitiated whether or not we are aware of it, whether we suffer the discomforts of indigestion or fail to feel them. Indigestion may be suffered beneath the level of awareness for decades before its debilitating effects show up as diseases and symptoms. On the other hand, the sufferer may be keenly aware of distresses resulting from indigestion on practically a meal-to-meal basis.

The ill effects of wrong eating and improper food combining are commonly treated with a raft of drugs, primarily antacid drugs such as Turns, Rolaids, bicarbonate of soda, poisonous aluminium preparations, Milk of Magnesia and so on.

9.1 The Chemical Character of Digestion and the Rules It Decrees

Further along in this course a complete lesson is devoted to food combining. The physiology of digestion recognizes that different foods present dissimilar digestive tasks. For instance, protein foods require an acid medium for digestion. Pepsin, the protein digestive enzyme, requires an acid gastric secretion, more specifically hydrochloric acid. Starchy foods, on the other hand, require an alkaline medium to enable the enzymes of salivary amylase (ptyalin) to perform their digestive task. Below a pH of 4.0, starch digestion is totally suspended. Pepsin will not break down proteins at a pH higher than 3.0. Thus starchy foods and protein foods are incompatible in digestive chemistry. From this physiological fact of life emerges this feeding rule: Do not eat a protein food and a starchy food at the same meal.

There are many foods that do not combine with others. It is the practice of many to eat oils and sugars together. Sugars undergo no digestion in the stomach and melons and sweet fruits may stay in the stomach as little as ten minutes or remain for as long as thirty to forty minutes. They are expelled rather quickly and absorbed very quickly from the small intestine. Oils remain in the stomach for several hours for processing before being forwarded to the small intestine for further elaboration. If eaten with fruits they hold up the sugars and fermentation is very likely to occur, thus vitiating the meal.

9.2 Differing Digestive Times Dictate Selectivity in Food Combinations

Even different fruits have differing digestive tasks. The body readily digests acid fruits and it also readily digests sweet fruits. But acids must first be changed and become alkaline before absorption can occur. This involves some delay in the stomach. Any delay in the stomach of a sweet fruit may dispose to fermentation. Thus, again, combining foods improperly may vitiate digestion and contribute to physiological problems, immediately and down the road, if unhealthful physiological practices continue.

Sweet fruits have their own digestive characteristics. Watermelon is perhaps the fastest digested of sweet fruits. Other melons are passed through the stomach quickly, too. But bananas, grapes and apples may remain in the stomach for two or three times as long. Hence, if bananas, apples or grapes are eaten with melon, fermentation and upset stomach may result.

9.3 Character of Food Determines Suitability in Diet

Humans are adapted to a narrow spectrum of the world's foods, just as are most other animals. Our anatomy and physiology are highly specialized to handle efficiently the fruit foods of the earth. We have developed limited capacities to digest oils, proteins and starches. But under no circumstances are we primarily protein-eaters, starch-eaters or oil-eaters.

Inasmuch as some 85% to 90% of our diet by dry weight is for the purpose of fueling our body, it behooves us to eat primarily foods that most efficiently furnish our fuel requirements. Inasmuch as foods of our natural adaptation furnish this ratio of fuel values relative to other necessary nutrient factors within their context, we can most healthfully devote ourselves to a raw fruitarian regime.

Many, including a great number of Hygienists, will object to the all-fruit diet and cite supposed dangers that fruits are inadequate in the needs of life, especially proteins, essential fatty acids, mineral salts and vitamins. Thus they advocate green leaves and other vegetables, seeds and nuts and even cheese. They condemn "the more is better school," yet tend to side with them in practice.

Close scrutiny of our physiological character decrees that we eat sparingly of nonfruit foods. It is erroneous to assume that the fruit diet is deficient in the needs of life, as will be demonstrated in other lessons.

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10. Nutritional Miscellany

The body supposedly uses eleven calories per day per pound of weight for metabolic purposes only! Hunza men who have superb physiques and perform labor that would exhaust our best on a daily basis have a total intake of only about 1,900 calories per day, about 12 calories per pound of weight! There must be some terribly wrong calculations here or else the needs of healthy individuals for fuel values is far below our diseased average.

In Vilcabamba, caloric intake is lower yet, being only about eight to ten calories per pound of weight per day. The average caloric intake there is about 1,350 calories per day. The Peruvians of Vilcabamba work hard in their gardens and fields, as do the Hunzas.

The work these two groups of people do would require, according to our nutritionists, from 3,500 to 7,000 calories a day! Something is amiss! In dealing with your clients, you'll keep these facts in mind. The less feeding, down to a point, the more efficient the body is. This is even true if you're feeding highly efficient fruits rather than very inefficient meats and other high protein/fat foods that dominate in our American diets. Keep in mind that our high-powered dairy, poultry, cereal and meat industries have a heavy bias in having our populace consume as much of their products as possible. Perhaps they have influenced the RDAs so that people are pushed to overeat on their products.

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11. Questions & Answers

What are our real protein needs and how can we possibly get these from fruits? Fruits aren't

protein foods.

Tests conducted by Professor Chittenden of Yale and others indicate that an average man requires about 25 grams of protein daily. There are people in some South Pacific Islands and elsewhere that live primarily on starch foods, especially cassavas. Their diet is low in protein—only about 15 grams daily. Yet these people are reported to be in excellent health. The body has the capability to recycle most of its protein wastes. Cassava, the main starch food eaten by these South Pacific people, has only about 1/5th of 1% protein, about one sixth of that of bananas. Moreover, these people cook their cassava. They are said to eat six to ten pounds of this food daily.

Our real protein needs are about 25 grams daily. The average fruit contains 1% protein. We should eat 2,500 grams of fruits daily, about five and a half pounds with water content. For an average man, this is not a tremendous amount of food. The average American consumes about seven pounds of food daily and ingests 94 grams of protein. Moreover, this diet is so heavy in fat that about 44% of America's caloric intake is derived from that source.

True, fruits aren't protein foods. But neither are we protein eaters as are carnivores. But look at those who do eat protein foods such as meats, cheese, etc. They are a diseased lot. In fact, most Americans are sick and the fact that they daily take in about four times their protein requirements is a contributing factor.

Fruits, we repeat, furnish us amply with our protein needs in an easily used form. This is particularly true if you include avocados and/or nuts, both of which are technically fruits.

You've never had one good word to say about drugs. In fact, you've knocked them so much and carried the definition so far as to make almost everyone a drug addict of one kind or another. If they were so harmful, surely we'd all be long since dead.

Humans are a hardy lot. They represent an aggregation of some hundred trillion cells with thousands of guardian angels. The impulse to life is great. We have a tremendous capacity for eliminating poisons. Despite this, most of us are diseased. How many assaults of food poisoning from condiments and cooked foods can we withstand? Most Americans have 50,000 to 70,000 bouts of leucocytosis before they die from it in the form of some degenerative disease, usually cancer or cardiovascular problems. We cut our life potential in half. If drugs had any value in the organism they would be foods, not drugs. Drugs are one and all poisonous regardless of their source. Almost every American is hooked on drugs of some kind.

Is there a science of correct feeding? It seems that the term nutrition covers much more than correct feeding.

There are two technical words that have to do with feeding, whereas nutrition covers all processes of supply and elimination and everything that effects those processes. Orthotrophy means correct feeding. Ortho means correct and trophy means to feed. Aristophagy means best eating. In the sense that correct feeding is the best eating, both words mean the same.

Don't certain types of foods help you get well? Juices and fruits help you clean out. Garlic is well known to help high blood pressure cases. Aloes helps heal wounds and ulcers.

Can you imagine a fruit or a fruit juice with an inborn intelligence and will such that, when consumed, instead of being digested, it goes into the blood stream and promptly starts rounding up toxic materials and putting them out of the body? Let's emphasize again and again that foods do not act in the body, that all the action is from the organism. Chemical actions may occur from chemicals in ingesta, yes, but any actions other than body actions are toxic actions.

However, fruits and juices are so easily digested and used and introduce so little food debris into our bodies that they do leave the body with extra energy to perform its duties. When freed of the burdens eliminating toxins from polluting foods and digesting unsuitable foods, the body devotes itself to extraordinary cleansing with the extra energies available.

Garlic does not help high blood pressure. In the presence of allicin and mustard oil, two of the toxic substances in garlic, the organism dilates its blood vessels to more quickly circulate blood and expel these toxins. The heart beats faster and leucocytosis occurs, sure signs of the toxicity of allicin and mustard oil. These substances freely permeate all body cells and tissues. They are not digested and used but excreted through the kidneys, bowels, skin and lungs.

After expulsion the blood pressure will be just as high as before if the same regime that caused it remains in effect. The garlic has helped nothing. Rather, it has complicated an already diseased situation. The drug effects of garlic are mistaken for beneficial effects. The problem is not solved by garlic, and high blood pressure is not the problem. Rather, it is but a symptom of the problem. The problem remained even though the symptom was lessened or suppressed.

Aloes applied to ulcers and wounds do not heal them. The toxic material in aloes, aloin, is absorbed by the body when applied to the skin and to open sores (which the body uses as an ejection site for toxic wastes and ingesta). When the poisons begin coming in from the outside the body closes the wound promptly, shutting down eliminative operations at the site. While the poisonous aloes have been the occasion for the body closing the wound, they have not healed the wound but were a source of a poisonous alkaloid. The body does the healing.

I read recently that an 80-pound chimpanzee was so strong that two handlers could not subdue it: Are they so strong? What kind of super foods do they eat?

Chimpanzees in nature have the strength to do acrobatic feats and handle their weight with such ease and facility as to put humans to shame. A four hundred-pound gorilla has about thirty times the strength of a 180 pound man. This attests not so much to the strength of these animals as to the degeneration and weakness of humans. In nature we were equally strong. We can achieve this strength again if we adopt our natural diet and practices akin to those that we developed in our natural habitat.

A substantial part of the diets of chimpanzees and gorillas consists of fruits. This is fruit-power for you.

Will an all-fruit diet cause nervous breakdowns and nervous problems as I've so often heard?

You will find no evidence of this among fruitarian societies or among fruitarian animals. Diets that are sufficient in the raw materials we require are the basis of health. They cause neither health nor ill health. Nervous breakdowns can come from nutrient inadequacy and from stressful situations, especially those that constantly drain the organism of nervous energy. In this society, millions have nervous breakdowns. We have only a few thousand fruitarians and they are faring well rather than poorly.

What is wrong with eating starchy foods? Doesn't cooking change the starch to usable sugars?

We actually use very little of the starch components in starchy foods, as most of the starch is not penetrated by our digestive amylases and thus is not broken down. The starch that is available cannot be digested to a great extent by humans because they quickly exhaust their limited supply of salivary amylase or ptyalin. Thus we fail as starch eaters.

Cooked starches are dextrinized, and more of the fuel values are available to us, yet, on the other hand, much of the food components are degenerated by heat and are, therefore, toxic in the system.

We're not meat eaters, then why do we secrete hydrochloric acid and pepsin?

Proteins from whatever source (meat or nuts, for example) require the enzyme pepsin and an acid medium in which to be digested. We need only small amounts of protein and we digest it with an efficiency ratio of only about one to two. Animals that live on protein diets have hydrochloric acid solutions so strong that unchewed flesh is readily digested. A tiger's stomach secretes a hydrochloric acid solution some 1,100% more concentrated than that in humans. Again, proteins form but a small part of the diet of humans in nature, whereas tigers eat heavily of proteins in the meat, bone and offal of their prey.

How do you, as a fruitarian, manage to control your hunger? Fruit meals leave me mostly unsatisfied. Further, I feel empty and ravenously hungry within an hour or two after eating fruits. I have to eat five or six times a day if I'm on fruits just to keep my hunger under control. If I eat some nuts or an avocado right after my fruits I feel satisfied, though.

I've eaten a diet of 80% to 90% fruit for many years now. I rarely eat my first meal of the day before noon and I rarely eat more than two fruit meals in a day. Further, I eat about three or four meals weekly with some avocado or perhaps nuts and a hearty salad. I find my desire for vegetables and nuts waning and my desire for fruits increasing with the years. I feel very comfortable after fruit meals whereas sometimes I feel a bit uncomfortable after vegetable meals. I sleep more and feel more sluggish when I've had a nut and vegetable meal. I don't feel as alive, alert and zippy on mornings after vegetable and nut or avocado meals.

On occasion I have eaten a salad and nut meal at noon. As a result I usually missed the evening meal because even the best foods repulsed me—I had no hunger. It's as if my body closed down digestive operations. That is how "satisfying" vegetables and nuts are to me.

The fact that most people mistake irritation and vital symptoms of recovery for hunger does not mean hunger exists. An emptiness in the stomach means that the food has been passed from it. That is not hunger. Hunger is felt in the mouth and throat just as thirst is. It is not unpleasant and it urges us to eat just as thirst urges us to drink.

What we commonly mistake for hunger that drives us to eat are pathological symptoms not unlike the "withdrawal" symptoms of tobacco, coffee, alcohol, condiments and other drug addictions that drive us to go back for another fix. When the body is without its fix for a while, it begins clean-up operations. These usually involve unpleasant symptoms that drive us to get another fix. Another fix engages the body in activities that depress vital functions, especially eliminative functions. Thus we are satisfied for a while, in fact, quite a while in the case of foods that are not of our adaptation.

The fact that fruits are so easily digested and used permits the body to quickly reassert its vitality and devote itself to the cleansing and eliminative processes. The symptoms are not pleasant as the body restores itself from the effects of a previously unsuitable diet. We thus try to smother those symptoms with another meal. Those symptoms do not constitute hunger.

Eating suppresses them in the same way that a cup of coffee suppresses the hangover of previous coffee-drinking.

As a mostly fruitarian I rarely experience any demand for food before noon and I'm satisfied until the evening meal. Sometimes I miss the noon or evening meal and I'm not particularly uncomfortable from the lack of food. I think most of this so-called hunger is psychological and pathological in nature.

You have said that the Vilcabambians of Peru get along well at hard labor on 1,300 to 1,400 calories daily. It's well known that hard working men need 3,000 calories and more a day. How can that few calories support vigorous work which these people are supposed to do?

Let us think about this. The world's healthiest and longest lived people eat a primarily carbohydrate diet. They eat very little protein foods in the form of legumes and very little oily foods in the form of legumes and nuts—in fact they consume almost no oily foods. Contrast this with Americans, especially laboring men, who take in 40% or more of their calories as fats and oils and a substantial part of the remainder in protein foods, especially meats, eggs and cheeses. Obviously the human organism isn't very efficient in dealing with these foods, as the studies indicate.

Further, we must recognize that the average American is a walking pathological museum, requiring far more energy just to deal with the pathology than healthy people. Further, impaired organisms do not operate efficiently, whereas healthy people operate efficiently and make full use of their foods.

How can you build muscle on a total fruit diet?

The average man uses about 75 grams of protein daily. Of this he needs only about 25 grams from the diet. The remaining 50 grams is obtained by recycling wastes. Fruit amply furnishes the 25 grams needed from outside sources daily. The healthier an organism becomes, the better use it can make of its nutrient supply. It is a myth and a delusion that we need more protein than normal to build muscles. It's like saying that we need more bricks to build a house than the plans call for. Once the structure has been built, replacement and additional bricks are needed but little.

How can we get vitamin B-12 from fruits? Vegetarians are warned about the lack of vitamin B-12 in vegetables and certainly fruits have none of this vitamin.

There's no vitamin B-12 in grass either, yet cattle have plenty of vitamin B-12. Almost no food in nature has vitamin B-12 in it.

We get our vitamin B-12 needs the same as other creatures in nature. We were not cheated in this regard. We do not have to eat animal products as the meat and dairy industries urge us to do. The bacteria of our intestines create vitamin B-12 which we absorb just as with other animals.

Almost all cases of anemia and B-12 deficiency occur in meat-eaters, not in vegetarians, which, if it happens, is given publicity like you wouldn't believe.

Shouldn't we eat locally-grown fruits for best nutrition? Animals in nature must live on locally-grown fruits and, as you have said, they're very healthy.

Here in Texas that would be great advice and we can do it. Our forefathers did that to a great extent on self-sufficient farms. But, as fruitarians, this is not presently possible. We must get

> our fruits from subtropical sources during the winter season. Of course we can develop and preserve our fruits, especially by drying and secondarily by freezing.
>
> But fruits do not necessarily make us less healthy if they have been grown in other areas. Tropical bananas properly grown furnish no less nutritive benefits if eaten 2,000 miles away from their growing area as if consumed in that area. Nutritive adequacy is the need. Local produce may and may not be nutritively adequate. A good mix of foods from various soils is more likely to give us adequacy.

Aren't whole wheat products good to eat? The first Hygienists advocated whole wheat bread and other products. Graham advocated it so strongly that whole wheat flour came to be known as Graham flour. Why has that changed with Life Science?

> By the end of the nineteenth century Hygienists had already begun to reject wheat as an unwholesome food no matter how eaten. Dr. Densmore and others began advocating an all-fruit diet with some nuts. Humans can't eat wheat raw and, even if cooked, the gluten protein component is almost wholly indigestible.

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Article #1: The Paradise Diet by Dr. Herbert M. Shelton

According to an ancient tradition, when man first appeared he lived in a beautiful orchard in which grew fruits of many kinds and all of which were pleasing to the eye and good for food. For an undetermined length of time he lived in this beautiful area of the earth and satisfied his physiological needs by trees.

According to this tradition, he was expelled from the garden and condemned to live upon the green herbs of the field. The indications of this story would seem to be that herbs are a second choice as articles of diet for man. It is common to scoff at this ancient tradition and label it a fairy tale, but it may possess more truth than poetry.

The noted anthropologist Edward B. Taylor, in Vol. I of his *Primitive Culture*, stresses a very important psychological fact in relation to traditions, legends, myths and folklore. Questioning the popular belief that man is possessed of a boundless power of *creative imagination*, he says, "The superficial student, mazed in a crowd of seemingly wild and lawless fancies, which he thinks to have no reason in nature or pattern in the material world, at first concludes them to be new births from the imagination of the poet, the storyteller and the seer." Then he points out that a more detailed study of such things reveals that there is a cause for each fancy, an education that has led to the train of thought, a store of inherited materials from out of which the fancies and thoughts of poet, seer, storyteller, etc., has taken shape. This is to say, the human mind works with the materials it has on hand and does not create something out of nothing.

In this same vein, the author of the article on the myths of Sumer in the Larousse *Encyclopedia of World Mythology* says, "Sumerian mythology drew its material from the permanent principles of Sumerian culture. ...The myth and the form it adopted were a function of the society from which it stemmed. It told of creation in terms of human experience. Its very elements were those at the basis of Sumerian society. ..."

This statement, that the myths of a people mirror the ways of life of the people, if applied to all mythologies, should prove fruitful in their interpretation. It should not be assumed that a people gather their myths and traditions from thin air or that they are purely imaginative creations.

If we can accept as valid the principle that the traditions, legends, myths and folklore of a people are reminiscences of past experiences, that they mirror for us actual conditions through which the people have passed, we are practically forced to accept the ancient and well-nigh universal tradition of paradise as a report, blurred, no doubt, by the passage of time, of a period when the human race resided in some favorable locality and lived upon the "fruits of the trees of the garden." A tradition that antedates the beginning of recorded history and that is possessed by almost all people cannot be lightly cast aside as a figment of the imagination of a poet or of some designing priest-craft.

It is impossible to account for the origin, persistence and widespread existence of a tradition that early man was a frugivore on the basis of the hypothesis now so widely held by anthropologists, that early man was a carnivore and offal eater. Such a being should have left us traditions of swarms of locusts, ponds filled with fish, happy hunting grounds and other rich repositories of their favorite sources of animal foods, with occasional mention of dead elephants or sick horses around which they gathered and feasted. Not fruits, but brutes, not figs, but pigs should be featured in the myths and legends of a carnivore.

It may be objected that tradition and legend constitute a flimsy base upon which to erect a philosophy of human diet. A more scientific basis may be demanded. To this I reply that none of the many *scientific bases* for correct human dietary practices that have thus far been offered possess as much validity as the paradise tradition. The paradise tradition possesses the virtue of being in conformity with the evident dietetic character of man as revealed by comparative anatomy and physiology. It also agrees in principle with the basic eating practices of man throughout history. Man's diet throughout the historic period in all favorable regions of the earth has been predominantly fruitarian.

Many efforts have been made by men and women in the present century to live upon a diet composed exclusively of the fruits of the trees. These efforts have not been without success, but they have rarely been completely successful. From South Africa comes the news—the *Pretoria News*, February 22, 1971—that some research has been done into the effects of an all-fruit diet. Under the headline "Fruit diet worked well," the News summarized the findings of the researchers in the following words: "A team of research workers have come to the conclusion that pure fruit diets now receiving wide publicity cause weight to level off more or less at the 'theoretically ideal' weight for the subject, according to an article in the latest issue of the *South African Medical Journal*."

The item does not indicate the time through which the experiment was carried out but does state that the diet consisted of fruit juices, fruits and nuts. It says "a considerable number of the subjects claimed their physical condition improved while they were on the diet. Some were convinced that their stamina increased and that their ability to undertake strenuous physical tasks and to compete in sports improved."

No doubt, in view of the known nutritive values possessed by tree fruits and nuts, which are also fruits, it is entirely possible to be well and adequately nourished upon such a diet, providing only that one has a sufficient and varied supply of fruits and nuts. If one lives in a climate where the fruit and nut supply is abundant throughout the year, he should have no difficulty in providing himself with adequate nourishment without eating vegetables and without taking animal foods of any kind. Man's expulsion from his primitive paradise was probably due to climatic change that reduced his fruit supply and necessitated his constant search for means of survival.

Commenting upon the African experiment, in the July 1971 issue of *Health For All* (London), Dr. Harry Clements says "It is true that such a diet would be possible in a subtropical climate with its abundance of fruits and nuts, but it would not be so easy in a climate like we have in this country, to maintain an all-the-year-round complete fruit diet on indigenous fruits. Of course, we should bear in mind that a limit is set on food by the use we make of it. There is no doubt that the kind and amount of fruit grown in this country could be vastly increased if we saw the need for it and regarded it as an important part of our diet rather than merely as a trimming to a meal. On the other hand, no climate is better adapted than ours for the growth of vegetables and salads which can play so important a part in proper nutrition."

Dr. Clements further says: "It is interesting to recall that in the latter part of the last century a Natural Food Society existed in this country, its object being stated as follows: 'The Natural Food Society is founded in the belief that the food of primeval man consisted of fruit and nuts of subtropical climes, spontaneously produced; that on these foods man was (and may again become) at least as free from disease as the animals are in a state of nature.' The main contention of this Society was that the starchy foods, especially those made from cereals are 'unnatural and disease-inducing foods and the chief cause of the nervous prostration and broken-down health that abound on all sides.' "

The Natural Food Society to which Dr. Clements refers was organized and spearheaded by Dr. Emmet Densmore and his wife, Helen. This society not only promoted fruitarianism but also propagated Dr. Densmore's no-starch dietary. Dr. and Mrs. Densmore edited and published a magazine devoted to fruitarianism and general Hygienic work. Densmore found that the fruit supply in England was not adequate to meet the nutritive needs of man throughout the whole of the year. After some experimentation, he suggested supplementing the fruit diet with milk and cheese. He even went so far as to endorse the Salisbury meat diet. Because of his frequent shifts of opinion about diet, he gained the reputation of being eccentric. When he returned to America he practically retired from active work in this field. When Mr. Carrington was preparing his work, *Vitality, Fasting and Nutrition*, he attempted to engage Dr. Densmore in correspondence about fasting and feeding, but Densmore declined to lend his services to furthering this work.

Dr. Clements recalls as interesting the fact that in America Dr. John Harvey Kellogg maintained that fruits, with the addition of nuts (which, I should point out, are also fruits), constitute an adequate diet that will sustain human life for its normal lifespan. He mentions what he calls the *therapeutic* use of fruit by Dr. Tilden and by Kellogg. Dr. Kellogg, Cajori and Ragnar Berg demonstrated experimentally the biological adequacy of the proteins of nuts. With the exception of the hickory nut, they all contain an adequacy of amino acids to support growth and reproduction.

In the halcyon days before World War I, a professor in a German university, after much thought and study, concluded that the coconut tree is the tree of life, mentioned in the paradise tradition. Professor Englehart (I have forgotten his first name) lectured and wrote on the subject and finally took a group of German men, women and children to a German possession in the South Sea Islands, where they expected to live exclusively upon a diet of coconuts. According to his accounts, the experiment was proving very satisfactory. He wrote very glowingly upon the success of the coconut diet. Dr. Benedict Lust published an English translation of Professor Englehart's book under the title, *Cocovarianism*. The experiment was brought to an abrupt end by World War I. Professor Englehart and his group of cocovarians were all pacifists and Dr. Lust told me that when the War broke out the Kaiser's government had them all shot. In a world dedicated to war, it is dangerous to be opposed to war.

I do not think that there has been a single period of five-minute duration during my lifetime of seventy-six years that there has not been fighting somewhere in the world. There have been five or six major wars in the world during my lifetime and brush fires innumerable. There may be some connection between man's choice of war as a way of life and his choice of flesh as a diet. In spite of his constant fighting, all the evidence points to the conclusion that man was originally a peaceable being. European man conquered America with considerable ease due to the fact that the original inhabitants of these western continents were, for the most part, peaceable peoples who had not learned the arts of war. Many of the tribes refused to fight, even in self-defense, but permitted themselves to be annihilated and driven westward rather than learn the arts of war. Many so-called primitive people, and not merely those in America, have retained their original peaceable character. War is as foreign to man's original way of life as flesh-eating.

Someday, after we have abolished social systems that breed war, it may be possible for students of the subject to determine whether or not man learned war at the same time he learned to kill and eat animals. The two practices have much in common, although we do find some flesh-eating tribes, such as the Eskimo, who have remained peaceable. Certainly the fruit diet, with its cultivation of fruit, is incompatible with human slaughter.

It is doubtful that the fruit diet can ever be entirely satisfactory in those regions of the earth where long and severe winters prevail. Man must, it seems probable, continue to rely heavily upon herbs and perhaps grains and legumes for a part of his diet. This is not to say that fruits and nuts are not suitable for a cold climate, but that the supply of these foods in cold climates is not sufficiently abundant throughout the whole of the year, and, except for nuts, cannot be stored and kept in adequate quantities to meet the needs of a large population through the winter months. There is no food factor in vegetable and animal products that is not also available in fruits. Cold climates are simply unsuitable to the cultivation of fruits. Some nuts do thrive well in climates that are cold much of the year. Although a nut diet has been advocated, it is doubtful if such a diet would be ideal. The paradise diet would seem to be an ideal one for a paradisiacal climate.

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Article #2: The Elements Of Nutrition by Dr. Herbert M. Shelton

Nutrition is the cardinal function of organic evolution and growth. It is the sum of all processes by which raw materials (foodstuffs) are transformed into living structure and prepared for use by the body. It is the appropriation of nutritive material by the plant or animal and its transformation into cell substance and structural units. It is the means by which food is transformed, in the case of plants, into sap, pulp, woody fiber, leaf, flower, fruit and seed, and, in the case of animals, into blood, muscle, bone, nerve and gland.

It is the process by which living organisms develop, grow, repair and maintain themselves, wounds and broken bones are healed, functions are carried on, and reproduction accomplished. It is the process of converting food into cell substance. This occurs in living organisms and nowhere else, and in the case of man, vegetable substances are transformed into human tissues.

Organic existence is perpetual creation (or evolution, if you prefer) and renewal. There is no resting, only continuous activity. Nutrition is the grand process by which creation and renewal are accomplished. Though we can observe the results, we know little of the process.

Let us think of an egg composed of material previously prepared by the nutritive processes of the hen out of which a new bird is to be made: Nutrition is the process by which the simple homogeneous material of the egg is transformed into the complex heterogeneous structures of the bird. But a microscopic speck of the egg, the germ, is alive. It is this germ that begins the work of nutrition by which it grows and becomes two cells, by which the process of cell division is continued and, finally, differentiation, organization and integration are accomplished.

In the seed of the plant a similar process takes place. The germ of the seed is microscopic in size, the remainder of the seed being prepared food. Utilizing the stored food, the plant germ evolves into the complex structure of a young plant. Thus, in the plant as in the animal, nutrition is the process of converting food into cells and organs.

Nutrition is a highly complex process carried on by all living organisms from the smallest, simplest one-celled organism to the most complex organism in nature: man. Food is not nutrition, but the chief material of nutrition. Water, oxygen and sunshine are nutritive materials, while activity, rest, sleep and warmth are vitally important to normal nutritive processes. Vital structures and functional products can be created only out of food, but it is the process of nutrition that builds and maintains organic structure.

Viewing the whole domain of live-vegetable and animal-nutrition is the fountain out of which flow structure, function, capacity, strength, growth, development and reproduction. It is the process of building, repairing and vitalizing organs and organisms. All structure is made by processes of nutrition; all repairs are accomplished by nutrition; it is through nutrition that we come to have organs in the first place; it is only through nutrition that they are constantly repaired; it is through it that we come into being and maintain life.

The tissues of man are woven on a loom that no Eastern rug designers or Western carpet machinery can rival.

Where strength is needed, an iron-like power of resistance is given to man's tissues, though these strands of fiber are finer than spider's thread. Yet where elasticity is required, the fibers rival rubber in flexibility.

The size and development of a man's muscles and the strength and functioning power of his nerves are the products of nutrition. Even his brain is a product of this process. The human infant, like the bird in the egg, starting as a single cell, grows organs and other parts by the process of nutrition, deriving its food supply, water and oxygen from its mother's blood. After birth, utilizing food, it develops and grows to maturity by processes of nutrition. Reproduction, which is merely discontinuous evolution and growth, is achieved by the process of nutrition.

The digestive system should not be thought of as the nutritive system. The respiratory system supplies the organism with needed oxygen. If it is cut off, even for a very few minutes, the whole nutritive process comes to a halt and cannot be started again.

In man and other higher animals, the many and varied functions contributing to the grand overall process of nutrition are, to a great extent, each performed by a separate organ. In the human system there are a large number and variety of organs, each of which fills a peculiar and appropriate function. In the human sphere the viscera may be regarded as a tree, the digestive system of which represents the roots, the lungs, the leaves, the blood and lymph, the sap. Given the organic structure that circulates the juices, choosing the best food and refining it, we finally arrive at human structure.

As we are primarily interested in human nutrition, I shall attempt to picture in broad outlines by use of the following diagram, the means by which the body appropriates its foods:

Substances Appropriated	**Ways of Appropriation**	**Results of Appropriation**
Food	Locomotion	Development
Air (oxygen)	Prehension	Growth
Water	Mastication	Repair
Sunshine	Deglutition	Maintenance
	Digestion	Healing
	Absorption	Reproduction
	Respiration	
	Circulation	

The organs and secretions involved in this work of appropriation and the preparation of raw materials for use are: hands, teeth, tongue, salivary glands, esophagus, stomach, gastric glands, small intestines, intestinal secretions, pancreas, pancreatic juice, liver, bile, villi, lacteals, lymphatic system, heart and vascular system, the several ductless glands and their hormones, the nose, bronchioles, lungs, diaphragm, chest walls, long bones and skin.

The long bones, in which the red blood cells are formed may be properly regarded as part of the body's nutritive system. Millions of these cells are formed daily and are essential in removing oxygen from the lungs to the body's cells, then carrying carbon dioxide from these cells to the lungs. Without this process in the bones, oxygen could not reach the other bodily cells.

Because the skin is the channel through which we receive the sun's rays and regulate their uses, this investing membrane may be properly included in the body's nutritive system.

It will thus be seen that in the higher animals, especially in man, a great number and variety of organs and organ-systems and their functions are subservient to the overall process of nutrition, and all of them converge towards a common center.

Certain functions like digestion, circulation and respiration are common to all types of animals, who must receive, elaborate and circulate the materials necessary to build and sustain their tissues. Locomotion and prehension are essential parts of the nutritional process in most animals. Locomotion is denied to some forms of animal life, and these depend upon water and waves to bring their food supplies to them.

In the final analysis, the whole body is engaged in carrying on the process of nutrition, every part contributing to the whole and no part selfishly assimilating alone. Some parts, however, are more involved than others, especially in the preparatory work. Reciprocity and mutual service characterize the work of the bodily organs. The lungs take in oxygen for the whole body and not for themselves alone; the stomach digest food for the entire organism and not merely for its own food needs; the heart receives and circulates the blood throughout the body, not merely through its own tissues. The living organism is a model of cooperation.

The production of food is a reciprocal process, plants and animals being co-equal partners in the vital synthesis. For this the forests and their myriad inhabitants have been industriously working since the beginning of life on our globe; for this the flowers have been working since they were self-sown from the miraculous garden; for this the bees and birds and wind have been pollinating flowers since the beginning of organic existence; for this the birds and mammals have scattered seed. From time immemorial, for this the soil bacteria and earthworms have labored incessantly throughout uncounted ages; for this the un-cropped earth has rested in the balmiest latitudes, while the great sun, supporter of all life, has poured her tropical spirit upon its unexhausted islands, so that spring, summer and autumn provide us with an abundant supply of tasty green leaves, delicious fruits packed with food values and baited with delightful aromas, delicate flavors and pleasing colors, and with tasty, life-sustaining seed.

Not in the animal alone is assimilation in progress. The plant is the prime assimilator, absorbing the minerals of the soil and the nitrogen and carbon of the air, the fertile soil being the great storehouse of plant food and the source of their many aromas and flavors. The animal returns the soil's fare, as fertilizer and carbon dioxide, to the original storehouse from which it was taken. In the great workshop of nature we witness progressive assimilation and refinement: The pioneer plants prepare the primitive soil for the advent of the higher plants; the higher plants refine and synthesize food for the animals above; these, in turn, compensate the plants in a variety of services for the goods received.

Through every change, by secret processes, the surface of the planet is steadily fitted for a greater edifice of society. All things normally work together for the good of the whole. Even the wrathful violators of her fundamental law of reciprocity serve her ends.

The mineral kingdom supports the plant kingdom, which in turn supports everything above it. Living plants arise—rich, delicate and lovely from the ground—created from a few simple elements. Through the subtle alchemy of life, disintegrated rock becomes stems and leaves, flowers and seeds with power to reproduce themselves. In the plant this amounts to taking the lifeless materials of air, water and soil and raising them to the status of living structure.

The animal appropriates parts of the plant and transforms them, by the subtle alchemy of animal nutrition, into sentient flesh and blood. As a result of processes of living plants and animals (assisted in the initial stages by bacteria), which we call collectively nutrition, sentient flesh is made from what otherwise would remain inert stone. The oxygen, nitrogen and carbon of the air plus the minerals of the soil are passed through the leaves and trunks of herbs, trees and other growing things. Each enriches its tissues through a division of labor and succession of touches at least as great as the processes employed in the laboratory in the manufacture of synthetic products.

Animals cannot appropriate the raw materials of the soil and air, except for oxygen and water. They cannot utilize the carbon and nitrogen of the air but must receive carbon (carbohydrates) and nitrogen (proteins) from the primary producers: the plants. These elements must be refined and synthesized by the plant and transformed into substances that the animal can appropriate. The earth might as well be bare granite and the atmosphere untinted gas if the vegetable kingdom lacked organic qualities to bestow upon the animal in the foods it turns out in great profusion.

The assumption that plants do not impart to the elements of the air and to water and soil, qualities that they do not possess in their gaseous and mineral states, is a form of ungratefulness in the inhabitants of any land whose fields are laden with fragrance and savoriness each year.

Plants, like factories, feed us and clothe us; they spin out our cotton in their looms and turn out their fruits and juices in profusion. Whether it be fruit and flavor for our bodies, or beauty and symbolism for our minds, plants support us. They yield up their substances to be transformed into new substances by us.

Thus, in the normal course of the nutritive processes of nature, vegetables draw their sap from the underground, from the dark scurf of the mineral kingdom; whereas, the animal takes its nutrient juices from among the children of the air, light and motion, from the succulent tops and fruits of the vegetable kingdom, from the results of an elaborate predigestion in the bosom of the earth and sun-kissed leaves of the plant.

By the marvelous processes of plant nutrition, lifeless matter drawn from air, water and soil has been raised to the status of living structure. Undergoing further refinements, transformations and organization in the animal, it is raised to the status of dynamic structure. The inert and unorganized is now highly organized and alive. The breath of life has been breathed into the structure and it has become a living soul. Such is the marvelous end-result of plant and animal nutrition.

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Article #3: Nutrition, A Hygienic Perspective by Ralph C. Cinque, D.C.

The following article by Dr. Ralph Cinque is reprinted from Dr. Shelton 's Hygienic Review.

Nutrition has become a popular subject, indeed, a fad. Never before have people been so concerned about being well nourished. The barrage of information that is being promulgated in books, magazines, newspapers, talk shows, etc., about food and nutrients is, of course, commercially motivated.

Consequently, the knowledge that most people have about nutrition is a mixture of facts, half-truths, exaggerations and outright fallacies.

Our purpose in this writing is not to discuss all of the intricacies of nutrition. The reader is referred to any of the standard texts on the subject for his information. Instead, our objective will be to investigate nutrition from a Hygenic viewpoint. We want to consider nutrition not as a sequence of chemical reactions but, rather, as a process of life. We want to put aside, for the time being, the specific role of various vitamins and minerals and consider the overall process by which the body attains nourishment.

Strictly speaking, nutrition refers to the processes by which the cells of the body utilize the components of foods. Nutrition does not refer to the processes by which food is eaten, digested, absorbed, transported and circulated. Nor do all of the changes that the components of food undergo metabolically constitute nutrition. Glycogenesis, for example, the process by which the liver and muscle cells convert glucose into glycogen, removes glucose from the circulation and makes it unavailable to the cells. Therefore, it must be regarded not as a nutritional process but rather as a process of food storage. Only those processes by which the cells oxidize foodstuffs for chemical energy or utilize substances to manufacture cellular constituents and secretions can be considered nutritional. All of the processes that precede the actual utilization of nutrients by the cells must, therefore, be considered as antecedents to nutrition. They make nutrition possible. They must occur in order to make nutrients available to the cells. They are vitally important, but they do not constitute nutrition.

Nutrition takes place at a cellular level. It results from the diffusion and active transport of nutrients from the tissue fluid that bathes the cells into the cellular protoplasm. At this point, nutrition begins. It is only here that the body derives any real use from the food eaten. Up to this point, there has only been an expenditure of energy in processing and transporting food in preparation for cellular assimilation. But, at the cellular level, there is finally a compensation for the physiological work done previously in relation to food.

Nutrition is not something that we can directly influence. We cannot force it to happen. If the organs of the body effectively perform their roles in relation to food, then, and only then, will optimal nutrition occur. All that we can do is supply an adequate amount of high quality food under favorable conditions. The rest depends upon what the body does with it. We do not nourish the body; the body nourishes itself. No one is a nutritionist; the body is the only nutritionist because only the body itself can accomplish nutrition.

If we recognize that nutrition takes place at a cellular level and that an elaborate and complicated sequence of events must occur beforehand, it should be obvious that the quality of physiological performance is as vitally important as the quality of food eaten. If nutrition is a distant link on a long physiological chain, a break at any point in that chain will suspend nutrition, partially or totally. Hygienists are well aware that food is of no value until it is digested and absorbed. For example, consider the diabetic, who may be fully capable of digesting, absorbing, transporting and even generating sugar from internal sources. In the absence of insulin, the active transport of sugar is impeded, and, as a result, the abundant supply of sugar is unavailable to the cells. The infant with phenylketonuria (PKU) lacks a specific metabolic enzyme that catalyzes the conversion of phenylalanine into tryosine, and consequently tremendous amounts of phenylalanine and its by-products accumulate in the blood. These disrupt body chemistry and may bring about mental retardation.

Obviously, interference at any point on the physiological assembly line can thwart the final outcome and defeat the ultimate objective, which, of course, is nutrition. Therefore, what can we think of a "nutritionist" who decides that a protein deficiency exists and has the patient take some protein powder dissolved in water every day in order to enhance nutrition? This kind of "shotgun approach" does nothing to enhance nutrition. On the contrary, it disrupts nutrition by adding one more enervating influence to the life of the individual, an influence that stresses various organ functions and biochemical processes.

Our task is not just to provide nutrients but to provide them in a gentle manner that maximize the efficiency of our organic functioning in order to promote the most effective utilization of food. The manner in which we eat, the conditions that prevail at the time of the meal, the state the food is in and the way in which it is prepared, the abundance of nerve energy, the presence of hunger—these factors have as profound an effect upon nutrition as nutrients, per se. We cannot emphasize too strongly that it is not what we eat, but what we appropriate at a cellular level that determines the state of our nutrition.

Therefore, as Hygienists we must recognize that nutrition involves a great deal more than food, that every aspect of our lives affects the state of our nutrition. This would include the manner in which we eat, sleep, exercise, emote, rest, think, etc. Those who ingest large quantities of extracted and concentrated nutrients have a very distorted view of nutrition and show a lack of understanding of the biological facts of life.

Now that we have defined nutrition, we shall discuss its nature and characteristics. We have already stated that the cells of the body are bathed in tissue fluid and that it is from the tissue fluid that they extract nutrients. The cells also exrete their wastes into the tissue fluid. So there is a constant movement of materials across the cell membranes in both directions. This movement is a continuous, fluid and constant process. It is not sudden. It does not occur in starts and stops. It is happening all the time, at mealtime and between meals, during the day when we are active and at night when we are sleeping. It speeds up under some conditions and at other times slows down, but it never stops. It is completely controlled, determined and regulated by the body.

The body is like a food store with a large cold storage room in back. As the consumers remove items from the shelves, the owner replenishes the shelves with wares from the storeroom. The owner may also be receiving a delivery of fresh goods daily, but these are used to replenish his reserves in back and not to stock his shelves directly. The food that he makes directly available to his customers comes from his storage room, so that if by chance a delivery fails to arrive one day it will have little or no effect upon the availability and selection of foods in his store. His own reserves are more than ample to supply his needs for several days.

A similar situation exists within the body. The body is constantly drawing upon its reserves to maintain the chemical constancy of its tissue fluids so that at no time are the cells subject to being depleted. The body is not directly dependent upon raw materials to accomplish nutrition because it is constantly living upon its reserves. Eating replenishes these reserves. The body is much less dependent on food than most people think.

The common notion is that the only thing that maintains normal blood sugar levels is the frequent ingestion of food. The tremendous magnitude of the body's ability to make sugar available from glycogen and certain amino acids, and its capacity to rely more heavily on fat combustion, if necessary, is often overlooked. Most hypoglycemics think that the distress that they experience between meals is the result of an inherent need for infrequent meals. They fail to recognize that their symptoms are manifestations of impaired organ functioning, enervation and toxemia. What they require is not more food, but more rest.

It is a well-known fact of physiology that stored food within the body is in a constant state of flux. Fat stored within fat cells, for example, is constantly being consumed and replenished. Obese individuals with vast midrift bulges think that they have been living with the same fat for years. They don't realize that they have been continually using and replenishing their fat, and that this year's fat is entirely different from last year's fat.

If the body is not directly dependent upon meals to accomplish nutrition, what affect does eating a meal have on nutritional processes? We have already stated that the availability of nutrients depends upon the composition of the tissue fluid and that tissue fluid is a filtrate of the blood. Therefore, the composition of the blood and tissue fluid must remain constant in order for the fluidity of nutritional processes to be undisturbed. When we ingest a meal, the products of the meal are obviously markedly different from the composition of the blood. The body constantly seeks to nullify change in its blood chemistry as a result of the ingestion of a meal.

Converting excess glucose into glycogen and gradually releasing it into the bloodstream in response to the body's constantly fluctuating needs for sugar is one way in which the liver "buffers" the effects of eating a meal. Taking a large quantity of Vitamin C may temporarily achieve "super-saturation," but the body will immediately go about excreting the excess and re-establishing normal tissue levels of ascorbic acid. This requires usually no more than several hours. The liver also removes excess carotene (provitamin A) from the blood and stores it, but, as we all know, people have varying capacities to do this. Some turn orange after one glass of carrot juice, while others car drink a quart at a time without a noticeable affect. All of the food materials that are absorbed into the blood are first transported via the portal circulation to the liver where they are processed before entering the general circulation. The body seeks to minimize the impact at a cellular level that would otherwise occur from eating food.

Quoting Ian Fowler from his excellent article, "Fundamentals of Feeding" which appeared in Dr. Shelton's *Hygienic Review* in June 1978, "Consuming extracted and artificially concentrated items results in a sudden influx of nutrients which necessitates rapid accommodation and adjustment of blood nutrient levels, of liver metabolism, adrenal, pancreatic functions, and so forth. This is debilitating, inefficient, wasteful and enervating." This profound and explicitly stated fact of physiology will never be taught by vitamin manufacturers, health food store owners, "metabolic nutritionists," or "orthomolecular psychiatrists." All they will ever teach people is how wonderful calcium is and how much Vitamin X the body needs. The fact that taking their products exerts a tremendous stress upon the body, that it is a shock to the system to be suddenly overwhelmed with "megadoses" of vitamins, that taking unnaturally concentrated nutrients tends to disrupt and not enhance nutrition, is not the kind of knowledge that promotes vitamin sales. Even eating whole natural food constitutes a slight stress that requires internal adjustments to restore homeostatis. Why magnify this stress by consuming large quantities of concentrated nutrients? Nutrition is not a matter of violently battering, dosing, saturating or treating the body with nutrients. "Nutritional intensity" is not our objective. Our objective is to gently supply needs. Let the body establish its own blood levels of Vitamin C, calcium, etc. Eat a simple diet of whole natural foods with a preponderance of raw, succulent high-fiber foods. This will minimize the rate at which nutrients are introduced into the blood and thereby minimize what Dr. Alex Burton, a well-known Hygienic practitioner in Australia, refers to as "nutritional shock." Why not make the process of appropriating nutrients as easy as possible for the body? Why not harmonize with the body's internal processes instead of trying to thwart them?

We might also consider that when we consume isolated nutrients, we offset rations of various nutrients and that this constitutes an additional stress. It is known, for example, that the body requires ten times as much niacin as it does thiamine or riboflavin. Therefore, when we consume a large quantity of extracted thiamine, we produce a relative deficiency of niacin. We should note that the proportion of various nutrients in natural foods parallels the body's needs for different nutrients. Natural foods contain many times more niacin than thiamine, which is in keeping with the body's needs.

Other important nutrient ratios include: sodium/potassium, calcium/phosphorus, iron/copper, Vitamin E/selenium, zinc/molybdenum and Vitamin C/bio-flavinoids. The proportion of these nutrients within natural foods accurately reflects the body's needs; thus, the greatest synergy of nutrient utilization is achieved. The body requires many times more potassium than sodium, and this is exactly what we find in natural foods. Processed foods that are loaded with sodium disrupt the delicate balance between these two mineral elements that exists at the neuronal membrane, thereby impairing the function of the nerves. Diets that introduce excessive amounts of phosphorus into the system may produce a relative deficiency of calcium even though an adequate amount of calcium may be consumed. A deficiency of copper prevents a thorough utilization of iron.

The important point to realize is that nutrients are utilized in concert and that it is the total ensemble of the diet that determines the state of our nutrition. Consuming isolated nutrients is more likely to do harm than good. This is true even in relation to proteins and amino acids. It is now known that the body has a limited tolerance for sulphur-containing amino acids and that excesses can be very taxing on the liver. Plant proteins, which contain a lesser proportion of methionine and other sulphur-containing amino acids than do animal foods, are not only less burdensome on the liver but they more accurately supply the body with the proportion of amino acids that it was designed to process.

Understanding the physiology of nutrition will quickly dispel misconceptions that exist about the role of foods. One common misconception is that foods (or nutrients) have specific effects on different organs and tissues. "Vitamins for the hair" are a popular drugstore item, and glandular extracts that supposedly "feed" specific organs are peddled by practitioners of all the various so-called "schools of healing."

If we consider that the cells obtain nourishment from the tissue fluid and that tissue fluid is a filtrate of the blood, then it should be obvious that all of the different organs and tissues are on a mono-diet of blood. The blood supplied to the kidney is virtually the same as the blood supplied to the big toe, which is identical to the blood supplied to the left elbow. The cells are capable of extracting from the tissue fluid (hence, the blood) nutrients in the proportion that they require, but all of the cells are fed from the same table. The differences that exist in the chemical composition of different tissues come about as a result of active processes of the cells themselves in selecting the nutrients that they require. It does not result from any assumed differences in their food supply. Therefore, eating fish because it is "brain food" or taking adrenal gland extract because "it has the exact proportion of nutrients required to rebuild the adrenal gland" flaunts ignorance of the most fundamental laws of physiology. Health food notions that "beet juice is good for the kidneys," or "wheat grass juice cleans out the liver," are equally as ridiculous. All a food or juice can possibly do is contribute to the blood nutrient pool. It can not have specific effects on specific organs. Remember also what was mentioned earlier, that the body constantly seeks to nullify any changes in its blood chemistry as the result of the ingestion of a meal. The rationale of "nutritional therapy' is as much a fantasy as the rationale of any other form of therapeutics. Foods do not act on the body. The body acts upon foods. Nutrients do not act on the body or perform roles within the body; they are used by the body. The body itself is the only active agent in nutrition.

Nutrition is an autonomic function, that is, it takes place below the conscious level. Just as digestion, absorption, circulation, glandular secretion and other autonomic functions take place without conscious perception or awareness, so also do the processes of nutrition (at a cellular level) occur without our direction or participation. Everyone will admit that stomach function will only produce symptoms when it is impaired. No one will deny that under ideal conditions we are totally unaware of the functions of our livers, intestines, etc. These are autonomic functions and they do not produce symptoms.

Nutrition is the same way. It is an autonomic function. Just as the digestion of food does not produce symptoms, the appropriation of nutrients, internally, should not produce symptoms. However, when digestion is disrupted symptoms arise and, likewise, when nutrition is disrupted symptoms arise. Russell Thacker Trail stated in 1871 that "Pure and perfect nutrition implies the assimilation of nutriment material to the structure of the body, without the least excitement, disturbance or impression of any kind that can be properly called stimulating." Here is a profound statement to come from a man who lived over 100 years ago, before the explosion of knowledge about nutrition and biochemistry began at the turn of the century. Yet he realized then what few people realize today, that any specific effects that occur from the ingestion of foods or nutrients are the results of stress and irritation and are not the result of an enhancement of nutrition. If a person is manifesting the symptoms of a cold, and taking vitamin C aborts those symptoms, this effect can no more be regarded as nutritional than can the effects of taking aspirin. The vitamin C is having a pharmacological effect (that is, a drug effect), not a nutritional effect. If a woman has severe menstrual cramps and taking dolomite relieves her symptoms, it is foolish to think that a need for calcium has been satisfied. The calcium is exerting a pharmacological effect. Crude calcium was one of the first drugs used as an anesthetic in surgery because it impairs the conduction of nervous impulses and thereby reduces sensibility. To call this nutrition is a shame, a travesty, an outright lie. Any food or nutrient that "suddenly gives you pep," "makes you feel warm all over," "cures your headache," "helps you sleep" or has any other specific effect should be avoided like the plague. It is obviously irritating, disrupting and enervating.

Lesson 6 - The Immense Wisdom And Providence Of The Body

- 1. What Constitutes Body Wisdom And Providence?
- 2. Cell And Brain Programming
- 3. Knowledge, Expertise And Resources For Healing Processes
- 4. Programming The Intellect For Exuberant Well-Being
- 5. Questions & Answers
- Article #1: The Great Power Within You by T. C. Fry
- Article #2: Life's Engineering by Dr. Herbert M. Shelton

Introduction

The human body is possessed of an intelligence and order that is incomprehensible to our intellects. While many humans are vain and will not admit to an inability to know and understand, let's face it—we are all finite in our capacities. We cannot comprehend the concept of infinity and we are mystified by many realities of existence.

From miseducation, ignorance, vanity and authoritarianism amongst our professionals flow arrogance and incorrect action that brutalizes those whom they profess to serve. From intellectual wisdom and understanding flow humility, kindness and other humane virtues. Wisdom recognizes our finite nature and admits to ignorance, an act of humility. Humility does not stifle the innate drive to seek knowledge. Rather, humility is born of a realization that spurs the quest for greater wisdom. True wisdom motivates us to continual exploration and improvement.

This lesson treats an area largely unexplored and uncharted. When we view the vastness of the incredible multitude of faculties possessed by the human body, we must stand in awe of the enormous intelligence displayed in each of the quadrillions of processes conducted within the body daily . We must stand in wonderment at the precision we observe. We cannot help but conclude that the body operates on principles that manifest the reign of law and order within the organic realm. We must observe that we are constituted on such an order as to comply in every act with the universal laws of existence.

We want to charge you with an overwhelming realization of the enormity of innate intelligence—of inherent body wisdom that exceeds by thousands of times the intellectual powers we arrogantly boast of. So vast is this innate intelligence that it is positively staggering. The immensity of inborn intelligence is not an easy subject to present. Very few studies touch upon this subject. However, we can delineate and point out some of the many manifestations of inherent body wisdom.

In this lesson, you will become aware of an internal providence that should be respected. So great are our body endowments that you should adopt this attitude: Never interfere with the vital domain. You cannot possibly help it—you can only harm it. All the knowledge and wisdom of civilization to date does not equal the intelligence exhibited by the operations of a single cell within the body! The best you can do is to order the external environment to make it more favorable for the organism. The only thing you can do for the body is to leave it intelligently alone! It knows what it is doing. You don't!

1. What Constitutes Body Wisdom And Providence?

Providence is the ability to anticipate needs and provide for them. This providence may be instinctual, as in the case of the bear that stores tremendous amounts of fat in preparation for hibernation or the squirrel that stashes nuts, acorns and seeds, or it may be due to acquired wisdom, as in the case of humans who store foods during plenitude in preparation for the season of scarcity.

The body is always provident. All providence exhibits wisdom.

Reproduction of kind is providence. It is provision that the species shall survive. The complexities of reproductive provisions defy human inquiry and intellect in their profundity and detail.

Nutrition and elimination are provisions insuring that the organism survives. Likewise, the complexities and subtleties of these many provisions defy human inquiry and intellect, though compliance is easily accomplished.

The immensity of the wisdom exhibited in all things so staggers the human intellect that many often retreat into the comfort of some all-encompassing outlook that relieves them of the burden of inquiry, assessment and understanding.

As students of this course, you are undertaking to delve into life's provisions sufficiently to ascertain a valid course for uplifting yourself and fellow beings to the uttermost possibilities.

Wisdom is really a difficult word to assess and define. It can be said to be all-knowing and all-understanding within a given sphere. Wisdom is at once the comprehension of a matter in both depth and breadth and an expertise or mastery that enables the possessor to pursue a correct course of action.

In pursuing this study, we must not confuse inherent wisdom or intelligence with intellect and acquired wisdom. The ability to think is a property of the conscious intellect. It involves wisdom and intelligence of a different order than the wisdom which is the subject of this lesson.

While there are books on body wisdom and its inherent programming, these books have little substance. This sphere of our existence is little explored, though the mechanisms of inherent wisdom have been charted extensively. What we can do here is to, by observation and deduction, invoke your realization of the colossal wisdom of the body.

Body wisdom comprises the multitude of faculties within the body that recognize, communicate and effectively respond. For example, if you bite into a luscious apple, the whole system is coursed with delight. If you bite into an apple that has been injected with a solution of caustic soda, you'll immediately recognize the danger, begin spitting and sputtering and run for water to dilute and remove the deadly poison that contacted your mouth tissues. Rejection of toxic matters is just as natural as delighting in beneficent materials and influences.

1.1 Cell Wisdom and Providence

The wisdom of a single cell is said to exceed all the accumulated knowledge of the human race so far! Each cell is, quite literally, a city in itself. It is a self-contained organism. The membrane is like the wall around a great city. Within are numerous inhabitants, many of them enjoying an existence within the cell on the order as the cell enjoys within the body. These forms of life, called mitochondria, have independent metabolic systems and can thusly be said to operate symbiotically with the cell and in concert with each other. All the components of a cell act for their mutual welfare and for the welfare of the cell as the host organism.

If we marvel at the extensivness and complexity of the cell, then we must be even more astonished with the human body. The human body is said to possess 125 trillion cells, give or take a few trillion. (Some texts say there are 75 trillion and others say there are as many as 300 trillion cells in the human body.)

To say that the cell is a self-contained city in itself is no exaggeration. Cells vary in size from midgets to giants. But even the smallest cell is about one billion times the size of its smallest component! There are thousands of organelles within each cell. These are the cell's life support system. Among these organelles are mitochondria which appear to be an independent form of life within the cellular context. Mitochondria are analogous to, or like, bacteria in their organization and functions.

A cell seems to be a city of specialized bacteria united into an organic unit to maintain a favorable environment and to more effectively secure the needs of existence.

Additional to its mitochondria, a cell has many organelles (functioning systems within their own membranes) that complement the mitochondria in making the cellular *organism* self-sufficient in its operations. Thus the cell, like the human body, requires only that its needs be supplied within the context of a favorable environment. Just as humans strive to create favorable environments for themselves, cells have long since ordered their environment by organizing into a super city known as a body. The human body can be said to be the super city.

The wisdom manifested in the faculties, organization and operations of a single cell stun the intellect. By observation we must admit that it is there and regard it with respect, even if we do not know or understand it.

1.2 Multicellular Intelligence and Intercellular Relationships

If wisdom characterizes the seemingly infinite faculties of the cell, then think of the wisdom that unites a hundred trillion of them into an organism! Think how great must be the wisdom that guides the destiny of each and every cell within the body complex.

Cells are organisms within themselves. They contain mitochondria which have the characteristics that would earn them the ascription of an organism, too! Thus, if the human body contains over a hundred trillion cells, and each cell contains a complement of mitochondria, then there must, in reality, be several quadrillion organisms within the human body. If a cell is a colony of sophisicated bacteria that have banded together for their mutual welfare, then the body may be said to be made up of sophisticated cells that have banded together for their mutual welfare.

Cells have allied themselves within a unit we call an organism to specialize in functions in complementary coordination for mutual good. If we hypothesize that bacteria have confederated and specialized in carrying on the functions that make the cell a self-contained functioning organism, then cells have likewise affiliated and specialized to better create an ideal environment and to secure the needs of life.

If we observe the life cycle of a tree, we must marvel at its tremendous intelligence. From an acorn that sprouts and slowly grows over the years into a stately oak, we see the unfolding of an intelligence that is beyond our knowledge and understanding. Within the genetic encoding of each and every cell of the acorn and the resulting tree is the knowledge, understanding and operational expertise to secure needs from environment, to fashion them precisely into its specific requirements, to utilize them and to eliminate the wastes.

In making alliances with other cells, a supra-cell coordinator is created to coordinate the activities of the cells. This is called the nervous system or brain in multicellular organisms.

1.3 Ascertaining the Intelligence of Physical Phenomena

What kind of intelligence does it require for the body to recognize food and secrete the correct enzymes for its digestion? What kind of intelligence is required to create the enzymes?

When we start asking questions exhaustively, we begin to discover the immeasurable wisdom and providence of every faculty of life.

Below is an excerpt from a physiology text. It is quoted merely to highlight certain body processes so that we might divine some of the body faculties and the intelligence they exhibit:

> *Often tissues of the body regress to a much smaller size than previously. For instance, this occurs in the uterus following pregnancy, in muscles during long periods of inactivity and in mammary glands at the end of the period of lactation. Lysosomes are probably responsible for much if not most of this regression, for one can show that the lysosomes become very active at this time. However, the mechanism by which the lack of activity in a tissue causes the lysosomes to increase their activity is completely unknown.*
>
> *Another very special role of the lysosomes is the removal of damaged cells or damaged portions of cells from tissues-cells damaged by heat, cold, trauma, chemicals or any other factor. Damage to the cell causes lysosomes to rupture, and the released hydrolases begin immediately to digest the surrounding organic substances. If the damage is slight, only a portion of the cell will be removed, followed by repair of the cell. However, if the damage is severe, the entire cell will be digested, a process called autolysis. In this way the cell is completely removed and a new cell of the same type ordinarily is formed by mitotic reproduction of an adjacent cell to take the place of the old one.*

What this really means is that body parts not in service atrophy and that it is believed that lysosomes are responsible for regression or atrophy. But, whether or not we divine the wisdom of loss of unused faculties, there is an intelligence that creates and regresses faculties involved in pregnancy, lactation and musculature.

In the paragraph that follows, we will study one way in which the body uses lysosomes for special purposes. As you may already know, lysosomes are powerful digestive enzymes the body creates, stores and uses. When a cell is to be scrapped, the old cell is autolysed (self-digested) and the remnants are passed off as wastes into the lymph and then into the bloodstream. The wastes may be recycled in part and excreted in part. The point here is that cells have their own "self-destruct" mechanisms in the form of lysosomes.

The processes described evince tremendous body intelligence in their performance. The vital domain does not tolerate unneeded baggage. Therefore, it disposes of the useless and the surplus to the extent it can. Cells that are crippled are either repaired or replaced. High-level function is the objective of the body. The welfare of the remaining cells decrees that they dispatch crippled cells if not repairable.

The body secretes lysosomes and uses them for special purposes. Let's examine a boil or carbuncle. The little hole that extends from the body surface to the fleshy interior represents a real body disaster! But the purposes served decree the ravage that the body inflicts upon itself. When there is deadly toxic accumulation that threatens the integrity of the organism—when this toxic accumulation cannot otherwise be eliminated through regular channels of elimination—the body autolyzes a tube, hole, passage, duct or fistula-like opening to the surface. Perhaps a hundred million or so body cells will be destroyed by lysosomes. After the completion of the tube, the body collects the toxic material and forces it to the surface through the specially-created duct. There it is quarantined until drained or detoxified.

In fasting, for instance, lysosomes are utilized in destroying and digesting growths. The materials destroyed are utilized as food. These growths may be breast tumors, cancer cells, warts, cysts, etc.

The order of intelligence involved in sensing errant conditions, communicating them to the brain, assessing the reports, determining a course of action and responding with coordinated orders to all the body cells and systems involved to effect a result is beyond human comprehension. We can only intimate the vastness of the wisdom involved with our limited concepts and expressions.

This is just one of the many kinds of body wisdom that further fortifies the Life Science stricture: Leave the body intelligently alone.

1.4 The Brain as the Kingpin Behind the Human Show

For us to comprehend the magnitude of the brain's dominion and the cooperation of each cell member of that dominion, we'd have to have an intellect infinitely more developed than it presently is. The limits of intellect leave too much that is "not clearly understood."

In one of the articles used as text material in this lesson, it is pointed out that the body possesses some 125 trillion cells. Each cell consists of a multitude of organelles or life support systems that keep the cell functioning. This article points out that it is difficult for us to conceive a few thousand people getting together and cooperating harmoniously in all things. If that seems difficult, then imagine all the four billion individuals on earth acting in unison. But then, compared with the body, that is nothing! Can you imagine 36,000 earths, each with four billion inhabitants, acting in unison?

Only with such staggering thoughts as these is it possible to grasp some idea how infinite is the, knowledge, understanding and expertise of the human brain. It coordinates the activities of an astronomical number of cooperating cells. We emphasize the word cooperating because all cells are completely subservient to the brain, which, in turn, serves the whole organism. The brain exists as the controller of the body cells collectively. It serves the cells by providing them with needs they cannot obtain on their own.

Sometimes a cell may become "independent" in that its control mechanisms are affected and it either no longer possesses innate intelligence or can no longer focus its innate intelligence to cooperative endeavors. Such a cell becomes a parasite cell in that it draws from organic stores but is so "crazy" it cannot contribute to function. It is called a cancer cell. Its operations disrupt physiological harmony rather than contribute to it. A cancer cell is created by continual assault by toxic substances that eventually derange and destroy its encoded blueprints and intelligence. When such a cell exists, the brain will bring the residual powers of the organism to destroy the errant cell.

The brain, though the creature of its cellular constituents, is nevertheless supreme in the organism of which it is a part. The cells have created it as president to preside over and direct their affairs.

As the supreme faculty of the body, the brain is protected and served by its cell constituency preferentially. The brain thus is treated royally. It receives the best of everything; it is served and kept operational, even if this means the sacrifice of millions upon millions of cells. Thus, we can say the brain is the kingpin behind the human show.

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2. Cell And Brain Programming

Each cell has a blueprint called genetic encoding. As a matter of fact, each mitochondrion within the cell has its own genetic material, too. This encoding enables the cell to reproduce itself faithfully. Further, it enables the cell to perform chemical, mechanical and electrical activities with exactness. The cell is a chemical factory performing more chemical feats than all the chemical factories in the world combined. Incredibly, it performs them within its membraneous confines, the volume of which is so small as to be undetectable to our eyesight.

The intelligence of a cell does not have to be learned. A new cell comes into existence just as experienced and knowledgeable as the cell that begot it. The intelligence is inherent and is automatically transmitted to progeny. The endless duplication of phono discs might be compared with cell replication. The programming is within.

The brain and central nervous system, likewise, are possessed of most of the knowledge, programming and expertise needed for operating an infinitely complex organism. The programming necessary to internal operations is automatically transmitted through reproduction of genetic codes in the developing organism. We marvel that the blueprint for the whole organism in all its incomprehensible number of faculties and functions exists within a fertilized ovum. Our stupefaction must be thorough when we realize that the microscopic fertilized ovum has all the instructions encoded that will create a grown "human being with 125 trillion cells. A perfectly developed and symmetrically formed organism of 125 trillion cells will result from the blueprint born of the union of sperm and ovum.

Everything about this organism is at all times perfect in faculties and functioning potential. It is faithful in every detail of the blueprint. It carries within all the accumulated experience and knowledge of billions of years of development. It will reliably produce a human being to the highest standard to which humans have developed. The perfect precision with which millions and trillions of formulas, processes and procedures are exactly transmitted and performed (some for just once in the whole life of the forming organism) is truly mind-boggling. (All this presumes no vitiating interference from toxicity or injury.)

We can throw up our hands and dismiss probing into such baffling complexities because of their irrelevance to the practical plans of human existence. Indeed, we can! We can live in bliss and never inquire once into our origins or the intricacies of our being. Humans lived happily unaffected lives in nature, just as animals, long before we plumbed the depths of our bodies and minds. Hence, we do not pursue this course to teach the profundities of the organism. You can procure books on physiology, biochemistry, cytology, anatomy and kindred subjects if you choose to do so. But that will add little to your effective knowledge of how to guide errant humans. That know-how is much simpler and easier, at least insofar as it involves learning.

Our objective is to imbue you with an awareness of the extensiveness of inborn intelligence and an understanding that it is to be trusted implicitly at all times and in all cases. Never be so presumptive or arrogant as to imagine that you can second-guess the body. Neither you nor anyone else can. While we can fathom the vast intelligence within, we cannot begin to substitute for it. We cannot help it a smidgeon. All that we do to the vital domain constitutes morbid interference.

The brain consists of fifty billion cells that are the most highly developed of any known. They have the potential to live for hundreds of years. They do not reproduce as do other body cells—they do not reproduce at all. But even the healthiest of us lose perhaps a hundred thousand of our brain cells daily. At this rate, it would take 150 years to lose 10% of our brain capacity. But humans often squander this precious heritage and become senile in their sixties, seventies and eighties, still in the relative youth of life's potential, with loss of perhaps more than 50% of their cerebral matter.

On the conscious level, we are babes in the woods. While our intellects have been millions of years in developing, cell intelligence has been developing for billions of years, and our subconscious faculties have been hundreds of millions of years in development. Our infant intellects are at a stage where it can most appropriately be said that "a little knowledge is a dangerous thing." If the human race survives long enough, we may come to a general intellectual level consonant with Life Science ideals. We may all come to realize that our own well-being is indelibly bound in following nature's mandates—in living in complete harmony with our fellow sojourners—in total non-exploitation of humans or of other creatures.

2.1 Wisdom and Precision of Body Processes

Some 100,000 different proteins are synthesized within the body. The blueprints or formulas for these proteins exist within almost every cell. The exact procedures involved for making these proteins most efficiently are a part of cell encoding or programming.

Likewise, the cells have a wealth of abilities—to store and use all the raw materials they need, to create the compounds they need and will need, to create the energy they need, to create and apply the energy commanded of them in behalf of the organism—the multitude of capabilities of the cell overwhelm the intellect. It is said that if all the processes and capabilities of the cell were to be taken over by a computer, a computer of the dimensions of New York City could not cope with them.

A cell might better be likened to a self-contained universe rather than a self-contained city.

Adenosine Triphosphate (ATP) is the source of energy for most cell functions. Most ATP is created by the specialized organelles called mitochondria. Mitochondria create this complicated molecule, ATP, which "fires" when given a proper signal. When the ATP is used, the resulting spent molecule is recycled or "reloaded" for reuse. The know-how, providence and expertise involved in these chemical processes stagger the imagination.

2.2 Cognitive Faculties

At every level of its being, the body has highly-developed sensors that can readily recognize that which is good, bad or indifferent. All our senses coalesce to recognize foods, dangers, pleasurable and enticing situations, unpleasurable and repulsive situations, and so on.

Externally, our conscious faculties and intellect fulfill sensory and cognitive roles. Within the vital domain there are millions upon millions of specialized faculties for sensing the electro-chemical-mechanical nature of everything that enters.

Nerves translate all sensory data into electrical impulses and transmit them to the brain for a coordinated and purposive response that will effectively deal with the situation.

To provide an example, let us propose that many cells are short of an amino acid needed to synthesize a crucial protein requirement. This need is communicated to the brain, which relays a message to cells for inventories of surplus amino acids. Those required for deamination and reamination into the needed amino acids are directed to the liver, where deamination is conducted and the new amino acid is synthesized. The order of intelligence that can perform these immensely complex inventory and chemical activities makes our intellects, as marvelous as they are, look rather miniscule by comparison.

2.3 The Body Communications System

The body has some 50 billion brain cells. It has billions of nerve cells involved in message transmission. Messages travel within and around the body with the speed of electricity—nerve transmissions are almost all electrical. There are chemical communications within the body as well.

If we viewed a city like New York with eight million inhabitants, millions of telephones, hundreds of exchanges and thousands of switchboards, we can only begin to understand how intricate and complex are the body communications systems. The body has a communications system that serves at one time the equivalent of 36,000 earths, each earth having over four billion residents! Each of those inhabitants has a telephone.

If you knew what was involved in turning over during the night during sleep, you'd be astonished. An area of the body involving countless billions of cells becomes cramped or distressed in some way. An urgent request goes to the brain—rather, the brain has been monitoring the situation all along. But movement is not initiated as long as matters remain within certain parameters. When the situation threatens the integrity of certain areas, the brain, entirely beneath the level of wakefulness, will mobilize trillions of cells that comprise hundreds of muscle systems and effect a shift of body weight to a more comfortable position.

2.4 The Body's Master Coordinator

We have commented upon the brain as the kingpin in all body operations. The brain is the supreme creation that trillions of cooperating cells have devised to serve them as a master communications and coordinations center. The brain has been developed to administer the many needs within. As well, the brain has been developed to aid the organism to deal with the external world on its own terms.

The thoughts we have on a conscious level are marvels when viewed from one aspect. But our intellects are hardly capable of conducting more than one line of thought at a time. In comparison, the brain conducts millions of processes simultaneously beneath the level of awareness! This service never ceases, going on every second for our entire lifetime. The busyness of the brain in serving the equivalent of 36,000 earths with four billion inhabitants each is unimaginable. We can only hint at it.

For example, one of the brain's responsibilities is overseeing the maintenance and circulation of the blood—among a few million other things. And speaking of a few million things, while you read this sentence your body has created 10,000,000 new blood cells! That is, it creates ten million blood cells per second! The body has some 25 trillion blood cells, and their average life expectancy is only about thirty days. Blood maintenance and circulation have unimaginable intelligence behind them.

The luxury of abstract thought is possessed by only a few creatures on earth. Some races of humans, notably the negrillo or pigmy, are said to be incapable of mastering abstractions. Yet there are other creatures, most notably whales, dolphins (porpoises) and elephants, who may be able to think in abstractions. Perhaps even dogs and wolves are capable of abstract thought. We don't really know much about the subject. Certainly no other creatures approach the capacities of humans for abstract thought.

The brain is absolute master of all the cells within its domain. Yet it is totally subservient to its cells and is very responsive to their needs. But the organic order of the body system is such that the brain is at the very apex in importance. While the brain was the last development of the human organism, it is the first in importance. Every cell, tissue and organ system other than the heart are slowly sacrificed, in critical periods such as starvation, that the brain might survive. When the brain can no longer survive, death occurs.

The brain is the prime instrument in establishing, supplying and maintaining the needs and stable environment of the trillions of cells. Each cell has yet other organisms that thrive within its internal environment called mitochondria. The brain exists for every cell in the body and, in turn, the brain's welfare is dependent upon the well-being of the cellular system it serves.

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3. Knowledge, Expertise And Resources For Healing Processes

Can anyone doubt, after a study of the countless control mechanisms within the body, after observing what happens with predictable reliability when cuts, broken bones and other injuries are suffered, that the body is completely self-repairing?

Can anyone not see that the body has vast resources, that it is completely self-sufficient and that it is fully capable of coping with internal exigencies that beset it to the exclusion of all other agencies?

Can anyone of average intelligence not see that any intrusion upon the vital domain is grossly wrong? That it obstructs and interferes with processes revealing far more wisdom and expertise than we can ever hope to master?

Can anyone doubt that all body action is intelligent, purposeful action?

Can anyone doubt that symptoms of sickness evince body action in purifying and healing itself? Can anyone doubt that, in conducting disease processes, the body is manifesting wisdom and physiologically correct remedial activities?

Can anyone doubt that an organism with the power to develop itself into a superb human being from a fertilized ovum is less than capable of managing its internal affairs?

Can any person presume a knowledge of internal needs better than the body itself?

It is very unwise, even dangerous, for anyone to presume an ability or knowledge superior to that of the body. Leave the body intelligently alone!

3.1 Body Actions Always Are Right Actions

It has been said in jest that "we are our own worst enemies." The facade of a joke often conceals an element of truth.

What humans often do relative to their bodies reminds me of a story. Two husky men were going down the street. They observed a huge piano apparently stuck in a doorway and two workmen inside trying to move it. They offered their help and started struggling to get the piano into the house while the two workmen inside struggled also. After about half an hour of fruitless efforts, one of the workmen inside yelled for a break so they could get their heads together on this thing. Upon convening, one workman commented that he'd never had such great diffculty in getting a piano out of a house before.

"Getting it out of the house?" asked one of the volunteers. "We been trying to help you get it into the house."

When we deem our intellects superior to the obvious demands of the body in a crisis, we exhibit gross ignorance. The only way to help the body is to cooperate with it, to meet its needs in accord with its condition. That is the only wise thing to do. This means "leave the body intelligently alone" to do its thing in full confidence that all body action is right action.

3.2 Intervention of Intellect in Body Affairs

If you hold your breath or force yourself to breathe in a manner that is contrary to normal breathing, you are interfering in a vital body process. Not many people hold their breaths long nor perform forced breathing (often called deep breathing) such that they underventilate or hyperventilate their bodies and beget hallucinations and *acapna*.

The body is the best arbiter of its needs. It is autonomous and operates from a cumulative fount of wisdom that we can never hope to emulate.

Often the body will make its demands upon us in some gentle manner, such as in thirst, sleepiness, hunger, etc. But when we figure that wine, beer or soda pop are just fine as ways to satisfy thirst, we are imposing upon the body a health-sapping burden. The body demanded water, and only water, in thirst. To supply it with anything other than water is a mistake.

At some time in our past the current superstition about diseases began. The present idea about disease is the result of a gradual evolution from the ideas of evil spirits and demons. The people who held these ideas admitted that they were wrong by the fact that they changed their minds and replaced them with new ideas. However, the new ideas have the same roots as the old ideas and are, therefore, equally wrong.

The misconception that still prevails in matters of sickness or disease is that the body is being attacked. The misconception further holds that the attacker or attackers must be counterattacked and routed from the body. Under this misconception many people have been harmed (by drugs). Death occurs in some cases. In fact, when physicians go on strike, the death rate usually plummets by 50 to 60%!

One of the prime dicta of the Hygienic philosophy is noninterference in the body. Each cell of the body possesses more knowledge and expertise than the whole of the human race collectively on the conscious level. Our voodooistic rituals with drugs are based on conjectures about what the body should be doing or what it needs when ill.

It bears repeating that sickness is vital body action. It is right action. The body initiates and conducts the disease process to accomplish physiological objectives. To mistake that action as an attack by an invader that must be routed is disastrous in practice.

Refrain always from second-guessing the body—what it needs or what should be done. We'll repeat over and over: "Leave the body intelligently alone." Establish the external conditions of health based on the body's capabilities of the moment and that's all. That is a simple enough dictum to follow.

3.3 Building Confidence in Inherent Faculties

This lesson cannot pinpoint body wisdom any more than have our many researchers and thinkers. We know its there and we perceive how extensive it is when we explore it. But, by and large, most of our population is unaware of their bodies' tremendous faculties. They violate the laws of their being and then seek "help" when problems arise.

Not only must you build your confidence in the unfailing powers of the organism, but you must establish this confidence in your clients. There are many approaches to accomplishing this. Methods that make a deep impression are to be preferred. Among the educational aids Life Science is developing are graphic presentations depicting the incredible powers within.

When the resources and powers of the body fail to restore health under favorable conditions, then the condition is irremediable. Life Science is the court of last resort for many who have tried everything but healthful living. Many turn too late—they're already over the hill.

Everyone can benefit by the employment of healthful practices within the context of their condition. As a professional, you cannot promise miracles but you can say truthfully that the methods you propose are the only factors that will enable the body to rebuild health.

3.4 A Medical Assessment Of Body Wisdom

Dr. David Reuben, M.D., has authored two best-selling books. One, *Everything You Always Wanted to Know About Nutrition*, contains much erroneous guidance. But it also shatters many commercially-fostered myths in the field of foods, feeding and nutrition.

The following quote from the book illustrates the body's needs and powers:

> *Look at it this way. A plain old apple contains 191 known chemical compounds, each of which plays an important role in human nutrition. When you eat that apple, over 1,300 chemical reactions occur to break it down into its component molecules. Those molecules are then dispatched to exactly the areas of the body where they are required. The pectin goes to the large intestine, the vitamin C is sent to the skin, the vitamin A goes to the retinal area of the eyes, and so on times 191. You don't make it happen because you don't even know it's happening. There are 160,000 edible plants on this earth—you didn't put any of them there. But most of them help keep you alive. Your digestive system was designed by God—not by you, not by IBM and not by a government agency. It can take almost any animal that walks by or any plant that springs up in an empty field and convert it into brain, bone, heart, muscle and energy to keep you alive. Even the most arrogant and self-important "scientist" must admit that a Being far wiser than any human must have devised and implemented that will-uncomprehended nutritional system.*
>
> *So don't think that the people who make instant breakfasts or imitation orange juice or yucky white imitation bread have the slightest idea what your body needs. That applies as well to those who turn out vitamin pills and nutritional supplements. Those fumbling human*

> *brains cannot improve on the Master Design that brought you here and allows you to survive from day to day.*

3.5 Law and Order Reign Within the Body

Pick up any book on physiology, nutrition, biology, cytology, biochemistry, anatomy and related sciences. Each attests to the multitude of activities the body conducts. Each bespeaks the orderliness and precision with which the activities are conducted; each witnesses the enormous wisdom—the vast know-how and expertise posessed within; each tells of the multitude of faculties and resources within the body.

However, for a person who elects to make a practical application of the world's most needed expertise, a pursuit of esoteric knowledge would be luxurious entertainment. Most of it is meaningless, for we cannot change nature. It does not need to be changed. We can always rely on it. The multitudinous processes and relationships proclaim the unalterable reign of law and order within. All body wisdom is based soundly upon the immutable physical relationships of matter. Entitative existence depends entirely upon fixed principles and undeviating physical relationships. Bodily survival depends upon taking charge of and utilizing needed natural substances in accord with invariable laws.

The order of intelligence evinced in the mastery of nature's forces dwarfs our intellects beyond our ability to comprehend. The best we can do is bend our knees in awe and acknowledge our inner wisdom and resources as our master. We must make our intellects totally subservient to our bodily wisdom. Our intellects will thrive ever more if we learn to cooperate with our inner wisdom.

By teaming up with your body intelligence in all matters, you can become a winner in the game of life. You can help others become winners in the game of life, too!

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5. Programming The Intellect For Exuberant Well-Being

By now you are no doubt persuaded that the body is constructed for perfect operations.

The body is a perfect instrument within the environment of its adaptation when its needs are correctly furnished. Because intellect often misinterprets body processes and actually contravenes its needs—because cumulative institutionalized errors regard the body and its needs incorrectly, much suffering and disease prevail today.

Learn to trust the body implicitly. Learn how to properly supply it and know that it will perform correctly whether in struggle or great health. Struggle is occasioned when the body is incorrectly supplied or interfered with. Lacing our bodies with toxic fare, miscalled food and drink, is incorrect supply, and the administration of drugs, treatments and anti-vital modalities constitutes gross interference.

From wrong intellectual programming flows errors that undermine and destroy health.

The purpose of this course is to present you with ready-made programming you can employ in helping your clients reprogram themselves so that they may enjoy wonderful health.

Clients will seek you out because they want to free themselves of nagging problems and suffering. They are not necessarily looking to change their habits or programming—they want to be made well within the context of their status quo—most are fixed in their habits (programming) and resist changing their ways. Even if they wanted to, most are in situations that do not make breaking habits an easy matter.

To break bad habits, it is wise to take an individual out of the mold in which the habits were forged and indulged and place that person for awhile in an environment where only good habits can be followed. Within a directed or controlled environment, all the experiences are usually pleasant—even happy, memorable occasions. Those who are fasting or living within the atmosphere of a health retreat improve themselves, enjoy fellow guests and enjoy body rest. Frequently they are in a heady state. Tensions that ordinarily beset them within conventional society are relaxed and often nonexistent.

Within the context of a euphoric paradise, clients improve rapidly. Their intellects are largely reprogrammed in support of an inner drive to continue the benefits and happiness realized.

More healthful living has been inspired in Americans at health retreats than any other single way. The great value in establishing a controlled and ideally directed environment for health seekers is thus evident. Nothing reprograms the mind so quickly or so well as living and doing in rapport with others going in the same direction.

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5. Questions & Answers

If the body has the wisdom you say, then why should it ever get sick?

> The body becomes sick because of its wisdom. You must not look upon sickness as a punishment or as a stupid thing. The body always strives to the highest level of well-being as possible. If it becomes loaded with toxic substances due to whatever reason, it requires a lot of wisdom to withdraw energies from many normal channels, redirect it to purification processes and accomplish expulsion of morbid matters. If the intellect insists on unhealthful habits, including stuffing on pathogenic substances, what would happen if the body were equally unwise? Morbid matters would collect until sufficiently concentrated to dispatch the organism.

Isn't the cell the smallest unit of human life? You have said there are yet smaller forms inside the cell. Please comment on this.

> There are other inhabitants within a cell. These are called mitochondria. Each mitochondrion fulfills the qualities of life, i.e., it has its own metabolism, nucleus, genetic material (DNA) and so on. Just as the atom becomes complicated with protons, mesons, electrons and neutrons and becomes even more complicated when formed into molecules, so too, the human body seems to be at least a three-step organization with mitochondria, cells and, finally, the organic whole.

How can you say that everything the body knows is already programmed into the fertilized ovum? Wouldn't you say a minor detail like 1,500 miles of specialized tubing called blood vessels in our bodies is the result of a far greater wisdom and power than could possibly be blueprinted on a pinhead?

> It is as easy to say things one way as the other. Both truth and misconceptions can be reduced to words. However, intellectual honesty bids me to say that what we observe is evidence only of itself. In the matter of reproduction we observe the microscopic fertilized ovum carrying within all the blueprints needed to create a perfectly functioning adult with

millions of times more faculties than just the 1,500 miles of circulatory tubing.

Thank you for bringing to our attention an additional aspect of the body's really immense programming and how that programming is so readily reproducible. Because we cannot understand how the complexity of a human organism can be blueprinted into a fertilized ovum does not mean it is not there. It merely pinpoints another facet of how limited are our intellects. We can see the unfoldment of this blueprint in all its detail as it develops a human being. We cannot see any other agency involved nor can we logically infer it.

You have intimated that the body has infinite intelligence. Is this really the case?

No. The body has very finite intelligence, and that wisdom relates to internal and external matters only to the extent that it must alter its operations of the moment to maintain equilibrium or an ideal internal environment. Relative to our intellect, internal wisdom is infinite in my portrayal only because it is so much more vast, relatively. I would also impress you with this: Despite its imperfections, we must marvel that we have the luxury of the intellect. Intellectual faculties are at the very apex of body intelligence. That they have been vitiated and misdirected does not detract from them.

You've said that bacteria have been around for billions of years and that they have evolved to being part of the human body. Aren't you assuming Darwin's theory is scientific?

I know of the great controversies of our day on creationism versus evolution. Darwin's theory is that life forms evolved and developed. This is out of the class of being a theory in view of the many types of plant and animal life humans have developed by guided breeding. Recognizing that development can be guided is also to recognize that it can happen without guidance from the human intellect.

What do you have to support your statement that the death rate goes down 50% to 60% when doctors go on strike?

There were two physicians' strikes in Israel, one in Holland, one in Belgium, one in Canada and several in the U.S.A. In every case the death rate went down sharply. You have our book, *The Myth of Medicine*. Why not take time out and read it. You'll find substantiation in its pages.

How are we going to get people to fast if that is the only way to help them.

Clients will seek you out because they are looking for benefits. Fasting is but one condition under which great benefit can be derived. If the client really needs a fast, it is a procedure to be outlined to him/her in honest terms with the benefits that always accrue correctly portrayed. Not all clients who should fast will do that, but that is their responsibility. You will have done your duty to your client by introducing them to the solution to their problems and by making your best effort to present that solution as a simple, easy and desirable way to go.

Article #1: The Great Power Within You by T.C. Fry

The following is based on the writings of the great Natural Hygienist, health educator and true Life Scientist, Dr. Herbert M. Shelton.

Living organisms are fully self-sufficient and self-governing entities. Supplied appropriately with the needs of life, they thrive in perfect health, completely free of disease.

From conception all living organisms are endowed with a built-in program for a full, fruitful and joyous life.

Living organisms are self-programmed to meet all life's needs within environments of their adaptation.

All living organisms are self-directing, self-constructing, self-defending, self-preserving, self-maintaining and, in the event of injury or illness, self-repairing or self-healing.

The healing principle is always in the living system itself.

The only power that can heal is the power that repairs; the only power that can repair is that power that produces; the power that now produces is the power that originally and always produced. The power that constructs *a full-grown individual from a fertilized ovum is the only healing power!*

Healing is, therefore, a continuous, unceasing and exclusively intrinsic power of every organism.

The power that produces an organism and keeps it alive and functioning is the only power capable of governing, maintaining and healing it.

Mastering and relying upon this great power within will yield a life of bliss and goodness *with complete freedom from ailments and suffering*.

The simple, self-evident truth enunciated in this article embodies a long train of guiding principles that can enable you to avert miseries, woes and suffering.

Knowing your tremendous inner capabilities frees you of many burdensome illusions and provides a key to true life enhancement.

Recognizing the truth and implications of this lesson's text is the basis upon which you can immeasurably improve your life and its circumstances.

Recognizing the fundamental truth outlined herein sets the stage for fulfilling the obligation you have to yourself and fellow beings, that of reorienting and reprogramming yourself for superlative well-being.

The Need For Reprogramming yourself

Standing in the way of total well-being for all too many who otherwise have the knowledge, the understanding and the dedication to achieve their highest potential are many ingrained bad habits, physiological addictions and erroneous concepts.

"Tis better to be ignorant than to know so much that isn't so."

Humans are creatures of habits. Habits are conditioned responses which we rely upon for personal efficiency. We spend many years from infanthood on learning responses to many thousands of situations and circumstances.

With set response patterns we do not have to go through time-loss and trouble in solving problems anew every time we face them—we humans solve our problems once and for all and adopt the solutions as fixed and automatic responses known as habits. When situations reoccur, we unconsciously employ our habit patterns.

That many of these habits amount to error fixation and that our accommodations to many of these habits amount to life-destroying perversions gives rise to the need to reprogram ourselves.

Most of our habits are learned from people who learned from others back into the murky reaches of time. Habits are always adapted and employed in accord with our own peculiar abilities.

Likewise, we learn most of our concepts and misconcepts from others and adopt them in the shape or fashion our individual peculiarities dictate.

Habits are wonderful, for they are the foundation upon which our advanced human attainments have been built. As the most programmable beings in existence, we have more "conditioned responses" to carry us through more and greater complexities than other creatures in existence. By and large, our habits are constructive and get us along in this world remarkably well.

On the other hand, there are many "klunkers" in our personal armentarium that sabotage our well-being.

Thus it follows that we can perform no better than the limitations of our self-programming. Our programming is at the same time our boon and our bane. To the extent that it guides us correctly, it is a boon. Insofar as it locks us into wrong conceptual frameworks, perverted outlooks, unwholesome practices, vitiated and antisocial dispositions and many other self-defeating characteristics, programming is a bar to our well-being.

It is unfortunate that most or all of us are incorrectly attuned to a greater or lesser extent in many of our life programs.

But we are fortunate in that we, like computers, can be reprogrammed for better performance and more rewarding results.

If you want to capitalize upon the colossal potential within yourself, then you must reprogram yourself.

Reprogramming yourself is difficult because you will be burdened heavily by the weight of previous conditioning and the drives, good, bad and indifferent, which initiate and impel your activities.

You'll have to dispel a lot of myths and superstitions which infest your concepts and burden your thinking processes. What you take for granted is difficult to overcome. But you must and can do so.

To reprogram yourself for a better life on a higher plane of existence, the first order of business is to admit to yourself that you could harbor a lot of beliefs and practices that are responsible for your and your fellow beings' generally poor condition and overall suffering.

We all know mental anguish and frustrations. These will flow from lives not led in accord with the course our innate nature decrees.

You can reprogram yourself to understand and practice the course you must follow. You can avoid those pitfalls that hamper you from assuming the position on the pedestal that all humans should occupy.

How To Reprogram Yourself For Superlative Well-Being

Following are the steps necessary for the ordinary person to become a Life Scientist, that is, to become an individual who conducts his or her life activities in accord with the dictates of the human biological heritage:

1. You must come to an awareness or knowledge that all is not right in this world of ours, or even with yourself. While almost everyone is self-satisfied that he or she has the answers to life's and society's great vexations, the generally deteriorating condition of almost everyone seems to be self-evidence against such smugness. Therefore, you must be willing to admit to holding many erroneous notions. *We do not perceive our errors and often reject the truth when faced with it, but we must, first, cultivate an open, receptive mind.*
2. You must seek knowledge and understanding with open arms. That you are reading this is in your favor. In seeking knowledge with the perspective of understanding, that is, wisdom, you'll be

dependent upon your ability to master ideas and concepts.

3. You must seek knowledge, nonetheless, if you want to better your life situation. It is essential for correct reorientation. The fundamental principles, if applied on an individual and social scale, will salvage humanity from its depravity.
4. You must master an insight and understanding of what you learn—in your cosmogony you must fit all the parts and pieces of your knowledge such that you have perspective; it all must make good sense.
5. You must become the absolute master of your personal activities and circumstances. You must be willing, to the extent need dictates, to snap all ties with existing habits, intellectual stances and practices, no matter how deeply imbedded or how dear to you they may be.
6. You must be willing to end all fealty to anything that you believe, if need be. Keep in mind that the use of the word *believe* is a confession of ignorance, for it is not necessary to believe that which you know. To insist upon what you merely believe, may be insisting upon ignorance and misconception. Face up to the fact that many of your beliefs may be nothing more than myths and popularly-accepted superstitions that hamstring you.
7. You must be willing to change your circumstances, if necessary, to effect self-reprogramming and to follow a correct life style.
8. You must undertake and study the conditions of health and well-being. Your greatest task is not the one of learning so much as unburdening yourself of a lot of burdensome intellectual baggage.
9. You must undertake to observe in your practices that which the truths you learn dictate.

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Article #2: Life's Engineering by Dr. Herbert M. Shelton

The greatest engineering feat of which we know anything is the building of a complex animal organism from a microscopic ovum. Think, for instance, of the marvels of the human body with its pulleys and levers to perform mechanical work, its channels for distribution of food and drainage of sewage and its means of regulating its temperature and adapting its actions and functions to its varied environments and needs. Its nervous system and the eyes, ears, etc. are constant sources of wonder. We regard the radio as a wonderful invention, as indeed it is, but we are all equipped with more wonderful "sending" and "receiving" sets than any radio manufacturer will ever produce. All human inventions have their protypes in the animal body.

In studying the wonders of the body, its structures, functions, development, growth and its varied powers and capacities, it is well to keep in mind that the building and preservation of all these things is from within. The power, force or intelligence that evolves the adult body from the fertilized ovum is in the body, is part of it and is in constant and unceasing control of all its activities. Whether it is an intelligent power or a blind energy, it works determinately toward the latest results in complexity of structure and function. In development and maintenance, and in health and disease, the movements of life appear to be guided by intelligence more often than the conscious intelligence of man. Indeed, unless we grant that something can come out of nothing, that intelligence can come out of that which has no intelligence, we must believe that the conscious intelligence of man is a subordinate part of that broader intelligence that evolves his body and which inheres in it.

If we view a few of the engineering feats performed by the body in cases of injury and disease, we are forcibly struck with the truth of Sylvester Graham's remark: "*In all these operations the organic instincts act determinately, and, as it were, rationally, with reference to a final cause of good, viz., the* *removal of the offending cause.*" Some of these wonderful feats have been presented to you in previous chapters. We will here present a few of a different class.

To begin with, let us consider the natural healing of a wound, scratch or broken skin. We have become so accustomed to this familiar phenomenon that we have come to regard it as an almost mechanical process. But a close examination of the process shows us the presence of that same marvelous intelligence that built the body from a tiny microscopic speck of protoplasm to its present state.

Whenever the skin is broken or cut there is an exudation of blood which coagulates and forms an airtight scab. This scab serves as a protection to the wound and remains for a shorter or longer time as is needed.

Underneath this scab a wonderful thing occurs. Blood is rushed to the injured part in large quantities. The tissues, nerve and muscle cells, etc. on each side of the wound start multiplying rapidly and build a "cell-bridge" across the gap until the severed edges of the wound are reunited. But this is no mere haphazard process. Everywhere is apparent the presence of directing law and order. The newly-formed cells of the blood vessels unite with their brothers on the other side so that, in an orderly and evenly manner, the channels of circulation are re-established. In this same lawful and orderly manner the connective tissues reunite. Skillfully, and just as a lineman repairs a telegraph system, do the nerve cells repair their broken line. Muscles and other tissues are repaired in a similar manner. And what is a wonderfully marvelous fact to observe, no mistakes are made in this connective tissue, but each tissue connects with its kind.

After the wound is healed, when a new skin has been formed so that there is no longer any need for the protecting scab, nature proceeds to undermine and get rid of it. As long as the scab was useful it was firmly attached to the skin so that it was not easy to pull it off, but when there was no longer need for it, it was undermined so that it fell off of its own weight.

What more evidence than this does one require to know that the same intelligent power that built our bodies is also the power that heals it? What better evidence do we want that the healing process is accomplished in the same orderly manner and by means of the same functions with which the body is built, maintained and modified to meet its present needs.

We get a still more wonderful view of how nature performs her work if we observe the healing of a fractured or broken bone. If an arm or leg be broken, this same marvelous intelligence that has brought us from ovum to adulthood immediately sets about to repair the damage done. A liquid substance is secreted and deposited over the entire surface of the bone in each direction from the point of fracture. This section quickly hardens into a bone-like substance and is firmly attached to the two sections of the bone. Until nature can repair the damage, this "bone ring" forms the chief support whereby the limb can be used. By the same process of cell multiplication which we saw in the healing of the wound, the ends of the bone are reunited. The circulatory channels are re-established through the part. It is then that the "bone ring" support is softened and absorbed, except about an eighth to a quarter of an inch about the point of fracture.

If you strike your finger with a hammer, a very painful bruise is the result. There is an effusion of blood under the surface, with inflammation and discoloration. The tissues are mangled, the cells are broken and many of them are killed. But does the thumb always remain so? No. As time passes, new tissues are formed to replace the dead ones and the dead blood and tissue cells are carried away by the bloodstream. The inflammation subsides, the pain ceases and the bruise is healed and soon forgotten. Thus again is manifested the marvelous intelligence of the power that superintends the workshop which we call our body. Once again we watch its work and see its marvelous efficiency as a workman.

A similar manifestation of the body's self-healing, self-adjusting and self-repairing powers is seen in the common accident whereby a sliver becomes embedded in the flesh. If it is not removed immediately, nature, or vital force, does a skillful little piece of engineering and removes it for us. Pain and inflammation are soon followed by the formation of pus, which breaks down the tissues, towards the surface of the body. Gradually increasing in amount, the pus finally breaks through the overlying skin and runs out, carrying the sliver along as a souvenir.

A remarkable engineering feat is presented to us in abscess formations. Ordinarily the abscess is limited by a thick protective wall of granulation tissue which prevents the abscess from spreading and prevents rapid escape of the pus into the circulation.

In appendicitis the loops of the bowels around the appendix form friendly adhesions. They adhere together and form a strong wall against further spread of the trouble. Within this enclosure the abscesses form. The line of least resistance normally is into the bowels so that practically every case, if not interfered with by meddlesome doctors, will rupture into the bowels and the pus will pass out with the stools.

Where the ice bag is employed for one or two days prior to the usual operations, there is a noticeable lack of effort on the part of nature to wall off the appendix from the rest of the abdominal cavity. However, where the ice bag has not been employed, a distinct walling off of the acutely inflamed and gangrenous appendix from the general peritoneal cavity is found. So greatly does the ice bag interfere with the curative and protective operations of nature that one of the leading abdominal surgeons of this country declares: "I have entirely discarded the use of the ice bag, and in cases brought to me in which it has been used, I always announce beforehand that I expect to find a gangrenous appendix and am seldom surprised. *Clearly the ice bag should never be used in cases of actual or suspected appendicitis.*" Nature can do her own work in her own way, and all our so-called aiding of nature amounts to is nothing more than meddlesome and pernicious interference.

Acute inflammation of the liver usually terminates in resolution, but sometimes it terminates in suppuration with abscess formation. This is more apt to be the case in hot climates. The amount of matter discharged from an abscess of the liver is sometimes enormous, and it is wonderful to see in what ways nature operates in getting rid of it.

There are several channels through which the pus may be sent out of the system. The inflammation may extend upward until an adhesion to the diaphragm is accomplished. A dense wall of scar tissue is first formed around the abscess. The abscess then extends through the diaphragm to the lungs, which become adherent to the diaphragm. Liver, diaphragm and lungs form one solid piece. A tight union of these organs prevents the pus from pouring into the peritoneal or pleural cavities. A hole is eaten through the lung and the pus is poured into a bronchial tube and is coughed up, emptying the abscess and leaving a clean hole. The wall of scar tissue thrown up around the path of the abscess grows stronger and contracts until, finally, only the scar remains, it having closed the hole, and the patient is well.

The abscess may be directed downward or to the side of the liver. In such a case the process is the same except the liver becomes united to the stomach, the intestines or the walls of the abdomen by adhesions produced by inflammation. If it adheres to the stomach or intestine, the abscess will perforate into these and the pus will pass out in the stools. If it becomes adherent to the wall of the abdomen, the abscess will "come to a head" under the skin and the pus will be discharged on the surface of the body. In either case cicatrization follows and the patient is well. In some cases the abscess discharges into the gallbladder and passes from there into the intestine. It has also been known to "point" on the back.

It sometimes happens in weak individuals that nature is not able to make proper connections along the line of march and the pus ends up in the pleural cavity, resulting in empyema, or in the abdominal cavity, where it results in peritonitis and, usually, death.

Another daring engineering feat is often accomplished by nature in the case of gallstones that are too large to pass through the bile duct directly into the small intestine. She frequently causes the gallbladder to adhere, by means of inflammation, to the wall of the intestine. An ulcer forms, making a hole through both the wall of the gallbladder and the wall of the intestine. The stone slips through into the intestine and passes out with the stools. The hole heals up and all is well again. In other cases the stone may be sent out through the abdominal wall and skin, on the outside of the body.

An unusual piece of engineering which shows, in a remarkable manner, the ingenuity of nature in her efforts at prolonging life in spite of every obstacle, is recorded by J. F. Baldwin, A.M., M.D., F.A.C.S., in a surgical paper dealing with blood transfusions. He performed an operation on a middle-aged woman who had been having frequent hemorrhages from her bowels for several years. He says:

> *At the operation I removed a snarl of small bowel, making the usual anastamosis. Examination of this snarl showed that there had been an intestinal obstruction, but nature had overcome it by ulceration between adherent loops of the bowel above and below the obstruction. The ulcer persisted, however, and it was its persistent bleeding that caused her anemia. She made an excellent recovery and got fat and hearty.*

It looks like a real intelligence at work when nature causes two folds of the bowels to adhere together and then ulcerates through them in order to make a passage around an obstruction. There cannot be the slightest doubt that the ulcer would have healed, leaving a passage, and the bleeding stopped, had the opportunity been afforded it. Nature probably cried out day after day in unmistakable language for the cessation of feeding long enough for her to complete her engineering feat. But this was never given her. The ulcerated surface was kept constantly irritated with food, and drugs as well.

Abscesses everywhere in the body are limited and walled off by the formation of a thick wall of granulation tissue. Gangrene is also walled off in the same manner. The necrosed portion then sloughs off; nature grows new tissue to take the place of the destroyed tissue and the place is healed.

Encapsulation is the process of surrounding a body or substance with a capsule. A cyst or capsule consists of a cavity lined according to its origin by endothelium (in preexisting cavities of connective tissue—exudation cysts) or epithelium (in pre-existing epithelial cavities—retention cysts) with a fluid or semifluid content.

Those of chief interest to us here are known as *distention cysts* and are divided into:

(a) Retention cysts, which are due to the obstruction of the excretory ducts of glands. The cavity becomes filled with the secretion of the gland which later becomes altered and circumscribed by a fibrous wall. These may develop in any glandular structure, as pancreas, kidneys, salivary glands, mammary glands, sebaceous glands (wens).

Around a foreign body like a bullet, such a capsule forms. There is first inflammation and perhaps suppuration. But if this fails to remove the bullet, a capsule of tissue also containing fluid is formed, and the bullet is rendered innocuous. A similar thing frequently happens in the lungs in the case of germs. Rausse thought this fluid was a variety of mucus and thought that chemical or drug poisons were enveloped in this same "musus" to render them harmless and that they were then deposited in the tissues. He says with regard to the face that this theory cannot at present be demonstrated:

> *This theory is founded upon the incontrovertible principle of nature in the alimentary and organic world, that nature operates similarly under similar circumstances. Hence, the theory here offered loses none of its certainty because we are unable to recognize with the unaided eye, on account of their minuteness, the inimical atoms and the minute network around them, and to exhibit them by section.*—Water Cure Manual, p. 92, 1845.

The encapsulation of exudates, excretions, extravasions, disintegrating tissues, germs, parasites, bullets and other foreign bodies renders them harmless. The process and structure it evolves are plainly defensive measures. They once more remind us of the many and varied emergency measures the body has at its command.

The formation of gallstones and other stones is in itself an engineering feat that serves a useful purpose and even extends and saves life. In the lungs, for instance, in those who have tuberculosis, the affected spots are often the seat of the formation of stones. When this takes place, the disease in that part ends. Medical authorities consider that nature employs this means to wall up the tubercle bacilli.

The formation of stones in the gallbladder and kidneys, just as in the lungs, is the end result of inflammation and undoubtedly serves a definite and useful purpose. Sometimes, it is true, they are made so large that they are the source of much trouble, but it is safe to assume that they are never made larger than the gravity of the situation demands. Most gallstones are small enough that they pass out without causing pain, and the individual is never aware that he or she has had them. A large number of people examined at autopsies are found to have gallstones in the gallbladder and were never aware that they had them. They never cause trouble until they go to pass out and only then if they are small enough to get into the gall duct but too large to make the entire passage. A stone that may easily travel through the common duct may be forced, with extreme difficulty, through the small opening of the duct into the intestine. This causes severe pain. As soon as the stone is forced through, the pain ceases. (The sufferer then thinks that it was the last treatment he employed that relieved the pain and "cured" his troubles.)

A *thrombus* is a small blood clot formed inside a blood vessel. The condition is called *thrombosis* and the vessel is said to be *thrombosed*. They are the result of injury and inflammation and may completely plug the vessel.

In the intestines are many small glands composed of lymphoid structure just as are the tonsils of the throat. They are known as Pyer's patches. In typhoid fever these patches are swollen or enlarged (hypertrophied), and frequently they suppurate. They may slough off. This peeling off may result in a hemorrhage or it may not, depending on whether or not all the vessels in that locality are tightly *thrombosed*. If they are all tightly *thrombosed*, no hemorrhage occurs. If the work of sealing the vessel is not complete or perfect, then a hemorrhage occurs with more or less loss of blood before it finally ceases. This is but another evidence of nature's engineering work. These *thrombi* may later be swept into the general circulation and carried to some vital spot where they are too large to pass through the artery and may there cut off the blood to parts of the organ, causing it to die of starvation. Starvation would only occur in cases of stopping of an "end artery."

"Anastamosing" arteries would soon establish sufficient collateral or compensatory circulation to supply the part with blood.

If heat or friction of sufficient intensity and duration is applied to the skin, a blister forms; that is, a watery exudate or serum is poured out of the surrounding tissues and circulation into the "space" between the dermis and epidermis and detaches the dermis from this, raising it up and thus protecting the tissues beneath. The accumulated fluid holds back the heat or, in the case of sunburn, the actinic rays, and protects from the friction. This little piece of engineering work is quite obviously a defensive work. In both burns and sunburn, inflammation and healing follow the blister, and in the case of sunburn pigmentation occurs to protect from future sunburn.

Of a similarly defensive nature are corns and callouses that form on the feet and hands or any other surface of the body that is subjected to constant friction. The clerk who deserts the store for manual labor finds his hands are tender and blister easily when he handles tools. However, before many days have passed, the skin on his hands has become thickened and hardened, ultimately becoming almost horn-like. When this occurs, he finds that no reasonable amount of hard work blisters his hands.

Tumors likely begin in this same manner. They probably begin as hardening and thickening of the tissues at a point of irritation as a means of defense.

Hardening and thickening of the tissues occurs in any and all parts of the body to resist constant irritation. This can be seen in the mouth, stomach and intestines of those who employ salt and condiments. It is seen in the constant use of drugs. Silver nitrate, for instance, if repeatedly employed, converts the mucous surface upon which it is used into a kind of half-living leather. Other organs harden and thicken as a result of toxic irritation. Toxemia, with or without the aid of external irritation, often necessitates, at certain points of the body, the erection of greater than ordinary barriers against it. When the normal cells of a local spot become so impaired that they no longer successfully resist the encroachment of toxins, not only are the usual defense processes brought into activity, but also, since a more than usual condition is to be met, nature calls into play her heavier battalions. She begins by erecting a barrier of connective tissue cells. Then, with a slowly-yielding fight against the toxins, she continues to erect her barriers. This may continue until the tumor becomes so large as to constitute a source of danger itself. Were it not for the erection of this barrier, the causes against which it is erected would destroy life long before they ultimately do. The tumor actually prolongs life.

A process similar to this is seen in plants that have been invaded by parasites. The large, rough excrescences seen on oak trees form about the larva of a certain fly. This fly lays its eggs beneath the bark of the tree. The larva which develop from the eggs secrete a substance that results in the formation of the huge tumorous mass. Large tumor-like masses form on the roots and stalks of cabbages as a result of parasitic invasion. The olive tree also develops tumors from a similar cause, while cedar trees present peculiar growths called "witches' brooms" as a result of a fungus growing on them. There are many other examples, and they are all quite obviously protective measures. Tumor formation is undoubtedly due to a variation in the complex relations determining normal growth and is of a distinctively protective nature. A tumor is not a source of danger until it begins to break down.

In inflammation of the kidneys due to the impairment of kidney function, the normal constituents of the urine are decreased. They remain in the blood instead of being eliminated. Due to the necessity of removing from the circulation, the salts, etc., that are normally eliminated through the kidneys, and due also to the necessity of keeping these in dilute solution so long as they remain in the body, and to the equal necessity of removing them from the circulation, drospy develops in various portions of the body, particularly in the tissues immediately under the skin. It may also collect in the cavities of the body. When kidney function is restored, the dropsical fluid is gradually absorbed into circulation and eliminated.

An aneurism is an inflated portion of an artery. If the walls of an artery become weak at a given place, they either burst, some of its coats are strengthened or else it becomes bulged out due to the pressure of the blood from within. The body at once sets about to protect itself by forming a vail of new tissue around the aneurism. Should it rupture so that the blood finds its way along between other organs, a wall of scar tissue is thrown up around the aneurism to limit the escape of blood. This is called a dissecting aneurism.

Thus we might continue giving example after example of the wonderful engineering feats of the body and show with what marvelous powers and works it meets emergencies and protects its own vital interests. When we consider the wonderful mechanism of the human body, the certainty with which all organs perform their allotted work, the marvelous ingenuity with which the body meets emergencies, its almost limitless powers of repair and recuperation, we develop a large respect and admiration for the healing powers of the body and learn to view with contempt and disgust the means that people employ in unintelligent efforts to "cure."

Well did Jennings affirm:

But at every step of her (nature's) downward progress (in the face of pathoferic causes she cannot overcome), her tendency and effort have been to ascend and remount the pinnacle of her greatness; and even now, in the depth of her degradation, the tendency of all that remains of her, of principle or law, power and action, is still upwards.

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1. Introduction

Before embarking on a study of carbohydrates—their role in the body, their sources, etc., we will begin by highlighting the importance of carbohydrates, defining what carbohydrates are and learning how they are formed, as well as glimpsing at a brief history of carbohydrates in the human diet.

1.1 The Importance of Carbohydrates

As mentioned in the RATIONALE earlier in this lesson, even the process of digestion could not occur without the energy provided by carbohydrates. Without carbohydrates we would not be able to think or move and our heart couldn't beat.

Whether it be digestion or circulation, thinking or walking, all life activities are dependent upon carbohydrates. When insufficient carbohydrates are available from the diet, the body converts fat reserves to carbohydrates for its use, and amino acids are utilized as carbohydrates instead of being used to make body protein.

1.2 What Are Carbohydrates?

As the lesson title implies, carbohydrates provide fuel, or energy, for the human body. These organic (carbon-containing) compounds are an integral part of both plant and animal life, and, as stated above, life as we know it could not exist without them.

Carbohydrates are made up of three elements: carbon, hydrogen and oxygen—carbohydrates. As you will learn in a later lesson, fats are also comprised of carbon, hydrogen and oxygen, but they have less oxygen and more carbon and hydrogen than carbohydrates.

Carbohydrates, along with proteins and fats, comprise the major components of living matter and are used for maintenance of cellular functional activities and as reserve and structural materials for cells. Because they are the primary source of energy for the animal kingdom, carbohydrates are particularly important in a study of nutritional science.

1.3 How Carbohydrates Are Formed

Carbohydrates are formed by green plants in the process of photosynthesis. In photosynthesis, plant chlorophyll, plant enzymes, sunlight, carbon dioxide from the air, and mineralized water from the soil combine and, in a complicated process, synthesize carbohydrates. Humans obtain their carbohydrate needs most efficiently from the plant world.

1.4 Carbohydrates: Past and Present

In the past and in some parts of the world today, people's diets consisted largely of carbohydrate foods, especially those growing locally. In most of the Western world today, however, meats and other protein/fat foods comprise a disproportionate part of the diets of many people, and processed and refined carbohydrate products are being consumed in lethal quantities.

While people do survive, at least for a relatively short lifespan, on diets high in proteins and refined carbohydrates, this survival is low-level survival, with suffering from illnesses of numerous varieties being considered the norm. A high-level state of health and well-being is possible only if our needs are met in keeping with our biological adaptation and if destructive practices are removed from our lives. The further we carry this, the healthier and happier we will be, for joy is supposed to be our primary experience in life— not suffering.

During the past 70 years or so, more and more food processing and refining establishments have been created, and they are producing horrendous qualities of highly-refined, highly-processed and highly-chemicalized so-called "foods." An extremely large proportion of these "foods" are carbohydrates—that is, they provide energy in the form of calories. But they are not real foods because they lack many of the elements from the original food source that make a food a food. For example; the germ and bran are removed from wheat, leaving only starch; and the vitamins, minerals and fiber that need to be with the starch to make the wheat a whole food are missing. Removing natural food components and then attempting to put them back by adding specified amounts of synthetic vitamins and minerals, by using bran separate from the whole wheat berries, and by taking food supplement pills and powders is the height of absurdity. First of all, it's not effective, and secondly, it's expensive, time-consuming and, most of all—UNNECESSARY!

Even physiology texts, which are medically oriented rather than health oriented, say that a casually selected diet of carbohydrates is likely to be poor in the essential amino acids, vitamins and minerals. Life Scientists/Natural Hygienists recognize the necessity of high-quality carbohydrates in the diet and the need to eschew the products marketed by the food industries; Hygienists advocate a return to a high-carbohydrate diet consisting of whole foods, with fiber intact, that provide our needs for complete proteins, vitamins and organic minerals.

2. Classification Of Carbohydrates

Carbohydrates, also known as *saccharides*, are classified according to the number of single carbohydrate molecules in each chemical structure. Carbohydrate compounds having just one carbohydrate molecule are called *monosaccharides*; compounds with two carbohydrate molecules are called *dissarcharides*; and those compounds containing more than two carbohydrate molecules are named *polysaccharides*. All carbohydrates either are monosaccharides or can be hydrolyzed (broken down) into two or more monosaccharides.

For further understanding of these different classifications of carbohydrates, the monosaccharides and disaccharides can be grouped together and compared with the polysaccharides. This can be done because monosaccharides and disaccharides have certain things in common.

For one, they are both water soluble. In addition, they have a sweet taste and a crystalline structure. The monosaccharides and disaccharides are called *sugars* and all share the suffix, *-ose*, meaning *sugar.*

Polysaccharides, in contrast to mono- and disaccharides, are insoluble in water, do not taste sweet and do not form crystals. Also, they do not share a suffix and have no group name (such as sugars, in the case of mono-arid disaccharides). They are sometimes called starches, but this is technically incorrect because there are many other classifications of polysaccharides besides starches (cellulose and glycogen being two and dextrin being another).

2.1 Monosaccharides

These are the only sugars that can be absorbed and utilized by the body. Disaccharides and polysaccharides must be ultimately broken down into monosaccharides in the digestive process known as *hydrolysis*. Only then can they be utilized by the body. Three monosaccharides are particularly important in the study of nutritional science: glucose, fructose and galactose.

2.2 Glucose (also known as dextrose or grape sugar)

This monosaccharide is the most important carbohydrate in human nutrition because it is the one that the body fuses directly to supply its energy needs. Glucose is formed from the hydrolysis of di- and polysaccharides, including starch, dextrin, maltose, sucrose and lactose; from the monosaccharide fructose largely during absorption; and from both fructose and galactose in the liver during metabolism.

Glucose is the carbohydrate found in the bloodstream, and it provides an immediate source of energy for the body's cells and tissues. Glucose is also formed when stored body carbohydrate (glycogen) is broken down for use.

In the plant world, glucose is widely distributed. It is found in all plants and in the sap of trees. Fruits and vegetables are wholesome food sources of glucose. It is also present in such unwholesome (to humans) substances as molasses, honey and corn syrup.

2.3 Fructose (also known as levulose or fruit sugar)

Fructose, a monosaccharide, is very similar to another monosaccharide, galactose. These two simple sugars share the same chemical formula; however, the arrangements of their chemical groups along the chemical chain differ. Fructose is the sweetest of all the sugars and is found in fruits, vegetables and the nectar of flowers, as well as in the unwholesome (to humans) sweeteners, molasses and honey. In humans, fructose is produced during the hydrolysis of the disaccharide, sucrose.

2.4 Galactose

Galactose differs from the other simple sugars, glucose and fructose, in that it does not occur free in nature. It is produced in the body in the digestion of lactose, a disaccharide.

2.5 Disaccharides

Disaccharides, on hydrolysis, yield two monosaccharide molecules. Three particular disaccharides warrant discussion in a lesson on nutritional science: sucrose, maltose and lactose.

2.6 Sucrose

The disaccharide, sucrose, consists of one molecule of each of two monosaccharides—glucose and fructose. Sucrose is found in fruits and vegetables and is particularly plentiful in sugar beets (roots) and sugarcane (a grass). Refined white and brown sugars are close to 100% sucrose because almost everything else (including the other kinds of sugars present, the vitamins, the minerals and the proteins) have been removed in the refining process. Maple syrup and molasses are, like refined sugars, unwholesome sweeteners; both contain over 50% sucrose. It almost goes without saying that any foods, so-called, containing significant amounts of refined sugar are high in sucrose.

2.7 Maltose (also known as malt sugar)

This disaccharide, unlike sucrose, is not consumed in large amounts in the average American diet. It is found in malted cereals, malted milks and sprouted grains. Also, corn syrup is 26 percent maltose and corn sugar is 4 percent maltose. None of these "foods" is wholesome, with perhaps, the exception of sprouted grains.

Maltose occurs in the body as an intermediate product of starch digestion. (Starch is a polysaccharide.) When maltose is hydrolyzed, it yields two molecules of glucose.

2.8 Lactose (also known as milk sugar)

This disaccharide is found only in milk. Human milk contains about 4.8 g per 100 ml and cow's milk contains approximately 6.8 g per 100 ml. When lactose is hydrolyzed it yields one unit of the monosaccharide glucose and one unit of the monosaccharide galactose. The enzyme lactase is needed to digest lactose, and this enzyme is not present in most, if any, people over age three. This is one of the many reasons why milk is an unwholesome food for people over three years of age.

2.9 Polysaccharides

Like the disaccharides, the polysaccharides cannot be directly utilized by the body. They must first be broken down into monosaccharides, the only sugar form the body can use.

Polysaccharides contain up to 60,000 simple carbohydrate molecules. These carbohydrate molecules are arranged in long chains in either a straight or in a branched structure. There are four polysaccharides that are important in the study of nutritional science: starch, dextrin, glycogen and cellulose.

2.10 Starch

Starch is abundant in the plant world and is found in granular form in the cells of plants. Starch granules can be seen under a microscope and they differ in size, shape and markings in various plants. The starch granules of wheat, for example, are oval-shaped; whereas the starch granules of corn are small, rounded and angular.

These starch granules are laid down in the storage organs of plants—in the seeds, tubers, roots and stem pith. They provide a reserve food supply for the plant, sustain the root or tuber through the winter and nourish the growing embryo during germination.

Most starches are a mix of two different molecular structures, amylose and amylopectin. The former has a linear structure and the latter has a branched or bushy structure. The proportion of the two fractions varies according to the species of plant. For example, potato starch and most cereal starches have approximately 15-30% amylose. But the waxy cereal grains, including some varieties of corn plus rice and grain sorghum, have their starch most entirely as amylopectin. The starches in green peas and in some sweet corn varieties are mainly amylose.

The polysaccharides, as mentioned earlier, are not water soluble as are the mono- and disaccharides. Though not water soluble, starches can be dispersed in water heated to a certain temperature. The granules swell and gelatinize. When cooled, this gelatin sets to a paste. The jelling characteristics of starches are considered to result from the amylose present, while amylopectin is considered to be responsible for the gummy and cohesive properties of the paste.

2.11 Dextrin

There are several "varieties" of this polysaccharide. Dextrins are most commonly consumed in cooked starch foods, as they are obtained from starch by the action of heat. Dextrins are intermediary products of starch digestion, also, and are formed by the action of amylases on starches. They render the disaccharide maltose on hydrolysis.

2.12 Glycogen

Glycogen is the reserve carbohydrate in humans. It is to animals as starch is to plants. Glycogen is very similar to amylopectin, having a high molecular weight and branched-chain structures made up of thousands of glucose molecules. The main difference between glycogen and amylopectin is that glycogen has more and shorter branches, resulting in a more compact, bushlike molecule with greater solubility and lower viscosity (less stickiness or gumminess).

Glycogen is stored primarily in the liver and muscles of animals. About two-thirds of total body glycogen is stored in the muscles and about one-third is stored in the liver.

2.13 Cellulose

Like starch and glycogen, cellulose is composed of thousands of glucose molecules. It comprises over 50% of the carbon in vegetation and is the structural constituent of the cell walls of plants. Cellulose is, therefore, the most abundant naturally-occurring organic substance. It is characterized by its insolubility, its chemical inertness and its physical rigidity. This polysaccharide can be digested only by herbivores such as cows, sheep, horses, etc., as these animals have bacteria in their rumens (stomachs) whose enzyme systems break down cellulose molecules. Humans do not have the enzyme needed to digest cellulose, so it is passed through the digestive tract unchanged.

3. The Role Of Carbohydrates In The Body

Five subheadings follow in this lesson subdivision, but there is actually only one basic role of carbohydrates in the human diet: to supply energy. It should always be kept in mind that carbohydrates or calories alone cannot adequately supply our energy needs, for we must have our carbohydrates in combination with other needs, such as proteins, water, vitamins, minerals, fats, etc. This means that a diet of refined sugar, refined rice, flour products and other "food fragments," though it supplies calories, cannot satisfactorily comprise the bulk of anyone's diet. A person on such a diet would suffer many problems, for the organism is not capable of living long or well on bare carbohydrates alone. They must be obtained in combination with the other essential food factors to be truly useful in the overall energy production and nutrition of the organism.

3.1 Carbohydrates Supply Energy

The body uses carbohydrates directly from the monosaccharide glucose. Glucose is in the blood and extracellular fluids (lymph) and can be made from glycogen. Glycogen is stored in the liver and muscles and in smaller amounts in the other organs and tissues of the body. Energy is derived from glucose by the splitting of the glucose molecules into smaller compounds and oxidizing these to form water, which frees quite a large amount of energy.

When carbohydrates needed for the functioning of the central nervous system, the muscles and the other body systems and functions are insufficient in the diet (as during a fast or on a weight-loss diet), stored adipose tissue (fat) is broken down into glucose to make up the caloric deficit. Some amino acids, instead of being used to make proteins, are deaminated and used as carbohydrates to supply energy. The formation of glucose from amino acids is called gluconeogenesis. This phenomenon enables one to maintain normal blood sugar levels during a fast.

Practically the entire fat store of the body can be used up without detriment to health. Because of this fact, and the fact that the body can also create carbohydrates from amino acids, fasting is a very safe practice from the standpoint of maintenance of normal blood sugar levels, of normal neurological functioning and of meeting all the body's various energy needs.

3.2 Carbohydrates Provide Fuel for the Central Nervous System

Nerve cells are very dependent upon glucose for their functioning. According to physiology texts, the glycogen in nervous tissues remains constant and is not mobilized for conversion to glucose. When insufficient carbohydrates are consumed to meet the energy needs of the central nervous system, besides the occurrence of gluconeogenesis, another phenomenon occurs during a fast of three weeks or more: The cells of the central nervous system adapt their metabolic apparatus to use ketone bodies in place of glucose. (Ketone bodies are substances synthesized by the liver as a step in the metabolism of fats.) The nerve cells obtain their needed functional energy from these metabolites. This explains why patients with blood sugar problems (diabetes or hypoglycemia) do not suffer ill effects during a fast. In fact, they benefit by fasting. (This topic will be discussed in depth in a later lesson.)

3.3 Carbohydrates Provide Fuel for the Muscular System

Carbohydrates provide the major fuel for muscular exercise. Fats and proteins can be used only indirectly—by first being converted into carbohydrates. For this reason, a proper diet should consist primarily of carbohydrates—not primarily of proteins and fats as are commonly consumed in conventional nonvegetarian (and some lacto- and lacto-ovo vegetarian) diets.

The muscles use the glycogen present in the muscle cells and glucose in the bloodstream. However, glycogen from the muscles is more efficiently used than glucose because the breakdown of glycogen for use does not require energy input at the time, whereas a certain amount of energy is used to bring the blood sugar into the metabolic system of the muscles. (It does require energy to build up the glycogen supply in the first place, but this happens during periods of rest when plenty of energy is available.)

If a diet high in carbohydrates is not consumed, tremendous muscular exertion over long periods and/or extreme and prolonged stress (as being stranded for weeks in Antarctica) can result in accelerated breakdown of body protein and stored body fat. The protein breakdown is evidenced by an increased excretion of nitrogen in the urine, and the fat breakdown is evidenced by a rise in the level of ketone bodies in the urine and in the blood. The blood sugar level is simultaneously lower.

The body works much more efficiently from carbohydrate intake than from broken-down body protein and fats because protein and fat molecules, when used as fuel, yield less than their total caloric value in the form the muscles can use. The remaining portion is used for the conversion of these molecules into suitable fuel. This conversion takes place in the liver and adipose tissue, which supply the body's organs with fuel via the bloodstream.

The fact that the body can and will use body fats and proteins when the supply and stores of blood sugar and glycogen are not great enough to meet the demand for energy exemplifies two facts: 1) The organism is provident. It has many back-up arrangements for survival in emergency situations when sufficient carbohydrates are not available. 2) An appropriate balance between supplying body needs (such as rest and carbohydrates) and expending energy (muscular, nervous or other) should be strived for to attain optimum health and well-being.

It has been found that people who are accustomed to doing prolonged or strenuous work have larger stores of glycogen (and of phosphate esters) in their muscles than those not accustomed to much physical activity. It is, therefore, beneficial to do regular vigorous exercise to increase our storage of muscle glycogen. We will then be prepared to expend energy for longer and more strenuous exercise—whether it be in an emergency or in pursuing pleasure.

3.4 Carbohydrates Supposedly Spare Proteins

Physiology textbooks refer to this so-called role or function of carbohydrate in the body as "its protein-sparing action." However, it is incorrect to attribute action (other than chemical action) to carbohydrates or other inanimate substances. Besides, "sparing protein" is not a function or role of carbohydrates at all. Carbohydrates simply furnish our fuel or energy needs—and nothing more.

What is being said in the textbooks is that proteins consumed will be used for tissue building and maintenance rather than being used as an emergency source of energy as long as the carbohydrate intake is sufficient. This is true, but it is only another way of saying that carbohydrates are the primary and most efficient source of energy or fuel and that it is best not to try to meet our fuel needs from proteins. It is stating the true fact that carbohydrates, not proteins, supply our primary nutrient needs.

"Sparing proteins" is not a separate and distinct function or role of carbohydrates any more than preventing scurvy is a separate and distinct function of vitamin C in the body. Vitamin C supplies body needs, but its role is not prevention of scurvy or of anything else. Viewing nutrients as preventative agents of diseases is another way of saying that diseases are normal, that they are an inevitable part of life that will and must occur unless prevented by the proper nutrients. That is a backwards way of viewing health—it's the disease approach, or the medical approach. Just as good things happen to us if we think positive thoughts and visualize success, harmony, etc., good health will exist as long as we live healthfully—and that includes consuming the correct amounts of the foods to which we were biologically adapted in nature to eat.

In short, the so-called "protein-sparing action" of carbohydrates is not only not an action, but sparing proteins is not a distinct role of carbohydrates separate from their energy-providing role.

3.5 Carbohydrates Supposedly Supply "Dietary Fiber"

"Dietary fiber" is a fairly new term coined to describe the cellulose inside plant cells. Cellulose is known to be indigestible by humans, though it is digested and used for energy by herbivores. The claims made about "the beneficial role of dietary fiber in preventing diseases" are so popular and so widely made that they are practically accepted as fact. However, cellulose, though in fact a carbohydrate because it is utilized as such by herbivores, does not serve the role of a carbohydrate in human physiology. Because it cannot be digested and utilized by humans, it cannot provide us with energy—and providing energy is the only role of carbohydrates in human nutrition.

The above statements may come as a surprise to most readers—but read on and we'll clarify further.

It has been observed that certain so-called primitive tribes in Africa and elsewhere who consume diets high in fiber are less likely to develop certain colon diseases and metabolic disorders than their kinsmen who live in urban areas and eat low-fiber foods similar to those consumed in so-called developed countries. Based on the high correlation between low-fiber diets and human gastrointestinal diseases, many hospitals and clinics have changed their dietary management of diverticulosis. They are experiencing good results with a diet containing more instead of less cellulose.

We do not deny that high-fiber diets are more wholesome as a rule than low-fiber diets, nor do we deny the fact that people who consume diets closer to nature and therefore higher in fiber (cellulose) have fewer gastrointestinal diseases and a lower rate of bowel cancer. What we argue against is the thinking that the fiber itself is primarily responsible for the prevention of these diseases and disorders.

Since cellulose is indigestible, it cannot be utilized by the body as a nutrient. It is simply passed through with the other wastes. Its presence or absence in the feces is insignificant. What is significant is how much and what kinds of toxins are there (and elsewhere). The ingestion of too many toxins from all sources, as well as the retention of toxic wastes produced within the body, results in diseases. The presence or absence of indigestible plant fibers does not prevent or cause diseases.

Processed, highly-refined, so-called foods (they do contain carbohydrates) do not deserve the label *foods* because they are not *whole foods*. Parts of processed foods are missing—they were removed intentionally in the refining process. (Fiber [cellulose] is one of those missing parts.) This makes them incomplete or fragmented foods. Eating fragmented foods results in problems in the body. Therefore, they should not be eaten.

Refined sugar and products containing refined sugar, as well as refined flour products, are the most salient examples of processed food fragments that produce toxic effects in the body. Being devoid of vitamins and minerals in their natural form (the only form they can be used in), these products are like drugs within the body. In addition, calcium and other minerals, as well as B vitamins, must be utilized by the body to metabolize refined products. Because the refined products are devoid of nutrients except carbohydrates, calcium is taken from the bones.

Most "civilized" diets contain cooked foods, foods not normal to humans, refined and processed foods and drugs and medications. Refined sugar, flours, white rice and processed cereals are some of the worst culprits, but there are many, many more sources of toxins in the diet. Also, incompatible food combinations result in the production of toxins in the stomach and elsewhere in the digestive tract, and these toxins also contribute to gastrointestinal disturbances and diseases.

Much more could be said about the sources of toxins within the body that result in disease, but this has been discussed in previous lessons and will also be further discussed in future lessons. For now, it is sufficient for us to explain that low-fiber diets not only lack the natural cellulose which should be left intact in the whole food, but they also contain or give rise to a host of toxins that result in disease conditions. It is not the lack of fiber itself that causes diverticulosis and other gastrointestinal problems but the overall unwholesomeness of the foods ingested in so-called civilized society. (Of course, you should understand that what is eaten is only part of the picture and that how it's eaten, how much is eaten, the amount of exercise, sleep, fresh air, etc., indulged are also important factors in human nutrition.)

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4. How Carbohydrates Are Digested And Used By The Body

4.1 Introduction to Digestion

Before discussing carbohydrate digestion in particular, let's give a little attention to digestion in general. Complete and thorough digestion of foodstuffs is extremely important for good health. A tremendous amount of toxin elimination and accumulation puts a great stress and burden upon the organism and results in a large variety and number of diseases. This happens both directly, from the presence of accumulated toxic substances that the body was unable to eliminate, and indirectly, from a decrease in the body's digestive capabilities due to overworking the digestive system and depleting the body's supply of vital energy.

It is, therefore, important for us to do everything we can to insure thorough and complete digestion of all foods eaten. This can be done by eating primarily (or only) easily digested and uncomplicated foods such as fruits; by eating compatible combinations of foods; by eating moderate amounts of foods; by eating at well-spaced meals; by abstaining from drinks during or too soon before or after meals; and by refraining from eating while under stress or emotionally upset.

One of two things happens to foods that do not get thoroughly or completely digested: 1) Sugars may ferment or 2) proteins may putrefy (rot). These processes result from bacterial activity which breaks down (decomposes) undigested or undigestible foods in preparation for their elimination from the body. The "trick" to, getting nourishment (nutriment) from the foods you eat is to see to it that they, get digested quickly, before the bacteria (present within every healthy digestive tract) have a chance to decompose them. The results of bacterial decomposition are toxic and do not provide nourishment. Foods that don't digest relatively soon after ingestion will ferment or putrefy and contribute to body toxicity and disease.

Keeping the above facts about digestion in mind, let's take a look now at carbohydrate digestion.

4.2 Salivary Carbohydrate Digestion

Disaccharides and polysaccharides must be digested before the body can use them, while monosaccharides do not require digestion. For this reason, as well as for other reasons (to be discussed in depth later in this lesson), our best source of carbohydrates is from fruits. Fruits require much less of the body's energies and render primarily monosaccharides that, as stated, need no digestion.

Digestion is both a mechanical process (chewing) and a chemical process (enzymic actions). The class of enzymes that hydrolyze carbohydrates are broadly known as *carbohydrases*. We will be concerned in this lesson with carbohydrases known as *amylases*.

While the digestion of all types of foods (proteins, carbohydrates, fats, etc.) begins in the mouth with the mechanical process of mastication, certain carbohydrates—namely, starches and dextrins—are the only food types whose chemical digestion begins in the mouth. Here an enzyme known as *salivary amylase* or *ptyalin*, secreted by the *parotid glands*, is mixed with the food during the chewing process and begins the conversion of glycogen, starch and dextrins into the disaccharide maltose.

What happens when the starches, dextrin, and glycogens that were not converted to maltose in the mouth and what happens to the maltose when these carbohydrates reach the stomach depends upon several factors—what other types of foods are eaten with the starch, how much food is being eaten and how fast, the emotional condition of the eater and the condition of the eater's digestive system. If a relatively uncomplicated starch such as potatoes or yams is eaten alone or with nonstarchy vegetables, and no proteins (as meats, cheese or milk, or even nuts or seeds or acids (as tomatoes, lemon or lemon juice or vinegar—as in salads or salad dressings) are consumed with the starchy food, salivary amylase (ptyalin) can and will continue the digestion of starches and dextrins in the stomach for a long period.

For thorough digestion and consequent good health, this continuation of starch digestion by ptyalin in the stomach is a necessity. Therefore, for good health, it is important to consume starchy foods at separate meals from protein foods and acids. (This and other facts relative to the topic of food combining for good digestion will be discussed in depth in later lessons.)

Briefly stated, ingestion of protein foods causes a secretion of hydrochloric acid in the stomach, and hydrochloric acid destroys ptyalin; that is, it destroys the amylase activity and substitutes acid hydrolysis. Physiology texts state that "if this acid hydrolysis was continued long enough it could reduce all the digestible carbohydrates to the monosaccharide stage. However, the stomach empties itself before this can take place."

The acids of tomatoes, berries, oranges, grapefruits, lemons, limes, pineapples, sour grapes and other sour fruits and the acid of vinegar will, like hydrochloric acid, destroy our only starch-splitting enzyme, ptyalin. Therefore, these foods also inhibit starch digestion. For good digestion and consequent good health, acids should not be eaten at the same meal with starches.

Another factor that can impair salivary starch digestion is the drinking of water or other liquids with or too soon before or after meals. Water or other liquids do not aid in the digestion of foods. On the contrary, they interfere with digestion by diluting the digestive juices and cause them and their enzymes to be passed through the digestive tract too quickly for digestion to occur.

To summarize this aspect of starch digestion, taking proteins, acids, water or other liquids with starches interferes seriously with their digestion by the salivary amylase, ptyalin. This first stage of starch digestion is of great importance because there is a great likelihood that the food will be acted upon by bacteria and ferment before it reaches the intestine where further starch digestion can take place. Digestion, rather than fermentation and its resulting toxic byproducts, is much more likely to occur soon after the food is put into the mouth than further along in the digestive tract.

From the above, you can see why thorough mastication of food is so important when starches are eaten. No one who seeks health should eat starches in a hurry, nor should they have them with a beverage or with proteins or acids, for good digestion of foods is imperative for good health.

A special note should be made here about glycogen—animal starch. Glycogen should not be consumed by health seekers because much disease results from the ingestion of animal flesh and animal products. This will be discussed in depth in later lessons. For the purposes of this lesson, suffice it to say that glycogen ingested cannot be digested in the stomach because, of the hydrochloric acid that will be secreted to digest the protein, which is the primary nutritive component of foods that contain glycogen. Therefore, whatever glycogen that is not converted to a disaccharide by the salivary amylase, ptyalin, must be converted in the intestine. The likelihood of the glycogen reaching the intestine without fermenting before it can get there is small. This is just one of the many hazards of consuming animal flesh and animal foods.

4.3 Starch Digestion in the Intestine

Now that we have discussed starch digestion by the enzyme ptyalin, let's get into starch and sugar (disaccharide) digestion in the intestine.

Whatever carbohydrates make it to the intestine quickly enough to escape fermentation by bacterial action will be acted upon in the first part of the small intestine, the duodenum, by *pancreatic amylase*. This enzyme, secreted by the pancreas, converts any remaining dextrin and starch to maltose. The reason this amylase can act in the intestine is because of the more alkaline medium which prevails there. As stated earlier, amylase must have a somewhat alkaline medium to do its job and is destroyed by acids.

At this stage in the digestive process, that is, after the polysaccharides (starch, dextrin and glycogen) have been converted to the disaccharide maltose, maltose and the other disaccharides (sucrose and lactose) must be converted to monosaccharides since, as stated earlier, the body can absorb and use sugars only as monosaccharides. This is accomplished by the amylases maltase (to convert maltose), sucrase (to convert sucrose) and lactase (to convert lactose). These amylases are secreted by the wall of the small intestine and are capable of splitting the particular sugars for which they were designed to the monosaccharide stage.

4.4 Carbohydrate Absorption

Even though some substances (water, ethyl alcohol, small amounts of monosaccharides) may be absorbed into the bloodstream through the mucosa (mucous membrane) of the stomach, most absorption of the soluble products of digestion occurs in the small intestine. There the absorptive surface is increased about 600 times by villi, which are fingerlike projections in the lining of the small intestine. Each individual villus contains a network of capillaries surrounding a lymph vessel, and each cell on the surface of the villus is made up of smaller units called brush border cells or micro villi.

Substances or nutrients pass through the intestinal membrane through the process of *osmosis* in one of two ways: 1) *diffusion* or 2) *active transport*. Substances and nutrients in the intestinal tract that are in higher concentration than across the membrane in the blood and lymph pass through by diffusion. This is a simple osmotic process in which no energy has to be expended. Fructose is absorbed by diffusion.

Active transport is the osmotic process used when substances or nutrients are absorbed from an area of lower concentration across a membrane to an area of higher concentration. This process requires energy for the absorption, as well as a "carrier" to transport the substance. The carrier substance is thought to be a protein or lipoprotein (a combination of a protein and a fat). Glucose and galactose are absorbed into the bloodstream by active transport. Monosaccharides are absorbed by the capillaries, which empty into the portal vein, which in turn carries them directly to the liver.

4.5 Carbohydrate Metabolism

Metabolism is the term used to describe the many chemical changes that occur after the end products of digestion have been absorbed into the body. There are two phases of metabolism: 1) *anabolism*, which is the chemical reaction by which absorbed nutrients are utilized for replacement of used or worn-out body substances (maintenance) and to create new cellular material (growth), and 2) *catabolism*, which includes the chemical reactions whereby cellular materials are broken down into smaller units. An example of anabolism is the use of monosaccharides to build up stores of muscle and liver glycogen, and an example of catabolism is the breaking down of these glycogen stores to supply energy to the muscles during physical exersion. Anabolism and catabolism occur simultaneously in the body cells.

4.6 Sources of Glucose

The body's immediate needs determine whether carbohydrates that have been digested and absorbed are used for immediate energy, converted and stored as glycogen or changed to fat and stored in adipose tissue.

Glucose is the principal sugar used by body cells and tissues. It is, therefore, important to know the sources of this nutrient. It may come from carbohydrates or from noncarbohydrate sources. Following are the four primary sources of glucose:

a. *From the digestion of dietary carbohydrate*. Glucose is formed from the digestion of starch, dextrin, maltose, sucrose and lactose from the foods we eat.
b. *From the conversion of fructose and galactose*. The three monosaccharides—fructose, galactose and glucose—share the same chemical formula. However, they differ in the arrangement of the hydrogen and oxygen units along the carbon chain. During the metabolic process, the liver cells convert absorbed galactose molecules and some fructose molecules. However, fructose is mainly converted to glucose during its absorption through the intestinal walls, where a metabolic interconversion (mutual conversion) occurs.
c. *From the breakdown of glycogen*. When the body's need for glucose is greater than the supply available in the blood, glycogen reserves in the liver and muscles are broken down and converted to glucose.
d. *From noncarbohydrate sources*. If the body cells require more energy than can be supplied by glucose and glycogen reserves, noncarbohydrate sources can be used to supply glucose. The noncarbohydrate sources used include certain amino acids from protein, glycerol from fat and, indirectly, fatty acids from fat.

4.7 Regulation of Blood Glucose Concentration

The liver, the pancreas and the adrenal glands play roles in keeping the blood sugar level at a normal concentration of around 90 mg. per 100 ml.

a. *The liver serves as a buffer.* As stated earlier in this lesson, absorbed monosaccharides are carried in the portal vein to the liver. This blood in the portal vein may have a very high concentration of sugars, as much as 180 mg per 100 ml of glucose. In the liver, about two-thirds of the excess glucose is removed from circulation. This glucose is converted to glycogen, the storage form of carbohydrate for animals (sometimes called animal starch). At a later time, when the blood sugar level is low, the glycogen is split back into glucose and is transferred out of the liver into the blood.
   In essence, the liver serves as a "buffer" organ for blood glucose regulation because it keeps the blood glucose level from rising too high or falling too low.
b. *Hormones that regulate the blood sugar level*. After a meal is eaten, the increased glucose level in the blood (about one-third of the glucose is not removed from circulation by the liver) stimulates the pancreas to produce the hormone, insulin, which promotes the rapid transport of glucose into the cells, thus decreasing the blood glucose level back toward normal. Glucose cannot enter the cells through simple diffusion because the pores of the cell membrane are too small. Therefore, it is transported by a chemical process called *facilitated diffusion* (also called active transport), in which the glucose combines with a carrier in the cell membrane and is transported to the inside of the cell, where it breaks away from the carrier.

   Insulin greatly enhances this facilitated transport of glucose through the cell membrane. In fact, only a very small amount of glucose can combine with the carrier in the absence of insulin, whereas, in the presence of normal amounts of this hormone, the transfer is accelerated as much as 3-5-fold. (Larger than normal amounts of insulin increase the rapidity of glucose transfer as much as 15-20-fold.) As you can see, insulin controls the rate of glucose metabolism in the body by controlling the entry of glucose into the cells.

   Three hormones are involved in increasing the concentration of glucose in the blood when necessary: *norepinephrine*, *epinephrine* and *glucagon*. Norepinephrine and epinephrine are secreted by the *adrenal glands* and glucagon is secreted by the *pancreas*. These hormones cause liver glycogen to split into glucose, which is then emptied into the blood. This returns the blood glucose concentration back toward normal.

4.8 How Energy is Derived From Glucose

Energy is derived from glucose in one of two basic ways: 1) by *oxidation* and 2) by *glycolysis*. By far the major amount of energy from glucose is released in a series of reactions in the cells in the presence of oxygen; but some energy from glucose is released by a process called glycolysis. This is an involved process which does not require the presence of oxygen. (A detailed explanation can be found in a physiology text such as *Physiology of the Human Body* by Arthur C. Guyton, M.D.)

4.9 Carbohydrates in Relation to Other Nutrients

Not only are fats converted to carbohydrates for energy when carbohydrate intake is inadequate, but when carbohydrates are consumed beyond need, the excess is converted to fat and stored in adipose tissue. Also, the B-complex vitamins and the mineral calcium are known to play an integral part in carbohydrate metabolism.

a. *The transformation of carbohydrate into fat*. Fats and carbohydrates eaten in excess of caloric expenditure are deposited in the adipose tissues as fat. It is, therefore, incorrect to label carbohydrates as being "fattening." Fats eaten in excess of caloric need are also stored as fat. In the diets of many people, however, carbohydrates comprise the foodstuffs most commonly eaten in excess. There are many reasons for this. One reason is because refined sugar and flour are used so heavily and widely in the processing of the foods most widely advertised and distributed to the retail food outlets. Carbohydrates are, as a general rule, less expensive than fat-containing foods (such as cheeses, nuts, many meats, etc.) therefore, they are more likely to be overeaten. In addition, because humans naturally "have a sweet tooth" (because we are biologically frugivores, adapted in nature to eat fruits), we are more attracted to carbohydrates than to fats.
   The chemical pathway glucose follows on its way to fat is well understood. You may study this in a good physiology text.

b. *The vitamin B complex in carbohydrate nutrition*. The importance of the B vitamins in carbohydrate metabolism was discovered because of the health problems that resulted from the industrial processing of foods which removed (and still removes today) the B vitamins from their whole food sources where they were packaged by nature side-by-side with carbohydrates. The large-scale introduction of white (refined) rice in the Orient resulted in beriberi, a vitamin B complex deficiency—specifically, a thiamine deficiency. This phenomenon led to the recognition of the existence of this group of vitamins.
   Prior to the widespread processing of foods, humans did not suffer as a result of their lack of knowledge about the existence of the B vitamins because in nature there is a union between the vitamin B complex and carbohydrates in foods. This union was broken by the industrial processing of foods.

   As will be discussed in greater depth in later lessons, taking vitamin B complex supplements or using so-called "enriched" processed food products will not and cannot substitute for whole foods in their natural state. It is, therefore, very important for health-seekers to consume unprocessed foods—also uncooked, as cooking is an in-home method of food processing that is very destructive of the quantity and quality of vitamins and other nutrients in foods.

   B-complex vitamins are also depleted (and/or not synthesized in the body) when various drugs and medications are taken, most notably birth control pills, alcoholic beverages and antibiotics. Other drugs also deplete B vitamin supplies and/or hinder the synthesis of B vitamins in the intestine. A future lesson will be devoted to the effects of various drugs and medications upon nutrition.

   Physiology texts also mention the fallacy of regarding any one B vitamin in the complex as more important than another because of the fact that the normal chain of events, physiologically speaking, can be broken by a lack of any one of the B vitamins. The texts also recommend a dietary supplement containing all the factors to "avoid the evils of modern food refinement." It is appropriate to make a comment here on this subject: It is fully possible, in fact, easily possible, to "avoid the evils of modern food refinement" much more completely and many times more effectively as far as good (healthful) results are concerned than by eating refined foods and taking supplements. Actually, it is not only easily possible and desirable to completely avoid ever eating refined foods, but it is essential for anyone who wants and expects to regain and/or maintain good health. It is not possible to have truly high-level health while continuing to indulge those very practices which undermine it, and eating processed foods and taking food supplements both undermine health.

Please make special note of the above, for it is one of the most important facts you need to completely understand and accept if you are to bring yourself and your clients to a high level of well-being.

c. *Calcium in carbohydrate metabolism*. Like the B-complex vitamins, calcium is essential in the metabolism of carbohydrates. When calcium is present in context with the carbohydrate source (whole foods), there are no problems. But, with today's high consumption of refined foods, lack of natural calcium in these foods creates a myriad of very serious health problems. Refined sugar and flour, as well as rice, breads, packaged cereals and pastas, have been robbed of the calcium in the plant during processing and refining. Even whole-grain products may completely lack calcium because of the destruction of this mineral during the destructive processes of cooking and baking.

   Calcium is taken from the bones and teeth to meet the needs for this important mineral in carbohydrate metabolism. Dental caries, osteoporosis and other bone diseases result.

5. Sources Of Carbohydrates

5.1 Carbohydrates Are a Component of Every Food

As mentioned earlier in this lesson, carbohydrates, along with proteins and fats, form the major components of living matter. They maintain the functional activity of the cells and serve as structural and reserve materials. Carbohydrates provide the primary source of energy for humans.

There is not a single living thing—plant or animal—that does not contain carbohydrates in some form. Though the quantity and form of carbohydrates varies, the presence of carbohydrates as an integral component of life is constant. This means that all foods are potential sources of carbohydrates. However, some foods are better sources than others, and this is what we will discuss now.

5.2 Carbohydrates Are a Primary Component of Some Foods

Most foods can be readily classified according to the organic compounds (proteins, carbohydrates, fats, etc.) they contain in greatest abundance. These classifications are not only useful for identifying where to obtain the nutrients we need, but they are also invaluable in selecting compatible food combinations for best digestion and nutrition (to be discussed in depth in a later lesson).

5.3 Starches As Sources of Carbohydrates

Starch-containing foods can be divided into four classifications:

Starchy Vegetables All kinds of potatoes are in this classification. Also included are yams, winter squashes (such as buttercup, hubbard and banana squashes), pumpkin, caladium root, taro root, cassava root and Jerusalem artichokes. (Note: Technically, squashes and pumpkins are fruits.)

Mildly starchy vegetables This classification includes carrots, cauliflower, beets, rutabaga and salsify.

Cereal grains This includes all cereals, whether they're whole or refined, raw or cooked. Examples are wheat, rye, barley, rice, millet, buckwheat and oats.

Legumes This includes peanuts, lentils, peas and beans.

5.4 Fruits As Sources of Carbohydrates

Because some nonsweet foods such as nuts, bell peppers, squashes, cucumbers and tomatoes are technically fruits, fruits can be divided into two classifications: 1) sweet fruits and 2) nonsweet fruits. In our discussion of carbohydrates, we will limit our discussion primarily to the sweet fruits, even though the nonsweet fruits do contain some sugar.

For purposes of food combining for digestive compatibility, the sweet fruits can be divided into four groups: 1) sweet fruits, 2) subacid fruits, 3) acid fruits and 4) melons. The fruits in each category and how to combine them for best digestion will be discussed in a future lesson on correct food combining.

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6. Why Starches Are Less Than Ideal Sources Of Carbohydrates

There are many reasons why starches are less than ideal as sources of carbohydrates for humans.

6.1 Many Digestive Steps Use More Body Energy

A larger amount of the body's limited supply of nerve energy is used up when starches are used for fuel than when fruits are used because starches are, as you know, polysaccharides and must be broken down (digested) into monosaccharides before the body can use them. Fruits contain a preponderance of monosaccharides, which, as you also know, need no digestion at all. Therefore, fruit eating leaves more of the body's energies available for other activities. This explains, in part, why people feel so "light" when they eat fruits and so heavy when they eat beans or bread.

6.2 There Is a Greater Tendency to Overeat on Starches

Because starches usually lack the amount of water content found in fresh fruits, it is much easier, to overeat on them than on fruits. It takes larger amounts of starch foods to get the same feeling of fullness that you get from a fruit meal. When starches are consumed, it is best to use only one kind of starch at a meal, as this helps control the tendency to overeat on starches.

6.3 Many Digestive Steps Take Longer and Fermentation Can More Readily Occur

For good digestion (an important prerequisite for good nutrition), not only do foods need to be compatibly combined with one another, but they also need to be digested fairly quickly. As stated earlier, food that remains in the stomach too long will be decomposed by the bacteria that reside there.

The only starch-splitting enzyme secreted in the saliva, as previously stated, is ptyalin, also known as salivary amylase. The available amount of this enzyme is somewhat limited, and it is unlikely that large amounts of starch foods can be completely digested by salivary amylase, even if no proteins or acid foods are eaten with or too soon before or after the starches. Therefore, complete digestion of the starches eaten, especially if more than a very small amount is eaten or if they are eaten with protein or acid foods, is dependent upon the starch-splitting enzymes in the intestine—pancreatic amylase. However, the likelihood of indigested starches reaching the intestine without first fermenting in the stomach because of the action of bacteria there is rather small. Conditions of emotional or mental stress or anxiety, lack of sleep or rest, eating too fast or a digestive system weakened by years of past abuse are some of the reasons why fermentation may occur before undigested starches can reach the small intestine for digestion by the pancreatic amylase.

Fruits, on the other hand, if eaten with other fruits of like character, pass through the stomach very quickly into the intestine, where their monosaccharide content is rapidly and efficiently absorbed. Unless fruits are eaten with slower-digesting foods such as fat/protein foods (such as nuts, seeds or avocadoes) or starches, they are not likely to ferment in the stomach. Their need for almost no digestion makes it possible for the body to pass them through the digestive tract quickly, before fermentation by bacteria can occur.

6.4 Starches Are Poorly Digested Raw But Cooked Starches Are Unwholesome

Only very small amounts of raw starches can be digested because of the nature of the starch granule. Even the most thorough mastication of raw starches breaks open only a small fraction of the starch-containing globules, as each of these globules has a thin but strong protective cellulose covering which acts as a protective membrane for the plant's storage product (starch).

Neither salivary amylase (ptyalin) nor pancreatic amylase can commence digestion of the starch until it is released from its globule. These starch-containing globules are, therefore, not digested at all and must be eliminated from the body as so much debris. Undigested materials such as these are toxic in the body and pose an eliminative burden without providing energy or other value.

Cooking makes starches more digestible. As stated earlier, starches are not soluble in cold water and need to be heated to break down the cellulose coverings that surround starches. Heat also converts some of the starches to dextrins, and the more and longer heat is applied to the food, the greater will be the amount of starch that is converted to dextrins by this method. Undextrinized starches which have been freed by heat from their protective globules will be hydrolyzed (digested) by the salivary and pancreatic amylases. The resulting dextrins are large polysaccharide molecules that yield the disaccharide maltose upon hydrolysis. Maltose is, in turn, hydrolyzed into molecules of the monosaccharide, glucose.

Despite the greater digestibility of cooked starches, cooking is a very unwholesome process for many reasons, some of which were mentioned in previous lessons and more of which will be elaborated on in a future lesson dedicated to this subject. Basically, cooking destroys vitamins, partially or completely, depending on which vitamins are involved and how long and hot the cooking is; it converts minerals from their usable organic state back to their unusable (and therefore harmful) inorganic state; and it deranges (or deaminizes) the proteins present. (Starch foods do contain small amounts of protein, as protein is a component of all living matter.)

To summarize, while cooking might improve the digestibility of the starches in starch foods, it certainly does not improve the usability of the other nutrients and components of the food. On the contrary, it renders the minerals and proteins present at least partially toxic and unusable. Therefore, we recommend that neither raw starches nor cooked starches be included as part of an optimum diet.

In the case of legumes such as lentils and beans, however, there is one alternative: sprouting. The starches in legumes are converted in the sprouting process at least partially to dextrins, which can be hydrolyzed by body amylases into the appropriate sugars. Grains which have not been processed (whole grains, in other words) can also be sprouted, but usually with less success because they often sour before their enzymes can complete the conversion of most of the starches to sugars.

The only starch foods we recommend are sprouted lentils, sprouted mung beans or sprouted azuke beans. A later lesson on food preparation will discuss sprouting in more depth.

6.5 Starches Are Usually Unpalatable Raw

Because we are physiologically fruit-eaters, most of us are not especially fond of nonsweet foods, at least not compared with how much we love sweet foods. We are not physiological starch eaters, and this is evidenced by our disinterest in foods such as raw potatoes, grains, beans, etc. Most starches just don't taste that good in their raw state.

Carrots, sweet potatoes and yams are notable exceptions, however, because these tubers, in addition to containing starches, also contain enough sugars to give them a sweet flavor. The main problem with eating these vegetables is that their sugars are likely to ferment in the stomach while they are held up there with the starches, which digest more, slowly than do the sugars. As stated earlier, sugars are normally passed swiftly through the stomach to the intestine for immediate absorption, but if they get held up in the stomach they ferment because of bacterial action. Carrots, sweet potatoes and yams may be used juiced, as long as they are eaten alone or about a half hour before a meal of compatible foods.

Some of us enjoy certain mildly starchy raw vegetables such as cauliflower and carrots. Eaten in moderate amounts, these vegetables are fine. Grated carrots and/or cauliflower flowerettes are nice additions to vegetable salads, but these salads should not contain nuts, seeds or tomatoes, which are poor combinations with even mild starches.

Remember: Although some starches can be sprouted or juiced, and others may be fine in moderation, especially if they're only mildly starchy, starches are, as a rule, unpalatable and indigestible raw and unwholesome cooked. As stated earlier, humans are not biologically adapted to starch eating.

6.6 Some Starch Foods Also Contain a Significant Amount of Protein

A future lesson on food combining will discuss in detail why it is unhealthful to consume starch foods and protein foods in the same meal. Basically, the two kinds of foods require very different digestive environments and enzymes, starch requiring ptyalin and an alkaline digestive environment, and protein requiring the enzyme pepsin and an acid digestive environment. Both foods cannot be digested simultaneously, and if eaten together or close to the same time, protein digestion will occur, at least partially, leaving the starches and sugars to ferment because of bacterial action in the stomach. Fermentative byproducts interfere with the protein digestion in progress, and protein digestion will most likely be incomplete. Undigested protein will putrefy (rot).

Most foods contain either a predominance of one factor or the other. For example, tubers and grains contain predominately starches, whereas nuts and seeds can be classified as protein/fat foods. But there are some foods which contain a lot of protein along with a lot of starch. Examples of some of these foods are beans of all types, peas and peanuts. Unless these foods are sprouted, which converts their starches to more easily digestible sugars, they are to a large extent indigestible. This is why beans are often referred to as the "musical fruit." They ferment and putrefy in the stomach and intestine, and this is an unwholesome occurrence because fermentation and putrefaction byproducts are toxins which must be eliminated as quickly as possible so that the body doesn't suffer great harm from them. Much body energy is used up in toxin elimination, energy that could be much more wisely used for other activities. Also, not all toxins are eliminated before some harm has resulted.

6.7 Wheat Poses Special Problems

Wheat is the most popular of the grains used in this country, especially commercially. But this popularity is undeserved because wheat poses special digestive problems that make it unwholesome. Basically, besides the digestive problems that wheat shares with the other starchy foods, the special problem with wheat is that it contains gluten, a protein substance that humans do not have the enzyme to digest. As you know, undigested substances are toxic in the human body and must be eliminated at a great expense of vital energy.

We might add at this point that beets are a mildly starchy root food that have a special problem: They contain too much oxalic acid which the body neutralizes by binding calcium. We recommend that you not use beets as an item of diet.

6.8 Grains and Legumes Are Acid-Forming

A later lesson will discuss in depth which foods are acid-forming and which are alkaline-forming and why we should have a predominance of alkaline-forming foods in our diet. Suffice it to say here that most grains and legumes are acid-forming and, for this reason, should be eaten in extreme moderation, if at all.

Grains contain phytic acid, a substance which binds calcium and iron, both in the grains themselves and the body stores of these minerals. This fact only complicates and aggravates the problem of calcium being taken from the bones and teeth by the body in the metabolism of carbohydrates that have been refined and their minerals, therefore, removed.

Anyone concerned about getting enough calcium should not eat grains. People who suffer with nervousness, sleeplessness and/or cramps may already be experiencing some of the symptoms of calcium deficiency. Getting carbohydrates from fresh fruits, and consuming dark green leafy vegetables, possibly along with a few occasional nuts, seeds and/or avocadoes, will insure adequate intake of usable calcium. Consuming grains in addition to the wholesome foods mentioned above is defeating of your purpose and is to be discouraged.

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7. Why Fruits Are The Ideal Source Of Carbohydrates

Fruits are the ideal source of carbohydrates because they are the foods humans are physiologically and anatomically adapted to eating. (These adaptations will be discussed in greater depth in a later lesson.) Humans have a natural "sweet tooth" because that's our inherent nature. We're supposed to eat fruits, mostly sweet fruits. Incidentally, we can enjoy some nuts, seeds, vegetables and sprouts. But sugar-containing fruits should be the primary items in our diet.

The sugars in fruits, being mostly monosaccharides, pass through the stomach and are absorbed through the walls of the intestine without undergoing any digestion. This leaves a great surplus of body energy available for living and all the activities that make living a joy. We should not waste our precious energies digesting complicated, heavy foods unless it's a matter of life or death. Instead, we should eat simply of our natural foods—fruits—and use our energy for higher-level pursuits of life.

Fruits, except for dates and dried fruits, contain significant amounts of water in its purest and most delicious form. Therefore, they supply most, if not all, of our needs for water. Cooked starches, on the other hand, are water-deficient and make us thirsty, especially if they're eaten with added salt or soy sauce and/or in very large amounts. Water is an extremely important need of life, and pure water as is in fruits is the only kind we should have. (Distilled water is also acceptable and is, in fact, the only kind of water we should obtain from nonfood sources. The subject of water will be treated in depth in a later lesson.)

Fruits do not have to be cooked or seasoned to taste great. In fact, they should never be cooked, though they can be dried for storage purposes. It is easy to make a meal on fruits, even mono-meals (just one fruit type at a meal), for other foods added to the fruit meal do not enhance it. Fruits are so delicious that they don't need enhancement and they digest so easily and quickly, eaten with each other or alone, that fermentation and the resulting toxicity of fermentation is unlikely to occur.

Since carbohydrates, quantitatively speaking, are the greatest nutrient need we humans have, it follows that fruits, loaded with sugars, should comprise the bulk of our diet. Fruits, besides being replete with ample carbohydrates, have relatively small amounts of proteins, vitamins and minerals—in just the right amounts for the specific needs of humans. If (anything other than fruits are eaten, it should be small amounts of nonsweet fruits, vegetables, nuts, seeds and sprouts.

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8. Amounts And Variety Of Carbohydrates Needed By Humans

When most people think about amounts of carbohydrates to consume, they think in terms of calories—units for measuring heat. One calorie is the amount of heat required to raise the temperature of one kilogram of water one degree Centigrade. The amount of heat liberated by a complete breakdown of a food into its metabolic end products is expressed in calories.

For purposes of this course, however, calories are unimportant. Obtaining them is important, but numbers are not. Texts say that an average person needs a minimum of 1800 calories per day for just existing and more for any activities indulged. But, as mentioned in an earlier lesson, the variance is so great when it comes to individual needs, and people on conventional high-protein diets that include meat, etc., require so much extra energy to handle the constant input of toxins, causing an additional variance between "norms" and the actual needs of a truly healthy person, that the guidelines in the texts are practically useless. Besides, humans have always been able to get all the calories they need without counting them—and without even knowing about their existence.

So, in this section, we will take a more practical approach to the question of how much carbohydrate we need in our diet.

8.1 Amounts

Because protein, minerals and vitamins are present in sufficient quantities in carbohydrate foods to meet our needs for these nutrients, virtually the entire human diet can consist of carbohydrate foods (fruits). Some individuals, for various reasons, may find it desirable to include some protein/fat foods such as nuts, seeds and/or avocadoes and/or nonsweet fruits and/or vegetables in their diet of sweet fruits. However, if these foods are eaten, they should not be consumed with, immediately after or less than four hours before sweet fruits—to insure proper digestion of all foods involved and, specifically, to insure that the fruits pass quickly through the stomach to the intestine for absorption rather than getting held up by slower-digesting foods in the stomach and fermenting.

Whether an all-fruit diet is consumed, or other foods are included in the diet, the fact remains that an all-carbohydrate diet will amply supply not only all our energy (carbohydrate) needs, but it will also supply the proteins, fats, vitamins and minerals we need. (Fats are easily obtained by an occasional avocado, a nonsweet [oily] fruit.)

8.2 Variety

As far as food variety goes, foods grown on different soils in various locations will provide the broadest range of nutrients possible. Eating foods from one locale only, if not organically grown, could result in nutrient deficiencies, especially if only one or a few kinds of foods are consumed. This is probably not a concern for most people in the U.S., however.

While a diet consisting of a broad variety of wholesome natural foods may provide interest and a broad range of nutrients and nutrient combinations, it should be remembered that most foods to which we are biologically adapted contain most of the nutrients we need—in varying amounts. People worldwide have been known to live in excellent health on diets consisting of primarily or only one or a few foods. Some examples of such foods are coconuts, dates and bananas. There is much proof that a large variety of foods is not necessary for good health, though there is nothing to be said against variety, as long as the foods are wholesome, raw and correctly combined.

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9. Disease Conditions Related To Carbohydrate Consumption

The following plus many more diseases are considered, by the medical world and by some lay people alike, to be either caused by or related to carbohydrates of various kinds in the diet. At this place in this course, we will not delve into any depth on these disease conditions, as they will be treated in separate later lessons. Here we will just briefly mention a few of the more common conditions related to carbohydrate consumption.

9.1 Lactose Intolerance

Humans, like the other mammals, provide milk for their young from their mammary glands. This milk is perfectly suited for the very specific needs of the developing human infant, but it is not designed to meet the needs of calves or kids or other baby mammals. It is meant for feeding human infants only. While the above statement may seem ridiculously obvious, it is not as obvious to many people that human babies should not receive milk from cows or goats except in emergencies where human milk is simply unavailable. In those exceptions, milk from another species of mammal is preferable to no milk at all.

The reason we introduce the subject of lactose intolerance the way we did in the above paragraph is to show two things: 1) how far we have strayed from nature in feeding cows' milk to our human babies and 2) that mammary milk is specially created for babies up to three years of age and is not designed for humans above that age.

The idea that we need calcium, fats, proteins or anything else from milk beyond the age of three is not only entirely false and totally ungrounded in fact, but it has caused a tremendous amount of harm and suffering for humans. "How did these ideas get started and popularized so widely, then?" you may ask. The simple but sad answer is that the, dairy industry is primarily responsible. (This entire subject will be treated in greater depth in a future lesson devoted entirely to the subject of milk and dairy products in the diet.) As incredible as it may seem that so many people would actually put profit before human health, it is, nonetheless, true.

The problem of lactose intolerance is very widespread. The fact that from 18% to 100% of various peoples across the globe exhibit symptoms of lactose intolerance exemplifies the extent of the problems of consuming nature's formula for calves. Large numbers of people experience symptoms such as abdominal pain, diarrhea and flatulence (excessive formation of gas in the stomach or intestines). Many so-called allergies, skin disorders, so-called upper respiratory "infections," hay fevers and numerous other diseases—in fact, all diseases—are caused largely or to some extent by the toxic substances resulting from the inability of most (if not all) humans over age three to utilize the sugar, lactose, found in milk.

After age three, most, if not all, people do not secrete the enzyme, lactase, which is needed to break down the disaccharide, lactose, into the simple sugars, glucose and galactose. As you know, undigested sugars are fermented in the stomach and intestine by bacteria. However, it is not the bacteria that are causing the problem, for they are doing what their role in nature requires of them. The bacteria simply play their part in preparing the offending substance, in this case, lactose, for elimination from the body. The cause of the problem is the ingestion of food not appropriate for humans over three.

The solution is obvious and simple, but the powerful and influential dairy industry will do (and does) everything it can to keep this information a secret and to try to disprove it. Besides this, governments are on the side of industry, and individuals in government who can't be coerced to change are removed from positions that enable them to act in favor of human health.

It is a common misconception that the overall health of people is more dependent upon maintaining the jobs and industries that are now in operation than maintaining physical health. Too many people like to think that the connection between eating wrong foods and disease conditions of all kinds is only vague and questionable, when, in fact, the connection is very direct and the solution very simple. People like to think that some vitamin, some drug or some other kind of treatment will "cure" diseases and alleviate symptoms. Then they can go on indulging unhealthful practices and not disturb the status quo. But there is just no getting around the fact that, if we are to have better health, we must change our eating and living practices. No so-called "cures" or other treatments can even approach "making up for" healthful living. To try to do so is a futile effort. Change is really not so difficult if more people could just accept the idea that it is necessary and beneficial to everyone, both in the long run and in the short run.

To get back to the subject of lactose intolerance, can you see why most or all people do not digest lactose? Milk is not a natural or wholesome food for humans over age three; neither are other dairy products. While not everyone exhibits the clinical symptoms of lactose intolerance, the health of everyone suffers in some way as a result of milk consumption—if they drink milk or otherwise use milk or dairy products.

As stated earlier, the problems of milk and dairy products in the diet will be discussed in much greater depth in a future lesson on the subject.

One more item might be added here before we close this subject: Texts say that milk to which the enzyme lactase has been added and fermented dairy products are tolerated by lactose intolerant people. They list foods such as yogurt, buttermilk and cottage cheese. Suffice it to say here that all dairy foods are very unhealthful, including those listed above, and many symptoms other than those of lactose intolerance result from the consumption of unwholesome foods.

9.2 Galactosemia

Galactosemia is another disease condition related to milk, or lactose, consumption. This disorder, labeled "an unusual hereditary disorder," occurs in infants. Galactosemia is among the diseases that supposedly result from "inborn errors of metabolism." In this condition, a specific enzyme (p-galactose-uridyl-transferase) is lacking, so the infant cannot properly digest the sugars in milk. Specifically, the monosaccharide galactose, which does not occur free in nature but results from the hydrolization of lactose from milk, cannot be converted to glucose.

Infants with this disorder vomit when they're fed milk and other dairy foods. They become lethargic and fail to gain weight. Their liver and spleen become enlarged (from overwork), cataracts develop and they become mentally retarded. In severe cases, death can occur. The solution to this problem is a milk- (and other dairy products) free diet, according to the texts. What is fed to babies instead of milk is not listed, but we would recommend freshly-made fruit juices in season, perhaps along with (at separate feedings, of course) homemade nut, seed or soy milk, depending upon the infant's tolerance to these. (The subject of care and feeding of infants and children will be treated in more depth in later lessons.)

9.3 Dental Caries

Dental decay is generally attributed to the consumption of too much sugar. However, the sugars in fresh ripe fruits, even in very sweet fruits such as dates and dried fruits, will never cause dental decay. The reason for this is that it is not sugar itself that causes cavities; rather, it is the consumption of refined sugars and other refined foods, such as refined flours and white or polished rice, that results in dental caries. The consumption of meats, dairy foods and other acid-forming foods in great excess of alkaline foods (fruits and vegetables in their raw state) is also an important contributing factor to dental decay.

As mentioned earlier in this lesson, calcium is needed in the metabolism of carbohydrates. Refined foods lack minerals, including calcium. The body is forced to draw calcium from its own reserves, and these reserves are depleted rather quickly if refined foods are eaten more than "once in a blue moon." If this occurs, the body must then draw the needed calcium from its bones and teeth—hence, cavities!

Meats and dairy foods, as well as whole grains, are acid-forming in the body. Calcium is needed to neutralize the acidity and maintain the normal blood alkalinity of 7.40 pH. After the calcium available in the body is used up, this mineral is taken from the bones and teeth.

As you can see, fruits are to be preferred over grains, meats, milk or dairy foods as sources of carbohydrates. Their sugars will not cause cavities, but fragmented foods (refined products) and unnatural foods (meats, milk, dairy, grains) will! From the standpoint of maintaining body calcium, the best choices of starch foods would be the tubers—potatoes, sweet potatoes, yams, and carrots.

No one ever need fear dental decay, even on a diet of sweet fruits. The important factor here is not to eat processed or refined foods or foods that are not suited to our biological adaptations. (The subject of sugar and other sweeteners will be treated in greater depth in a future lesson.)

9.4 Diabetes Mellitus

Much could be said about this disorder, but we'll treat it more thoroughly in a later lesson. At this point, suffice it to say that diabetes mellitus, defined as the insufficient production of insulin needed to metabolize sugar, has in common with dental caries the fact that it is caused by an unhealthful diet containing refined sugars, flours, grains and other unwholesome foods. Depending upon an individual's condition, special care and provision may have to be made for the diabetic who is going on the Life Science regime. Those using insulin, especially in very large amounts, should consult an experienced Hygienic professional before making very great changes in diet.

9.5 Hypoglycemia

This condition is also known as low blood sugar and is often a predecessor to diabetes. It, too, will be treated in depth in a future lesson, so we will say little about it here. True hypoglycemia is caused by the same things as cause diabetes. However, people are often diagnosed as hypoglycemic when, in fact, they just have a case of body toxicity. The symptoms of hypoglycemia are many and can also occur when a person is not actually suffering from this condition—hence, the incorrect diagnoses in many cases.

Contrary to popular opinion, most hypoglycemics can fast and benefit greatly by it. Since so many people suffer with this condition, this is good news indeed!

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10. Questions & Answers

I was under the impression that the primary nutrient humans need is protein—for the maintenance of body cells. You say carbohydrates are our primary nutrient need. Why this discrepancy?

> The discrepancy exists because our protein need has been overemphasized and our carbohydrate need underemphasized. In the field of nutrition, as in other fields, fads come and go. The excessive concern about obtaining adequate protein has so permeated the minds of most people that it has become a very dangerous preoccupation. It is dangerous because too much protein in the diet is very harmful and is the cause of much of the disease and suffering so many people are experiencing.
>
> Why has our need for protein become so exaggerated? Why is our need for carbohydrates underestimated?
> The meat and dairy industries, with the support of the government, are largely responsible for the "protein fashion." Their message has become a part of the public education systems—its textbooks, its universities, everything it teaches. They want us to believe that those foods which are most unhealthful, foods such as meat, fish, eggs, milk and cheese, are the most important part of our diet. Secondarily, carbohydrates from grains and breads are promoted—this mostly for the benefit of the refining and baking concerns that bring us Wonder Bread, Cheerios, Pop Tarts, etc. Fruits and vegetables are given very low priority, as the money to be made from marketing these foods is much less than from the nonperishable "foods" and the animal products.
>
> Why have carbohydrates been underemphasized? For one thing, most people, being naturally attracted to sweet things (we are natural biological fruit eaters), manage to get more than enough carbohydrates in their daily diets. This is especially so when we consider the quantity of sugar (refined sugarcane or beets) in the average diet. Desserts, breads, pastas and cereals are quite popular, though these kinds of carbohydrates cause disease because of their nutritional lack of vitamins, minerals, fiber, water, etc., and for other reasons.
>
> Also, a large number of people in our country are weight conscious, and carbohydrates have been named as the culprit. But excessive proteins are even worse than excessive carbohydrates! While weight may be lost on a high-protein/low-carbohydrate diet, the harm being done to the organism is more than the harm from keeping the excess fat. The key is to consume natural carbohydrates in the form of fresh fruits rather than processed products. Anyone desiring to lose weight can easily do so on an all-fruit or mostly-fruit diet—and gain excellent health while doing so. It's the quality of the carbohydrates consumed that makes the difference. Fresh fruits just don't cause people to gain weight, even if large amounts are eaten.
>
> One more note on this subject: One physiology text condones the high-protein diet, even

though it states in the same chapter that carbohydrates are the most efficient fuel foods. The reasoning for this is that "adequate nutrition is possible ... if the need for calories, essential food factors, vitamins and minerals is met." Of course, they are referring to the body's ability to utilize proteins as carbohydrates if the intake of carbohydrates is insufficient. As you know, this is an extremely inefficient, wasteful process that is also harmful. The harm caused by excess protein and animal foods will be discussed in more depth in later lessons.

You spoke of losing weight on a fruit diet, but isn't it true that a person will gain weight on any kind of diet as long as the calories taken in are greater than the energy expended?

Yes, it is definitely true that a person will gain weight if they consume more calories than they expend. However, anyone who is serious about losing weight must pursue an exercise program of some sort. While a person can lose weight by dieting (or fasting) alone, the loss of excess fat must be accompanied by an improvement in overall health if it is to be worthwhile—and an exercise program is essential to good health, even if it's taken up after a fast.

Because fresh fruits contain much more water than other sources of carbohydrates, they provide satisfaction and a feeling of fullness after relatively few calories are consumed. (Of course, this is not true of dates or dried fruits, which should either be excluded from a weightloss diet or taken in moderation.) It is almost impossible to consume more calories than you expend on a fresh fruit diet—assuming you are active and get daily exercise. The subject of losing weight will be discussed in depth in a later lesson, also.

Is it possible for a person to gain weight on the diet you advocate?

Yes. Except in rare (relatively) cases where emaciation has occurred, gaining fat is usually not desirable. Many studies have shown that exceptionally lean people have longer lifespans and fewer diseases than people we would consider of "normal" weight. As a rule, lean is best. The important factor is the building of muscle, which can be done with the use of weights, along with a well-rounded exercise program (stretching exercises and aerobic exercises) or to a lesser degree without the use of weights. Body muscle can be developed in any number of ways—from swimming or running (or both) to calisthenics or tennis. Ideally, your program should include some resistance exercises (weights, push-ups, pull-ups, sit-ups, etc.), some aerobic activities and some stretching exercises, and should work all the body muscles. A truly attractive body is not one with five or ten pounds of extra fat, but one that is firm and filled out by normal musculature.

For those people who are emaciated and do need to gain fat, this should not be rushed. In addition to obtaining generous amounts of exercise (as outlined briefly above), the excessively thin person should make sure his or her life is not too stressful. Also, he or she should consider a fast if there is a chance that adequate calories have been consumed but the body is unable to use them. A physiological rest may be needed more than tremendous amounts of food in this case.

When it comes to eating, people of all body weights should eat normal amounts of healthful foods. Weight gain or loss is a body activity that will occur naturally if we provide the normal and proper conditions of life. Gaining or losing weight is not something we do; rather, it is something the body does. We just provide our needs, and the organism will normalize itself.

Feeding the people in the United States and in the world would not be possible without the food processing industries. There wouldn't be enough fresh fruits to feed everyone. The diet you

propose is totally impractical. How do you answer to this?

I'm glad you asked that question! The food processing industries are not in business to see that a larger amount of food is available to the world's people. Rather, they are in business to make money. Everyone would be better fed, even on a diet of grains, which is very inferior to the fruit diet, if they were consumed in their whole form rather than processed. Foods are more nutritious before they are processed, so people would be healthier if it weren't for these industries.

The food processing industries do not increase the quantity of food available, either. It is the food growers (farmers and orchardists) who insure that people get enough food. The following topic will be discussed in depth in later lessons, but here we will say that fruit culture and organic gardening could feed the world's population more than adequately if the money and labor now used for food processing (destruction) was instead used for growing fruits and vegetables by organic means. This would, of course, have to happen at least somewhat gradually, but it is possible if enough people agreed to it. The whole world could become The Garden! Wouldn't orchards and vineyards of fruit and nut trees be more appealing to the senses in every way than food refining plants and factories? People's health could improve so much that the drug industry could also divert it's money and labor to healthful endeavors. Hospitals could be turned into schools, hotels, gyms! As you can see, the possibilities are enormous— and exciting!

No, our natural diet is far from impractical. The earth is perfectly equipped for the growing of fruit and nut trees and vegetables. Food could also be supplied to those areas where little or no food can be grown in some seasons by using money and manpower for effective food distribution. Nuts, seeds, dates, dried fruits and seeds and beans for sprouting all ship and store relatively well.

I and many other people have more regular bowel movements because we include bran in our diet. Would you consider this a fairly wholesome part of some people's diet because of its anti-constipation effect?

Absolutely not! Bran is a food fragment; that is, it is only part of the whole wheat berry. It has many sharp edges which irritate and cut the delicate tissues within the gastrointestinal tract. Humans require their carbohydrate in the form of usable sugars—not in the form of indigestible cellulose.

As far as regular bowel movements go, you will definitely have them on a diet consisting primarily of the foods of our biological adaptation—fresh fruits. It is not for you, me or anyone else to decide how large or how frequent our bowel movements should be—this is strictly a body process that should remain entirely on a subconscious level. We should never have to think about it at all, let alone talk about it. And on the proper diet, you can be sure that everything is happening as it should within your body, for, as you know, the inherent intelligence of your body is great. Our only responsibility is to provide the normal needs of life—and then just live. The body will take care of its own needs.

I'm hypoglycemic. There's no way I could ever go on the fruit diet you advocate. I can get my carbohydrates from starch foods, can't I?

Yes, you can get your carbohydrates from starch foods. Because of the special problems of such starches as grains (phytic acid; their acid effect), beets (oxalic acid, which binds calcium) and beans (also contain much protein, which makes them digest very poorly), you should stick to lightly-steamed potatoes, yams, cauliflower, carrots and sweet potatoes rather than using grains, beans or beets. They can also be eaten raw or juiced if you like. You may include sprouted seeds and beans, such as chick peas (garbanzos), dry peas, mung beans, alfalfa seeds, etc., as well as lots of vegetables and non-sweet fruits and some nuts, seeds and avocados in your diet. However, do not overdo on the oily foods (nuts, seeds, avocados). Rice and millet are the best of the grains, and can be used in moderation, especially with large raw vegetable salads that contain vegetables such as lettuce, broccoli, cabbage, kale, celery, etc., but that do not contain nuts, seeds, avocados, tomatoes or starch foods. (The rice or millet is sufficient starch for one meal.) Other relatively wholesome starch foods you may want to consider to insure more variety (if variety is important to you) are winter squashes, pumpkins, caladium roots, taro roots, cassava roots and Jerusalem artichokes. Rutabaga and salsify are also wholesome starch foods. (You may not be able to obtain some of the foods listed above, but keep your eyes and ears open.)

Keep in mind that starches are not ideal foods for humans, even hypoglycemic humans. Starches remain second-rate sources of carbohydrates. For best results in using them, use just one kind of starch food at a given meal and follow correct food combining rules (as briefly explained in this section, but to be discussed in greater depth in a later lesson) and chew your food well. Also, refrain from drinking anything during or within 2-3 hours after your meals. Understand that you cannot obtain optimum health on a diet consisting of cooked starches as your primary source of carbohydrates.

I recommend that, as soon as possible, you take a supervised fast. Hypoglycemics can and do fast—and with excellent results. Many can return to a normal diet that includes lots of fruits. Most or all can include fruits as a substantial part of their diet, though their intake of the very sweet fruits such as dates, dried fruits and persimmons may be restricted. Some fruits contain much less sugar than others and can be tolerated well by "recovering hypoglycemics."

Whether you fast or not, if you begin living and eating more healthfully, you will be able to eat some fruits, at least in moderation, right away or very soon. As your body begins to normalize and gets rid of stored up toxins that contribute to your problem, you will be able to consume a larger and larger proportion of fruits in your diet. A hypoglycemic does not have to remain hypoglycemic forever. Health results from healthful living—so live healthfully and you will get well.

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Article #1: Carbohydrates by Dr. Herbert M. Shelton

The following segment on carbohydrates was written by Dr. Herbert M. Shelton in his book, Orthotrophy in a chapter on food elements.

This is the name given to certain organic compounds of carbon that are produced by plants in the process of growth from carbon, hydrogen and oxygen, with the oxygen and hydrogen in proportions to form water. In everyday language we know the most important of these carbohydrates as starches and sugars. As will be seen later, carbohydrates are complex substances composed, in most instances, of simpler substances, or building blocks, called sugars. Chief among the carbohydrates are:

Fruits—Bananas, all sweet fruits, hubbard squash, etc.

Nuts—A few varieties—acorns, chestnuts and coconuts.

Tubers—Potatoes, sweet potatoes, carrots, artichokes, parsnips, etc.

Legumes—Most beans, except some varieties of soybeans, all peas, peanuts.

Cereals—All grains and practically all cereal products. (Gluten bread is not a carbohydrate.)

Grains and legumes are classed both as proteins and carbohydrates. This is due to the fact that they contain enough of each of these food elements to be placed in both classes. Nuts, for the same reason, are classed both as proteins and as fats. Milk, commonly classed as a protein, is really low in protein. It may with equal justification be classed as a sugar or carbohydrate. All foods contain more or less carbohydrates, as they all contain more or less protein. Most foods contain some fats, but there is none in most fruits nor in the green leaves of vegetables.

Carbohydrates, like proteins, are composed of simpler compounds known as simple sugars or monosaccharides. According to their composition, these are classed as follows:

1. *Monosaccharides*: Sugars containing only one sugar group or radical. Among the monosaccharides are grape sugar (glucose or dextrose), fruit sugar (fructose or levulose) and galactose of honey. These are the assimilable forms of carbohydrate. Dextrose is the principle member of the glucose group and much less sweet than cane sugar. It is known as grape sugar and is found in fruits, some vegetables and honey. Glucose occurs in both plants and animals and is formed by the action of heat and the ultraviolet rays upon starch in the presence of an acid. Corn syrup is commercially known as glucose. Glucose may also be made by treating starch with sulphuric acid in the presence of heat.
   Fructose and levulose are derived from fruits and honey. Galactose is a crystaline glucose obtained by treating milk sugar with dilute acids.

2. *Disaccharides*: Sugars containing two simple sugars, or that can be broken into two monosaccharides. The ordinary cane sugar or sucrose of commerce is a disaccharide composed of glucose and galactose. Invert sugar found in honey is a mixture of glucose and fructose. Maltose of malt sugar is composed of galactose and glucose. Maple sugar (sucrose) and milk sugar (lactose) are also disaccharides.
3. *Trisaccharides*: Sugars containing three sugar groups or radicals. Beet sugar is the best known example of this sugar.
4. *Polysaccharides*: Colloids or noncrystalizable organic substances known as starches. There are three main groups of polysaccharides: 1) starches; 2) glycogen (animal starch) and 3) pentosans. Pentosans are numerous and include the cellulose or woody fibre of cotton, linen, walls of plant cells, etc. They are usually indigestible, although, in tender cabbage and other very tender vegetables, they are digestible. Galactose found in sugar, seeds, and algae; pectins found in unripe fruit and the gummy exudate on trees and plants are also pentosans.

Starches and sugars are well known to everyone, as they are found in all fruits and vegetables. Sugars are soluble carbohydrates with a more or less sweet taste. When heated to a high temperature they form caramel. Sugars are crystalloids; starches are insoluble and are colloids. Glycogen and milk sugar are the only carbohydrates of animal origin and even these are derived originally from the plant. Animals are incapable of extracting carbon from the air and synthesizing carbohydrates.

While the sugars are all soluble, raw starch is insoluble. Boiling will render part of it soluble. This, however, hinders its digestion. Starch is converted into a disaccharide in the mouth, and this is converted into a monosaccharide in the intestine.

The body cannot use starch. It must first be converted into sugar before it can be utilized by the cells.

This is done in the process of digestion and begins in the mouth. Disaccharides and polysaccharides are converted into monosaccharides in the process of digestion, as carbohydrates can be absorbed and assimilated only as monosaccharides. Starch must first be converted into sugar, and the complex sugars must be converted into simple sugars before they are absorbed. The body's need for sugar may easily be supplied without eating commercial sugars and syrups or any form of denatured carbohydrate. Child and adult alike should eat only natural sweets and starches.

Sugar is the most important building material in the plant world. A characteristic difference between plants and animals is that, whereas the animal is built up largely out of proteins, the plant is built up largely out of carbohydrates. Plants may be truly said to be made of sugar. They contain various minerals and some nitrogen, but practically the whole fabric of the plant or tree is composed of sugar in some form. Sugars are essential constituents of all plants without which they cannot exist. Indeed, sugars are the most important and most abundant building materials in plants. Out of the *immature* or *sap sugars*, plants build their roots, stems, flowers, fruits and seeds. The finished plant is almost literally made of sugar.

Nature produces sugars out of three gases—carbon, oxygen and hydrogen. Oxygen and hydrogen in proportions to form water are taken from the water in the soil. Carbon is taken from the carbon dioxide of the air. Out of these gases, or out of this fluid and gas, the plant synthesizes sugar, a thing the animal cannot do. The green coloring of plants is due to the presence of a pigment known as chlorophyll. This pigment takes part in a chemical process known as photosynthesis, by which carbon dioxide (or at least the carbon in the carbon dioxide), with the aid of sunlight, is united with water to form sugar. Recent experiments have shown that enzymes contained in the leaves of the plants are the chief agents in the production of this sugar. Some plants can produce sugar in the absence of light.

Not only the starches of plants, but also the pentosans, the woody fibers, cellulose and gums are made of sugar and may be reconverted into sugar. When carbohydrates are stored for long periods, they are stored as starches. When they are used, they are reconverted into sugars. Corn, peas, etc., are sweet (full of sugar) before they mature. The sap of the corn is also sweet. The sap of the cane plant is very sweet. In the matured state corn, cane seed and peas are hard starch grains. In the germinating process the starch is reconverted into sugar. As starches these seeds will keep for long periods of time; as sugars they would not keep until the following spring. It will be noticed that the enzymes in seeds do not require ultraviolet rays and acid to bring about this reconversion, any more than do the enzymes in digestive juices.

Fruits are ready for immediate use and, if not used soon after ripening, tend to decompose rapidly. Grains are intended for storage. It is significant that fruits are composed of insoluble starches and are usually rich in acids before they ripen. In this state they are usually avoided by animals. The starch is reconverted into sugar in the ripening process. This arrangement protects the seed of the fruit until it is matured and ready for dispersal. Then the fruit is ripened and made ready for food.

The animal, like the plant, builds its carbohydrates out of sugar. All starch foods must be converted into sugar (in the process of digestion) before they can be taken into the body and used. Animal starch (glycogen) is made from sugar. It, like the starch of grains, is a storage product. Like the starch of grains, it must be reconverted into sugar before using. The sugar in milk may be made from starches.

The matured fruit sugars of plants, especially those of fruits, are particularly appropriate for food. They are never concentrated and are always well balanced with other nutrients. They are built up out of the immature sugar and impart to both fresh and dried fruits their delicious flavors. Matured sugars in flowers are collected by bees and made into honey. Fruit sugars are, in truth, export products produced by plants.

All the sugar the body requires may be obtained from fresh ripe fruits. This is especially so during the summer months. During the winter months when fresh fruits are not so abundant, dried (but unsulphured) fruits are excellent sources of sugar. These should not be cooked. Owing to the absence of water, dried fruits are more concentrated foods than fresh fruits and should not be eaten in the same bulk.

Just as fruits are savoured with their matured sugars, so vegetable foods are savoured with the immature juices (saps) of the plants. In the plants, as in the fruits, the sugars are combined with vitamins, mineral salts, fiber and other elements of foods.

It is essential to emphasize that sugars constitute but one of the ingredients of plant life and are never put up in their pure state. In fruits and plants they are always combined with and balanced by other ingredients, particularly with salts, vitamins and water. Man, not nature, produces concentrated sugars. Man, not nature, separates the minerals from sugar. Sugars should be eaten as nature provides them.

Commercial syrups and molasses are concentrated saps. Besides being concentrated, usually by the use of heat in evaporating the water, they are deprived of their minerals and vitamins and have preservatives, artificial colors and flavors added and are often bleached with sulphur dioxide, with which they become saturated. Commercial sugars—maple, cane, beet, milk—are crystalized saps. They, too, are unbalanced, commonly bleached and thoroughly unfitted for use. So concentrated are these syrups and sugars, so denatured and so prone to speedy fermentation in the digestive tract, that it is best not to employ them at all. If they are used, they should be used very sparingly. The same rule should apply to honey. This food of the bee contains all the other nutritive elements in very minute quantities, being largely water and sugar with flavors from the flowers. If it is eaten, it should be taken sparingly.

What a difference between eating sugar cane and eating the extracted, concentrated and refined sugar of the cane! It is said that it takes a West Indian native an hour to chew eighteen inches of cane from which he derives the equivalent of one large lump of sugar—less than the average coffee-drinker puts into a single cup of his favorite poison. (The boys and girls of Texas and Louisiana can chew sugar cane faster than the West Indian native, it seems.) In thus securing his sugar, the cane eater secures the minerals and vitamins that are normally associated with sugars—he does not eat a "purified" product.

Sugar is regarded as an energy food, but it is a remarkable fact that the heavy sugar eater prefers to watch athletic games to taking part in them. We, of course, have reference to the heavy eater of commercial sugars. They seem to stimulate and then depress the muscular powers.

It has long been the Hygienic theory that the catarrhal diseases are based on carbohydrate excess—sugar excess, as all starches are converted into sugar in digestion. It is interesting to note, in this connection, that the *British Medical Journal* for June 1933 carried an article discussing "the relation of excessive carbohydrate ingestion to catarrh and other diseases," in which it was pointed out that during World War I, the incidence of catarrhal illnesses was reduced seemingly corresponding with the great eduction of sugar consumption. The writer of the article concludes that "restriction in the use of sugar would result in improvement in the national health as regards catarrhal illness, as well as in other directions."

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Article #2: Digestion Of Foods by Dr. Herbert M. Shelton

Foodstuffs as we eat them constitute the raw materials of nutrition. As proteins, carbohydrates and fats, they are not usable by the body. They must first undergo a disintegrating, refining and standardizing process (more properly a series of processes) to which the term digestion has been given. Although this process of digestion is partly mechanical, as in the chewing, swallowing and "churning" of food, the physiology of digestion is very largely a study of the chemical changes foods undergo in their passage through the alimentary canal. For our present purposes, we need give but little attention to intestinal digestion but will concentrate upon mouth and stomach digestion.

Enzymic Limitations Necessitate the Combining of Compatible Foods

The changes through which foods go in the processes of digestion are affected by a group of agencies known as enzymes. Due to the fact that the conditions under which these enzymes can act are sharply defined, it becomes neccessary to give heed to the simple rules of correct food combining that have been carefully worked out on a basis of the chemistry of digestion.

Long and patient effort on the part of many physiologists in many parts of the world have brought to light a host of facts concerning enzymic limitations, but, unfortunately, these same physiologists have attempted to slur over their importance and to supply us with fictional reasons why we should continue to eat and drink in the conventionally haphazard manner. They have rejected every effort to make a practical application of the great fund of vital knowledge their painstaking labors have provided. Not so the Natural Hygienists. We seek to base our rules of life upon the principles of biology and physiology.

What Enzymes Are

Let us briefly consider enzymes in general before we go on to a study of the enzymes of the mouth and stomach. An *enzyme* may be appropriately defined as a physiological *catalyst*. In the study of chemistry it was soon found that many substances that do not normally combine when brought into contact with each other may be made to do so by a third substance when it is brought into contact with them. This third substance does not in any way enter into the combination or share in the reaction; its mere presence seems to bring about the combination and reaction. Such a substance or agent is called a *catalyst* and the process is called *catalysis*.

Plants and animals manufacture soluble catalytic substances, colloidal in nature and but little resistant to heat, which they employ in the many processes of splitting up of compounds and the making of new ones within themselves. To these substances the term *enzyme* has been applied. Many *enzymes* are known, all of them, apparently, of protein character. The only ones that need interest us here are those involved in the digestion of foodstuffs. These are involved in the reduction of complex food substances to simpler compounds that are acceptable to the bloodstream and usable by the cells of the body in the production of new cell substance.

Bacterial By Products Poisonous

As the action of enzymes in the digestion of foodstuffs closely resembles fermentation, these substances were formerly referred to as ferments. Fermentation, however, is accomplished by organized ferments—bacteria. The products of fermentation are not identical with the products of enzymic disintegration of foodstuffs and are not suitable as nutritive materials. Rather, they are poisonous. Putrefaction, also the result of bacterial action, also gives rise to poisons, some of them very virulent.

Digestive Enzymes Extremely Specialized

Each enzyme is specific in its action. This is to say, it acts only upon one class of food substance. The enzymes that act upon carbohydrates do not and cannot act upon proteins nor upon salts nor fats. They are even more specific than this would indicate. For example, in the digestion of closely related substances such as the disaccharides (complex sugars), the enzyme that acts upon maltose is not capable of acting upon lactose. Each sugar seems to require its own specific enzyme. The physiologist, Howell, tells us that there is no clear proof that any single enzyme can produce more than one kind of ferment action.

Digestion a Step-By-Step Process

This specific action of enzymes is of importance, as there are various states in the digestion of foodstuffs, each state requiring the action of a different enzyme and the various enzymes being capable of performing their work only if the preceding work has been properly performed by the enzymes that also precede. If *pepsin*, for example, has not converted proteins into peptones, the enzymes that convert peptones into amino acids will not be able to act upon the proteins.

The substance upon which an enzyme acts is called a *substrate*. Thus starch is the substrate of *ptyalin*. Dr. N. Phillip Norman, Instructor in gastroenterology, New York Polyclinic Medical School and Hospital, New York City, says: "In studying the action of different enzymes, one is struck by Emil Fischer's statement that there must be a special key to each lock, the ferment being the lock and its substrate the key, and if the key does not fit exactly in the lock, no reaction is possible. In view of this fact, is it not logical to believe the admixture of different types of carbohydrates and fats and proteins in the same meal to be distinctly injurious to the digestive cells? If, since it is true that similar but not identical locks are produced by the same type of cells, it is logical to believe that this admixture taxes the physiological functions of these cells to their limit?" Fischer, who was a renowned physiologist, suggested that the specificity of the various enzymes is related to the structure of substances acted upon. Each enzyme is apparently adapted to or fitted to a certain definite structure.

Chewing Is First Digestive Step

Digestion commences in the mouth. All foods are broken up into smaller particles by the process of chewing, and they are thoroughly saturated with saliva. Of the chemical part of digestion, only starch digestion begins in the mouth. The saliva of the mouth, which is normally an alkaline fluid, contains an enzyme called *ptyalin*, which acts upon starch, breaking this down into maltose, a complex sugar, which is further acted upon in the intestine by maltase and converted into the simple sugar *dextrose*.

The action of ptyalin upon starch is preparatory, as maltase cannot act upon starch. *Amylase*, the starch-splitting enzyme of the pancreatic secretion, is said to act upon starch much as does *ptyalin*, so that starch that escapes digestion in the mouth and stomach may be split into maltose and achroodextrin, providing, of course, that it has not undergone fermentation before it reaches the intestine.

Some Enzymes Destroyed By Acids and Alkalines

Ptyalin is destroyed by a milk acid and also by a strong alkaline reaction. It can act only in an alkaline medium, and this must not be strongly alkaline. It is this limitation of the enzyme that renders important the manner in which we mix our starches, for if they are mixed with foods that are acid or that provide for an acid secretion in the stomach, the action of the ptyalin is brought to an end.

Some Factors That Inhibit Digestion

Stomach (gastric) juice ranges all the way from nearly neutral in reaction to strongly acid, depending upon the character of the food eaten. It contains three enzymes-pepsin, which acts upon proteins; lipase, which has slight action upon fats; and rennin, which coagulates milk. The only one of these enzymes that needs concern us here is pepsin. Pepsin is capable of initiating digestion on all kinds of proteins. This is important, as it seems to be the only enzyme with such power. Different protein splitting enzymes act upon the different stages of protein digestion. It is possible that none of them can act upon protein in stages preceding the stage for which they are specifically adapted. For example, erepsin, found in the intestinal juice and in the pancreatic juice, does not act upon complex proteins, but only upon peptides and polypeptides, reducing these to amino acids. Without the prior action of pepsin in reducing the proteins to peptides, the erepsin would not act upon the protein food. Pepsin acts only in an acid medium and is destroyed by an alkali. Low temperature, as when iced drinks are taken, retards and even suspends the action of pepsin. Alcohol precipitates this enzyme.

Just as the sight, odor or thought of food may occasion a flow of saliva, a "watering of the mouth," so these same factors may cause the flow of gastric juice, that is a "watering of the stomach." The taste of food, however, is most important in occasioning a flow of saliva. The physiologist, Carlson, failed in repeated efforts to occasion a flow of gastric juice by having his subjects chew on different substances, or by irritating the nerve endings in the mouth by substances other than those directly related to food. In other words, there is no secretory action when the substances taken into the mouth cannot be digested. There is selective action on the part of the body and, as will be seen later, there are different kinds of action for different kinds of foods.

In his experiments in studying the "conditioned reflex," Pavlov noted that it is not necessary to take the food into the mouth in order to occasion a flow of gastric juice. The mere teasing of a dog with savory food will serve. He found that even the noises or some other action associated with feeding time will occasion a flow of secretion.

It is necessary that we devote a few paragraphs to a brief study of the body's ability to adapt its secretions to the different kinds of foodstuffs that are consumed. Later we will discuss the limitations of this power. McLeod's *Physiology in Modern Medicine* says: "The observations of Pavlov on the responses of gastric pouches of dogs, to meat, bread and milk have been widely quoted. They are interesting because they constitute evidence that the operation of the gastric secretory mechanism is not without some power of adaptation to the materials to be digested."

Digestion Proceeds Intelligently

This adaptation is made possible by reason of the fact that the gastric secretions are the products of about five million microscopic glands embedded in the walls of the stomach, various of which secrete different parts of the gastric juice. The varying amounts and proportions of the various elements that enter into the composition of the gastric juice give a juice of varying characters and adapted to the digestion of different kinds of foodstuffs. Thus the juice may be almost neutral in reaction or it may be weakly acid or strongly acid. There may be more or less pepsin according to need. There is also the factor of timing. The character of the juice may be very different at one stage of digestion from what it is at another, as the varying requirements of a food are met.

A similar adaptation of saliva to different foods and digestive requirements is seen to occur. For example weak acids occasion a copious flow of saliva, while weak alkalies occasion no salivary secretion. Disagreeable and noxious substances also occasion salivary secretion, in this instance to flush away the offending material. It is noted by physiologists that with at least two different types of glands in the mouth able to function, a considerable range of variation is possible with reference to the character of the mixed secretion finally discharged.

An excellent example of this ability of the body to modify and adapt its secretions to the varying needs of various kinds of foods is supplied us by the dog. Feed him flesh and there is a secretion of thick, viscous saliva, chiefly from the submaxillary gland. Feed him dried and pulverized flesh, and a very copious and watery secretion will be poured out upon it, coming from the parotid gland. The mucous secretion poured out upon flesh serves to lubricate the bolus of food and thus facilitate swallowing. The thin, watery secretion, on the other hand, poured out upon the dry powder washes the powder from the mouth. Thus, it is seen that the kind of juice poured out is determined by the purpose it must serve.

Humans Ate Correctly In Nature

As we previously noted, ptyalin has no action upon sugar. When sugar is eaten there is a copious flow of saliva, but it contains no ptyalin. If soaked starches are eaten, no saliva is poured out upon these. Ptyalin is not poured out upon flesh or fat. These evidences of adaptation are but a few of the many that could be given. It seems probable that a wider range of adaptation is possible in gastric than in salivary secretion. These things are not without their significance to the person who is desirous of eating in a manner to assure most efficient digestion, although it is the custom of physiologists to gloss over or minimize them.

There are reasons for believing that man, like the lower animals, once instinctively avoided wrong combinations of foods, and there are remnants of the old instinctive practices still extant. But having kindled the torches of intellect upon the ruins of instinct, man is compelled to seek out his way in a bewildering maze of forces and circumstances by the fool's method of trial and error. At least this is so until he has gained sufficient knowledge and a grasp of proved principles to enable him to govern his conduct in the light of principles and knowledge. Instead, then, of ignoring the great mass of laboriously accumulated physiological knowledge relating to the digestion of our foodstuffs, or glossing over them as is the practice of the professional pysiologists, it behooves us, as intelligent beings, to make full and proper use of such knowledge. If the physiology of digestion can lead us to eating practices that insure better digestion, hence better nutrition, only the foolish will disregard its immense value to us, both in health and in disease.

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Article #3: Starches Are Second-Rate Foods by Marti Fry

Have you noticed how often we state that fruits are the foods to which we are biologically suited? We rank them as first-class foods and we rank starchy foods such as tubers, legumes and grains as second- or third-class foods. One reason for this, as you may know, is that most starchy foods have to be cooked to make them tasty. Of course there are exceptions to this:

1. Some people like potatoes, yams, etc., raw.
2. Some mildly starchy vegetables such as carrots, peas and cauliflower are palatable in the raw state to most people.
3. Many legumes can be sprouted instead of cooked.

But despite these exceptions, starchy foods are not ideal for humans. Unlike sugars from fruits, which pass almost directly from the stomach to the small intestine for absorption, starches must be converted to sugar for the body to unlock their energy potential.

Most animals secrete starch-splitting enzymes called amylases, derived from the Latin word meaning—you guessed it—*starch-splitting*. In humans, starch digestion begins in the mouth: Our saliva contains an amylase called ptyalin, from the Greek word *ptyalon*, meaning *saliva*. Ptyalin, also called salivary amylase, changes starch chemically into maltose, a complex sugar.

Many other animals, such as pigs, birds and other starch eaters, but not humans, secrete other additional amylases to insure complete starch digestion. To be sure bf adequately digesting the starch we humans consume, we must chew our food very, very thoroughly so it becomes well-mixed with saliva.

The starch that's converted to maltose by salivary enzymic action is further broken down in the small intestine by the enzyme maltase into the simple sugar, dextrose, for the bloodstream can absorb only simple sugars, never starches or complex sugars. (Dextrose is dextrorotatory glucose.)

Only 30 to 40 percent of the starch eaten can be broken down by ptyalin in the mouth. If starches are eaten with (or close in time to ingestion of) acid fruits (citrus fruits or tomatoes) or with protein foods, the ptyalin in the saliva that's swallowed with the food cannot further break down the starch into simple sugars.

This is because ptyalin can only act in an alkaline environment and the stomach environment becomes acid when proteins are consumed. The acids in fruits will also inhibit the secretion of ptyalin. Hence, you should take care to eat starchy foods (if you eat them at all) with vegetables and not with acid or protein foods to insure the best possible digestion.

We do secrete a pancreatic amylase in our intestine to digest starches not handled by salivary amylase (ptyalin). But starches, often partially decompose in the stomach before they get to the intestine.

In addition, *there's a problem relative to human starch digestion* and this is another reason why starches are usually cooked or sprouted (besides for taste):

According to *The Textbook of Medical Physiology* by Arthur C. Guyton, M.D.:

> *Most starches in their natural state, unfortunately, are present in the food in small globules, each of which has a thin protective cellulose covering. Therefore, most naturally-occurring starches are digested only poorly by ptyalin unless the food is cooked to destroy the protective membrane.*

If cooking can destroy the protective membrane around the starch cells, what is it doing to the food's value? Cooking changes the minerals and proteins into unusable forms and destroys most vitamins!

Chewing only partially damages the protective covering of starch globules and so raw starches can only be partially digested. While undigested foods cause pathogenic problems in the human body, the toxins ingested when we eat cooked foods (deranged vitamins and minerals) cause even greater problems.

In light of how the human body uses starches by changing them to simple sugars through a complicated and only partially effective process, why not consider getting all your carbohydrate needs from fresh fruits which are already in the form of simple easily-digestible sugars? We don't need starches at all and can thrive more healthfully without them.

This article is reprinted from *The Health Crusader*, *Better Life Journal*'s predecessor.

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Article #4: The "Staff Of Life" by Marti Fry

We have stated many times that wheat and bread are unwholesome foods for several reasons: Wheat, the seed of cereal grass, is a starchy food that the body cannot digest properly and fully because we secrete only a limited amount of ptyalin, the enzyme that starts digestion of starches, and we secrete no enzyme to break down gluten. Also, wheat and breads are almost always eaten with sugars and/or proteins, all of which then end up in producing indigestion and pathogenic conditions inside the body.

Unless you sprout whole wheat berries, wheat must be cooked to be eaten; and cooking renders the food's nutrients mostly unusable and quite toxic. Whole wheat flour, even if freshly ground, lacks in nutritional value because of the great loss of nutrients due to oxidation of the burst food cells.

Despite these convincing reasons why we shouldn't eat bread at all let's talk about bread a bit further. The wheat bread sold in stores is likely to be only 25 percent wheat, the other 75 percent of the flour being bleached white flour. But you can't tell this by just looking at the bread, for it may be colored with caramel to make it look darker like 100 percent whole wheat bread. The label has to say "whole-wheat flour" or else it's only partly whole wheat.

This is bad enough but there's worse news: The high-fiber breads that are becoming so popular these days contain powdered cellulose, a cheap byproduct of the paper industry. Even nonhygienic minded "health" writers warn against consuming artificial fiber.

The paper mills are selling this powdered cellulose to food processors as a "bulking agent" for cookies, cakes, pastas and breakfast cereals, as well as for bread. The human body wasn't designed to digest this waste product of the paper industry. Your best bet is still to stay away from products which contain "bulking agents," sugar or honey, salt, preservatives, colorings and wheat.

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Article #5: What's Wrong With Wheat by Marti Fry

Most people think that whole grain breads are the "staff of life"—that we need to eat bread to be healthy. However, this has been found to be untrue. Even 100 percent whole wheat is unhealthful. Many doctors have their patients merely eliminate grain products (including whole wheat bread) from their diets because this helps many people lose weight.

Medical research has proven that wheat is one of the causes of colds. Families were asked to give up bread and grains for one year. What happened was that no one in these families suffered any colds that year. Another study has shown that wheat is a main contributor of eczema, hives, migraine headaches and various "allergies."

Of course we know wheat is an *indirect* cause of diseases; that is, it is usually cooked and otherwise processed such that it contributes to body toxicity. This starchy food is almost always combined improperly; that is, it is eaten with honey, sugar or fruit as in breads, pies, fruitcakes, cereals, etc., or with protein foods such as meat, cheese, milk, yogurt, nuts, seeds, etc.

Consequently, poisonous byproducts of indigestion are created in the stomach. The toxins resulting from fermentation (starch) or putrefaction (proteins) accumulate with other toxins and bring toxemia, the sole cause of disease.

A research undertaken by Dr. Alvarez of the Mayo Clinic states, "Bread can pass though the whole of the small intestine without being digested at all!" Also, wheat interferes with the absorption of other foods, as does salt. Life Scientists know that years of eating wrong combinations of wrong foods gradually impair the body's digestive abilities.

When people eat a lot of bread they get filled up. Thus they eat less of the fruits and vegetables that have the proper nutrient and vitamin contents. So, as J. I. Rodale says in his book, *The Complete Book of Food and Nutrition*, "This whole thing about the importance of bread as the staff of life leaves me cold. I think the average person is better off to entirely restrict the use of bread."

Mr. Rodale also stated, "What is the best program for a person who wishes to live to 120? I say don't eat bread. It is the worst form of starch ... It is not an edible starch."

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Article #6: Fruit - The Ideal Food by Dr. Herbert M. Shelton

Tradition has it that man's original diet was fruit. While we have no written history of a period when man lived on a fruit diet, there is plenty of evidence to substantiate the view that he once did so. We do know that fruits have historically constituted an important part of man's diet in most parts of the earth from remote times. Only within recent centuries, and then only in certain parts of the earth, has the notion that fruits have little food value come about.

Most fruits are abundantly supplied with sugar and it is quite possible to gain weight on a fruit diet. Some fruits, like the avocado and most nuts (nuts are also fruits, technically speaking) contain considerable fat. While few of the pulpy fruits are abundantly supplied with protein, some of them do contain a higher percentage of protein than mother's milk. Practically all nuts are rich in protein of high biological value. One does not have to eat animal foods in order to supply himself with an abundance of all the amino acids required.

In the last century a veritable fruitophobia arose both in Europe and America and people refrained from eating fruits because they supposedly caused disease. Fruits were accused of causing various diarrheal diseases, even typhoid and cholera. It is a fact that a large excess of fresh fruit will result in loose stools, but this is not an objection to fruit eating. One has only to cease taking the fruit in excess to have the bowel looseness cease.

The body does not have to contend with sepsis or poison when an excess of fruit is eaten as when excesses of proteins or starches are taken. Excesses of all types are harmful, but an excess of fruit is far less harmful than an excess of bread or flesh. The prejudice against fruits, however, arose not so much out of the results of excess, as out of the faulty combinations in which they were eaten. Fruits are best taken at a fruit meal and should not be combined with starches or with foods rich in protein or fats, including nuts.

In the last century the idea arose that certain diseases such as rheumatism, gout, lumbago, arthritis, etc., were acid diseases. Acid fruits were forbidden on the ground that they helped to produce these diseases. This error about fruits is as dead as are those who promoted it, and it is somewhat surprising to have it revived at a time when our knowledge of foods is so much greater than it was in the last century.

Under the promptings of this revived notion, when people are told that their gastritis, arthritis, etc., arises out of acidity, many mistake this to mean that they arise out of taking acid fruits. They especially reject oranges, grapefruit, lemons, pineapples and similar acid fruits, lest these produce arthritis in them or aggravate the arthritis from which they already suffer.

The fact is that fresh fruits and vegetables, whether burned in the air or metabolized in the body, are alkaline. On the other hand, a diet of flesh, oils, sugar and denatured starches (white flour, polished rice, etc.) provides an excess of acids—sulphuric, etc. Even such acid fruits as oranges and grapefruit are alkaline when metabolized in the body. When fruit is cooked and sugar is added, the fermentation that follows gives rise to acids that add to the acidity of the body. (All canned fruits have been cooked and most have been sugared.)

As important as water is in the processes of life you do not need to drink large quantities of it. Under the usual circumstances of life the water in fruits and salads will supply all the water needed or nearly enough, if these are eaten as they should be. The pure water of fruits and vegetables is much better for physiological purposes than the water supplied by the water systems of our cities and towns.

Fruits appeal to the eyes, the nose and the mouth. Their beauty of color, their richness of aroma, and the deliciousness of their flavors make them ideally suited to man's gustatory delight. There is a rich variety of them and they ripen at various seasons of the year, so that there is but a small part of the year in which they are not abundant. Beginning with the many varieties of delicious berries in the springtime and progressing through the varied assortments of cherries, peaches, plums, nectarines, figs and mangoes of the summer season, to the apples, pears, persimmons, oranges and grapefruit of the fall and winter season, nature provides us with a pleasing assortment of delicious foods that may be enjoyed by everyone and that are easily digested by even the most sensitive stomachs. By the exercise of a little intelligent care in selecting and combining these foods, one may be assured of better health.

Article #7: Are Humans Starch Eaters? by Dr. Herbert M. Shelton

In his efforts to establish, to his complete satisfaction, the normal diet of man, Dr. Emmet Densmore pursued a line of reasoning that we may consider with profit. First, he noted that animals in their natural state live upon foods which are spontaneously produced by nature and require no cultivation. Man, on the other hand, he noted, lives upon foods that are produced by cultivation. Man does not live upon the spontaneous products of nature, but lives artificially.

The thought then occurred to him that, if nature has provided a *natural food* for all the animals below man, perhaps she has also provided a normal food for man. He assumed that nature has produced foods that are as normal to man as grasses are to the herbivore, or as flesh is to the carnivore. This was certainly no unreasonable assumption but is based on the principle of the *unity of nature*. It is based upon the fact that man, as much as the lion or the deer, is a child of nature and that, like these animals, his normal requirements are found in nature.

If man, like the other animals of nature, is constituted for a certain type of food, what is that food or what is that type? What, in other words, is the normal food of man? He sought for his answer in several directions. Scientists were agreed that man's original home was in a warm climate, either in the tropics or the subtropics. Without tools and without fire, he must have lived in a part of the world where the spontaneous productions of nature could be obtained by him with only the "tools" with which he is physiologically equipped and could eat without artificial preparation.

"If man first lived in a warm climate," he reasoned, "and, if like other animals, he subsisted on foods spontaneously produced by nature, these foods must have been those which grow wild in such a climate, quite probably such foods as are still spontaneously produced in such localities. The woods of the south, as is well known, abound in sweet fruits and nuts."

It will be seen at a glance that this line of reasoning led straight to the fruits of the trees as man's normal diet. But man does not live on a fruit diet. Indeed, the greater part of his diet has long been cereals and animal foods. Let us, then, see what Densmore found about cereals.

"It is taught by botanists that wheat is an artificial product developed from some grass plant not now known. Moreover, cereals are the product of the temperate zone, not of those regions where there is no winter, and it was, therefore a necessity of man's sustenance when he was without agriculture, without tools and without fire, and had to depend upon foods spontaneously produced by nature, that he live in a region where his natural foods were produced at all seasons of the year. This narrows or confines the inquiry to two articles of diet—fruit and nuts."

He next noted that these foods need no additions, no sweetenings, no seasonings, no preparations, to appeal to the olfactory and gustatory senses of man. "If the dishes that are set before a gourmet," he said, "those that have been prepared by the most skillful chefs, and that are the product of the most elaborate inventions and preparations, were set beside a portion of the sweet fruits and nuts as produced by nature, without addition or change, every child and most men and women would consider the fruits and nuts quite equal if not superior in gustatory excellence to the most *recherche'* dishes."

Analysis showed that these foods contain the proteins, carbohydrates, fats, and minerals that are essential to human nutrition. Subsequent analysis has shown them to be abundant in the various essential vitamins. Sugar, he noted, is the chief carbohydrate of fruits and nuts. In what way does this diet differ from the diet of civilization? Let us see how Densmore viewed this.

"Instituting a comparison between sweet fruits and nuts on the one hand, and the diet of civilization on the other, I soon detected an essential difference. I saw that bread, cereals, and vegetables are the basis of the diet of the present day and that starch is the chief element of these foods. Scrutinizing the component parts of fruits and nuts, I saw that these fruits contain very little starch, and hence I perceived that I had brought to light a fact that was not unlikely to bear an important part in the solution of the problem before me."

Thus, by a simple process of reasoning upon well-known facts of nature, he had arrived at the conclusion that, while man's normal diet as represented in the spontaneous products of nature contains little starch, the cultivated food plants of civilized man were abundant in starch. This led to the question: "What are the effects of starch upon the system?" "Wherein," he asked, "Does a diet that is without starch differ physiologically from one in which starch is the predominant element?"

Seeking a reply to this last question, he noted first of all "that the two foods (fruits and starch or cereals) involve a different process of digestion." "Sweet fruits are composed largely of glucose, with a fair proportion of nitrogen ..." cereals are composed largely of starch, with a higher proportion of nitrogen. The carbohydrate in nuts is largely sugar. If fruits and nuts constitute man's normal diet, as his reasoning had concluded, the starch diet is not his normal diet.

But he was met by one of the most convenient arguments that the evolution hypothesis has supplied its votaries. "Since man, by artificial contrivance and agriculture," it was reasoned, "has developed and employed cereals and starchy vegetables as the basis of his diet, he has reversed what appears to be the natural order." Densmore examined this contention in the light of anatomy and physiology and found that man's digestive organs have undergone no alterations in structure and function to adapt him to the starch diet. "The orangutan and the several species of long-armed apes, which have, apparently since time began, fed upon nuts and fruits to the exclusion of cereals and starchy vegetables, have today the same digestive apparatus in substantially the same proportion of parts as man, after his thousands of years of cereal eating. This fact is undeniable evidence that man's organs have not undergone essential modification or change by these centuries of unnatural diet." *Evolution just didn't evolve so readily.*

Analyzing the various mono-diets that were then popular and for which much was claimed in the way of their benefits to the patient, Densmore noted that the Salisbury meat diet, the grape diet, and the milk diet each were nonstarch diets. They were simple and, at the same time, they met another requirement of a diet—ease of digestion. "At the foundation of these diets," he said, "I was gratified to find the same basic fact that the diet is essentially nonstarch and one in which bread, cereals and starchy vegetables are reduced to a minimum." The Salisbury diet was, to quote Densmore, "entirely free from starch." He says of the Salisbury diet that it was "a uniform diet." It was usually considered that a variety of food is necessary both for the invalid and the robust. The triumphs of the mono-diets fly in the face of this commonly received axiom.

Can it be true, then, as Densmore contended, that invalids, and especially those suffering with digestive disease, are invariably benefitted by being placed on an exclusively nonstarch diet?" If man's digestive organs had undergone the modifications suggested by the defenders of the starch diet," he reasoned, "starch foods would naturally be those best adapted to man's restoration; but if, as we contend, the race has been, during all these thousands of years of cereal eating, perpetually straining and overcrowding the powers of the second stomach (the duodenum) and thus deranging the digestive apparatus—and if man is seen to be at once benefitted by discontinuing that diet, and by taking a food which is digested in the first stomach—these facts tend to confirm the view that the adoption of a nonstarch diet is in conformity with man's physiological structure and needs."

What he denominated *food fruits* consisted chiefly of sweet fruits—dates, figs, bananas, raisins, prunes, apples, nuts. Fruits and nuts, with the addition of green vegetables, constitute an adequate diet, furnishing all the food-factors needed by man's organism, and whoever eats a diet of this kind will be better off than he who eats a great variety of foods, from soup to nuts, from all the kingdoms of nature. It is not sufficient comment upon the abnormality of the modern diet that fruit is relegated to the last place on the menu and is all too often used merely for ornamental purposes?

Prior to Sylvester Graham, the medical and conventional view of fruit was well expressed by a noted British physician thus: "for decorative purposes fruit equals flowers." Fruits were thought of, also, as relishes, but were not supposed to have any food value. "Bread and meat" were symbolic of nutriment, and those who could afford to do so often sat down to meals consisting of several types of flesh foods. Puddings, porridges and similar articles of diet were classed with bread.

"The ordinary dried figs of commerce," said Dr. Densmore, "contain about 68 percent glucose, which, when eaten, is in the identical condition that the starch of cereal food is converted into after a protracted and nerve-force-wasting digestion." He correctly observed that the sugar of fruits is predigested. Many of them require no preparation at all to render them ready to enter the bloodstream; others have to be reduced to simpler sugars, a process that takes place in the intestine. There is certainly good common sense in his thought that foods that are "predigested by nature" and are ready for absorption and assimilation upon ingestion and place less tax upon the digestive system than those foods that are prepared for assimilation only after a complicated and laborious process of digestion.

But, as man is equipped with ptyalin in the saliva and with starch-splitting enzymes in the intestine, it may be urged that starch may be thought of as constituting a normal part of his diet. It was the thought of Dr. Densmore that man's normal starch-digesting equipment is just sufficient to enable him to digest the small amounts of starch that normally exist in the fruits and nuts that constitute his normal diet. This thought is that, while man is equipped to digest a certain amount of starch, a predominantly starch diet such as is eaten in much of the world today is not normal to him, and that the best form in which he should secure his carbohydrates is sugar.

In this connection, sugar means the sweet fruits produced by old mother nature herself, not the processed sugars of commerce. Sugars, whether in the form of sugar (crystals-brown or white) or in the form of syrups that have been separated from their associated nutrients and that have been concentrated and changed, do not constitute ideal foods for man or beast. The maple sugar, cane sugar, beet sugar, milk sugar and fruit sugars of commerce and the syrups and molasses that are freely eaten, whether from cane or maple sap, do not constitute really good foods for man. Honey, even when pure and unchanged, is not a good food for man for much the same reason, and for added reasons. It is a fine food for bees.

It was believed in Densmore's day and it is still believed that toasting starch, as in toasting bread, dextrinizes it, thus rendering it more easily digested. Although the toasting of bread spoils much of the food value that remains in it after the first baking, and converts part of it into charcoal, precious little dextrinization occurs. Densmore, accepting the dextrinization of bread by toasting, said: "the sweet fruits are removed a step beyond. If there was some method by which a piece of toast could undergo a second transformation and the dextrin be converted into glucose, it would then in all probability be substantially as easy of digestion as the sweet fruits for the simple reason that it would already be glucose; in a word, no digestion would be necessary."

Certainly, as he contended, sweet foods would be far better for the weakened individual and the invalid, with lowered digestive powers, than would be a diet of starches. If there is one starch food that may be regarded as an exception to this rule, it would be the potato, as its starch is more easily and speedily converted into sugar than the starch of cereals, legumes, etc. But Densmore goes further than a consideration of the interests of the invalid when he says, "it would seem plain that a human being in apparently robust health is much more liable to remain so upon a food that is adapted to his organism and that is of easy digestion, than upon one that is a foreign body and that must undergo a protracted and difficult digestion before being of use to the system."

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1. Introduction

The role of protein in the diet is often an emotional issue. If you wish to confirm this, try to take a steak away from a meat-eater. "But I need my *protein*" he cries. Tell your friends you are a vegetarian. They may look worried, disturbed—"Where do you get your *protein*?" they ask, as if you might drop dead at any time.

Perhaps never have so many been so confused over a subject about which they know so little. Much of the information the general public receives about protein comes from special interest groups such as the meat-packing and dairy industries. Consequently, the average person believes that eating large quantities of meat, eggs, milk, cheese, etc., is desirable. They may be full of poisons; they may cause cancer: they may cause heart disease—but, they all furnish that magical substance called protein.

If we are to separate emotion from reason, and propaganda from facts, we must educate ourselves about the true need of the body for protein. We must discover how much protein we actually need, how we can best get it and, after all, just what it is.

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2. Why We Need Protein

Protein is needed by the body for only two reasons: I) growth and 2) tissue repair and replacement. Protein is not necessary for muscular energy, increased activity or as a source of fuel.

2.1 Growth and Tissue Repair

Proteins support normal growth and maintenance of the body tissues.

2.2 Growth

Perhaps the role of protein in growth is best exemplified in the development of babies and newborn animals. A relatively high amount of protein is found in the milk of lactating mothers to insure healthy tissue growth in the young child. The protein needs are highest when growth is the fastest. For instance, compare the protein content in mother's milk after the first six months of birth:

Time After Birth	**Percent Protein**
From the 8th to 11th day	2.38
From the 20th to 40th day	1.79
From the 70th to 120th day	1.49
At the 170th day and later	1.07

Notice that the highest protein contents occur during the earliest stages of growth to allow for rapid development of the baby. As the growth of the child begins to slow, so does the protein content found in the mother's milk. It is also interesting to note that the percentage of protein found in mother's milk is approximately the same as the protein content of most fruits and vegetables. For example, grapes have a 1.3% protein content, raspberries 1.5%, dates 2.2% and so on.

We can also find a relationship between the protein content of the milk of lactating animals and the growth rate of their young by studying the following chart:

	Number of Days for Newborn to Double Its Weight	**Average Protein Percentage In Mother's Milk**
Man	180	1.6
Horse	60	2.0
Calf	47	3.5
Kid	19	4.3
Pig	18	5.9
Lamb	10	6.5
Dog	8	7.1

Cat	7	9.5

The highest need for protein in the diet occurs for most animals during the above periods when the newborn is doubling its birth weight. It is important that we realize the protein content in mother's milk, the optimum food nature has provided for rapid growth of the young, is far below the usual foods that are recommended because of their high protein content (such as meat, nuts, legumes, grains, etc.). Protein is indeed important for growth, but we might well question the alleged necessity for concentrated, high-protein foods.

2.3 Tissue Repair and Replacement

The second role of protein is in the repair of tissues or replacement of worn-out cells. After an organism reaches its full growth (usually between 18 and 22 years for humans), protein is needed only to supply the loss incidental to tissue waste. Cell degeneration and waste occur primarily because of toxicity in the body. If we adopt a lifestyle and diet that introduce a minimal amount of toxins into the body, then tissue waste will decrease significantly. As a result, actual protein needs will also diminish.

After an individual reaches adulthood, the only protein needs are for the repair and replacement of tissues that have deteriorated, due largely to body toxicity.

2.4 Not As A Fuel Source

Protein is not used directly as fuel for the body or for muscular activity. In muscular work, excretion of nitrogen as a result of protein usage increases only very slightly. Instead, it is the excretion of carbonic acid and absorption of oxygen that increase. These changes indicate that an expenditure of energy is derived mainly from non-nitrogenous foods (such as carbohydrates and fats) and not, from protein.

It is true that the body can use protein to generate fuel for physical activity, but it does so by breaking the protein down into a carbohydrate form. Protein is used as fuel only when there is either an excess of proteins or a lack of carbohydrates. When this occurs, the body splits off the nitrogenous matter from the protein molecule and uses the remaining carbon contents to produce fuel. This process not only involves a net loss of energy, but it also places an unnecessary strain on the liver, kidneys and other organs to eliminate the unusable nitrogenous wastes.

It is for this reason that the popular high-protein, low-carbohydrate diets result in weight loss and also why they are dangerous. Since the body has to expend so much energy in converting the excess protein into the needed carbohydrates for fuel, a net loss occurs in the body and the dieter loses weight. At the same time, he also places a heavy burden on his kidneys to eliminate all the uric acid generated by this protein breakdown and simultaneously overworks an already exhausted liver.

If more physical activity is anticipated, it is only necessary to increase the carbohydrate intake of the diet. Proteins are very poor in fuel-efficiency and do not aid directly or efficiently in muscular activity.

3. How Much Protein Do We Need?

No other area of nutritional needs has been surrounded by so much controversy as the daily protein requirements. Nutritionists and scientists have made protein allowance recommendations that have varied as much as 600%. To arrive at a realistic estimate of our protein needs, we first need to understand how some of the current protein standards were derived. We then need to study the actual protein intake requirements of healthy human beings following a traditional diet that has been in effect over several generations. In this manner, we can see how many of the protein allowances today have been inflated beyond normal health needs.

3.1 Background of Current Protein Recommendations

In the late nineteenth century. Baron von Liebig was the first person to separate foods into proteins (nitrogenous substances) and carbohydrates/fats (non-nitrogenous substances). Since the muscles are composed chiefly of protein. Liebig concluded (incorrectly) that proteins supply muscular energy and the amount of protein consumed must be related to bodily activity. In fact, it is actually the non-nitrogenous foods that supply the best fuel for muscular activity.

Liebig was one of the first scientists to make a recommendation for protein intake. He determined the body's protein requirements by measuring the actual amounts of protein consumed by a group of men engaged in physical activity who ate a heavy diet. He reasoned that by measuring the protein intake of men who ate more than average and worked harder than usual, he could arrive at a safe recommended allowance of protein for all people. Such a technique for establishing a standard is somewhat akin to clocking race car drivers in order to establish a safe speed for schoolzones.

Anyway, based on this experiment Liebig determined that about 120 grams of protein daily would satisfy the needs of a moderately active adult. To obtain 120 grams of protein, a person would need to consume about 17 eggs or a pound and a half of meat or twenty ounces of almonds per day.

Following Liebig, Voit in 1881 performed a series of experiments on dogs and likewise determined that we should consume between 100 and 125 grams of protein a day. Doubtless, dogs can safely consume 125 grams of protein per day. The protein requirement for a growing puppy is five times as great as that for a growing baby. Voit, unfortunately, did not adjust his results to account for the differences between humans and dogs.

From the very beginning, we can see that protein requirements were artificially determined and excessively high. As early as 1887, experiments in Germany showed that 40 grams of protein was a sufficient daily amount about one-third of the current recommendations. The old standards of Liebig and Voit, however, were already firmly fixed in the minds of the medical establishment, and the belief persisted that a high-protein diet was conducive to health anyway, so why lower the recommendations?

After many more experiments proved that a daily protein intake of 30 to 40 grams was entirely sufficient, the establishment finally revised its recommendations down to 60 or 70 grams. Although only one-half of the early estimates, this figure is 50% too high, even by conservative nutritional standards. Today, with the support of the meat, dairy and egg industries, the protein allowances still remain around 70 grams per day. It should also be noted that a typical American meat-eater consumes about 93 grams of protein daily—more than anyone else in the world on the average.

3.2 True Protein Needs

Perhaps a more reasonable way of establishing true protein needs is to study the daily protein intake of groups of people who: 1) maintain a reasonable level of good health and 2) have followed a traditional diet over a long period of time. Even this method tells us little about what amount of protein a person must have, but it is an interesting case study that probably has more validity than laboratory experiments on dogs, etc.

For instance, in Japan there are farming districts where dietary habits have been established for hundreds of years (unlike most Western diets which have fluctuated and changed rapidly over the past eighty years or so). In these districts, a primarily vegetarian diet was followed, consisting of many greens, plums, wild fruits, roots and occasionally fish in small amounts. These farmers were in excellent health and performed heavy manual labor all through the day. They consumed an average of 37 grams of protein per day, about half the official recommendation.

On various islands in the Pacific are tribes of people who have followed the same diet for dozens of generations—fruits, roots and tubers. They enjoy excellent health and consume about 15 grams of protein a day.

Finally, a study was done by Dr. Jaffe of the University of California at Berkeley on the effects of a non-meat diet over several generations. He studied several generations of fruitarians, ranging from young children to adults whose diet consisted principally of all raw fruits, supplemented by occasional nuts and some honey. Their diets supplied them with about 24 to 33 grams of protein a day. None exhibited any signs of protein deficiency, nor of any other nutrient deficiency. In fact, he discovered all of them to be in exceptional health.

Obviously, if large groups of people around the world are existing in good health on 15 to 35 grams of protein a day, and have done so over several generations and hundreds of years, then protein recommendations of 70 grams can only be deemed excessive.

During the last sixty years, several researchers (Rose, Boyd, Berg, et al) all independently proved that between 3.7% and 4.65% of the total food intake was all the protein necessary to maintain good health. These percentages are equivalent to about 24 to 30 grams of protein.

Careful investigations by Dr. Max Rubner, director of the Hygienic Institute of the University of Berlin, showed that only 4% of the entire caloric intake had to be in the form of protein. On a 2,500 calorie diet, this is about 100 calories of protein or about 28 grams.

Although Natural Hygiene and Life Science do not endorse gram-counting, calorie-counting or a preoccupation with minimal daily requirements, it seems that a reasonable estimate of the protein needs of an adult is probably in the 25 to 30 grams daily range — or about 1 gram per five pounds of body weight. If a person eats a varied diet of fruits, vegetables, nuts, seeds and sprouts, he is assured that he will meet this protein requirement, along with all the other nutrient needs.

3.3 Excessive Protein Is Harmful

It is important that we have a realistic idea of the body's true protein needs because of the damage that may occur when we eat far beyond those needs. Almost every American consumes an excessive amount of protein, even by highly-inflated government standards. A protein-deficient diet is rare in this country, although nutrient-poor diets are the norm. Protein poisoning from an excessive amount of protein is more common than a true deficiency.

When protein is consumed in greater amounts than can be processed by the body, toxicity results from the excessive amount of nitrogen in the blood. This extra nitrogen accumulates as kinotoxin in the muscles and causes chronic fatigue.

Proteinosis, or acute protein poisoning, causes headaches and a general aching. Various symptoms of protein poisoning, such as a burning of the mouth, lips and throat, rashes, etc., are very similar to the symptoms attributed to allergies. In fact, many so-called allergies may be cases of protein poisoning instead.

A high-protein diet eventually destroys the entire glandular system. It overworks the liver and places a heavy strain on the adrenals and kidneys to eliminate the toxins it creates. In many people, symptoms of arthritis have disappeared after they adopted a low-protein diet.

3.4 Protein Supplements are Harmful

It is for these and other reasons that protein supplements should never be used. Protein supplements, by supplying the body with an excessive amount of nitrogen, throw it out of balance and can actually contribute to other nutritional deficiencies. The body must try to eliminate the protein it cannot use that is found in these supplements, and an additional burden is placed on the body.

Also, protein supplements are made from fragmented foods such as soy powder, dried egg whites, powdered milk, etc. When foods are eaten in a processed and fragmented state, they tend to oversupply the body with some nutrients while creating a deficiency of other nutrients. Consequently, protein supplements, besides supplying an excessive and harmful amount of protein, also disrupt the body's nutritional balance.

Brewers yeast, a popular high-protein supplement, contributes to uric acid formation in the body. It is a waste product of the brewing industry, resulting when the barley is turned into malt. The industry then has no use for it. It is a "dead" food, because it's heated before marketing to destroy the yeast organisms. Dried egg whites result in constipation; soy powders have enzymes which actually inhibit the absorption of some of the amino acids; using powdered milk results in the formation of mucus (to aid in its removal from the body), and so on. All of these commonly-used protein supplements will be discussed in later lessons. None of them is ever necessary and they should never be included in the diet.

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4. What Are Proteins?

We know now why we need protein in our diet, but what actually is protein? If you ask the average person what is the first thing that comes into his mind when you say "protein," he will most likely respond with "meat." Is protein simply meat or eggs or nuts?

Protein is one of the three categories for all foods, the other two being carbohydrates and fats. Proteins are highly complex compounds of carbon, hydrogen, nitrogen, oxygen and small amounts of sulphur or iodine. They are present in the protoplasm of every living cell and are involved in every organic activity of an organism.

4.1 Principal Proteins and Their Chemical Compositions

There are many different types of proteins within the bodies of animals and plants. For example, all plants have at least two different types of protein, and within the human body are over 100,000 different kinds of proteins. Although all of these proteins differ in their molecular structure, they all have approximately the same chemical composition of 53% carbon, 22% oxygen, 17% nitrogen, 7% hydrogen and 1% sulphur, iodine, etc.

The principal vegetable proteins are *albumin* (found in fruits and vegetables), *gluten* (in wheat and cereals), *legumin* (in peas and beans), *globulin* (in nuts) and *mucleo-protein* (in peas and beans), *globulin* (in nuts) and *muco-protein* (in seeds). Some of the animal proteins are *casein* (found in milk and dairy products), *gelatin* (in bones and tendons), *fibrin* (in blood) and *myosin* (in the flesh of animals).

All of these proteins are composed of amino acids. An amino acid is simply a substructure of a protein compound. You can think of protein as being chains of amino acids that are linked together to form one structure.

For example, a protein compound known as globulin exists in pumpkin seeds. It is composed of the following elements:

Element	**Number of Atoms in the Molecule**
Carbon	292
Hydrogen	481
Nitrogen	90
Oxygen	83
Sulphur	2

Within this globulin protein molecule are chains of amino acids that make up the compound.

In the following example, an amino acid called isoleucine is contained within this protein molecule. It is composed of the following elements:

Element	**Number of Atoms in the Amino Acid**
Carbon	6
Hydrogen	13
Nitrogen	1
Oxygen	2

4.2 Amino Acids Are the Building Blocks

You can see that many amino acids are necessary to form one protein compound. In many cases, several different types of amino acids are in the same protein molecule. It is these amino acids that are important to the body, and this is what the body uses protein for.

When you hear the word "protein" now, you should think of "amino acids."

5. The Importance Of Amino Acids

Many different proteins are known, but all of them are constructed from 23 principal amino acids. These amino acids are the building blocks of all vegetable and animal protein. A molecule of protein may contain as many as several hundred or even thousands of these amino acids. These amino acids are linked together within the protein molecule in a unique fashion known as peptide linkage. A specific protein contains a variety of amino acids linked together in a sequence specific to that protein.

The body cannot use or assimilate protein in its original state as eaten. The protein must first be digested and split into its component amino acids. The body can then use these amino acids to construct the protein it needs. The ultimate value of a food protein, then, lies in its amino acid composition. It is the amino acids that are the essential nutrients. The proper study of the role of protein in nutrition can only be done with a thorough understanding of the amino acids.

5.1 Sources of Amino Acids

5.1.1 Exogenous Protein

Amino acids are the end products of protein digestion. When protein is eaten, enzymes in the stomach and small intestine begin to break the linkages within the protein molecule and produce shorter and shorter chains of amino acids. Eventually, the amino acids are in a simplified enough chemical form so that they can pass through the intestinal walls into the bloodstream. They are then carried by the portal vein to the liver for elaboration and passed on to the blood, lymph and cells. The cells synthesize the amino acids into proteins as required.

This simplified description of the digestion and assimilation of protein applies to *exogenous protein*. Exogenous protein is the term for protein obtained through the diet or from outside of the body.

5.1.2 Endogenous Protein

Protein may also be obtained from *within* the body. This is called *endogenous protein*. Endogenous protein does not come directly from the foods we eat, but from the synthesis of proteins from within the body.

Obtaining protein from the diet is common knowledge. The fact that the body can synthesize protein from its own proteinaceous wastes, however, is not widely known.

As the body's cells undergo their natural catabolic processes, they produce proteinaceous wastes in the form of spent cells and other by-products of their own metabolism. These proteinaceous products enter the lymph fluid.

Other cells in the body are able to ingest these spent proteins and to digest them in vesicles ("stomachs") of their own formation. The body's cells are thus able to break these proteinaceous wastes down into amino acids and use them to synthesize their own protein.

Endogenous protein (or protein from within the body) is an important source of amino acids that is often overlooked by conventional nutrition writers. Many times, up to two-thirds of the body's total protein needs are supplied through endogenous protein and not from exogenous dietary sources.

5.2 The Amino Acid Pool

From the digestion of proteins in the diet and from the recycling of proteinaceous wastes, the body has all the different amino acids circulating in the blood and lymphatic system. When cells need these amino acids, they appropriate them from the blood or lymph. This continually-circulating available supply of amino acids is known as the *amino acid pool*.

The amino acid pool is like a bank that is open twenty-four hours. The liver and the cells are continually making deposits and withdrawals of amino acids, depending upon the concentration of amino acids in the blood.

When the number of amino acids is high, the liver absorbs and stores them until needed. As the amino acid level in the blood falls due to withdrawals by the cells, the liver deposits some of the stored amino acids back into circulation.

The cells also have the capacity to store amino acids. If the amino acid content of the blood falls or if some other cells require specific amino acids, the cells are able to release their stored amino acids into circulation. Since most of the body's cells synthesize more proteins than are necessary to support the life of the cell, the cells can reconvert their proteins into amino acids and make deposits into the amino acid pool.

Between the deposits and withdrawals by the liver and cells, there is a continual flux of amino acids in the blood and plasma. This circulating source of amino acids, as well as the potential availability of the amino acids stored within the liver and the cells, makes up the important amino acid pool. This pool of amino acids is very important in understanding why complete proteins are not necessary in the diet and will be discussed later in this lesson.

5.3 The Specific Amino Acids and Their Functions

5.3.1 Specific Amino Acids—Descriptions and Sources

The following descriptions of the amino acids include their most important functions and some of the food sources in which they are found.

ALANINE — Is a factor in regulating the adrenal glands and insuring healthy skin, particularly the scalp. It is found in almonds, alfalfa sprouts, apples, apricots, avocadoes, carrots, celery, cucumbers, grapes, lettuces, oranges, strawberries, sweet peppers and tomatoes.

ARGININE — Is used in muscle contraction and the construction of cartilage. It is essential in the functioning of the reproductive organs and in controlling the degeneration of the body cells. Arginine is found in alfalfa sprouts, beets, carrots, celery, cucumbers, lettuces, parsnips, potatoes and turnips.

ASPARTIC ACID — Is used in cardiovascular functions and in the retarding of tooth and bone destruction. It is found in almonds, apples, apricots, carrots, celery, cucumbers, grapefruits, lemons, pineapples, tomatoes and watermelons.

CYSTINE — Is used in the formation of red blood corpuscles and is involved in hair growth and the functioning of the mammary glands. It is found in alfalfa sprouts, apples, brazil nuts, beets, brussels sprouts, cabbages, carrots, currants, cauliflower, filberts, kale, pineapples and raspberries.

GLUTAMIC ACID — Is used in maintaining blood-sugar levels. Anemia will not occur if this and other nutrients are obtained and used. Glutamic acid is also a factor in the secretion of gastric juices. It is found in brussels sprouts cabbages, carrots, celery, green beans, lettuces and papayas

GLYCINE — Is a factor in forming muscle fiber and cartilage and in regulating sex hormones. It is found in alfalfa sprouts, almonds, carrots, celery, okra, oranges, potatoes, pomegranates, raspberries, turnips and water melons.

HISTIDINE — Is used in manufacturing glycogen and in the control of mucus. It is a component of hemoglobin and semen. It is found in alfalfa sprouts, applet, beets, carrots, celery, cucumbers, endive, papayas, pineapples and pomegranates.

HYDROXYGLUTAMIC ACID — Is similar to glutamic acid and is a factor in controlling digestive juices. It is found in carrots, celery, grapes, lettuces, plums, raspberries and tomatoes.

HYDROXYPROLINE — Aids in liver and gallbladder functions, in emulsifying fats and in the formation of red blood corpuscles. It is found in almonds, apricots, avocadoes, brazil nuts, beets, carrots, cherries, cucumbers, coconuts, figs, grapes, lettuces, oranges, pineapples and raisins.

IODOGORGOIC ACID — Is a factor in all glandular functions. It is found in carrots, celery, lettuces, pineapples and tomatoes.

ISOLEUCINE — Aids in the regulation of the thymus, spleen, pituitary and the metabolism. It is also a factor in forming hemoglobin, lsoleucine is found in .avocadoes, coconuts, papayas, sunflower seeds and almost all nuts.

LEUCINE — Counterbalances the isoleucine amino acid and is found in the same food sources.

LYSINE — Aids in the functions of the liver, gallbladder and pineal and mammary glands. It is also a factor in fat metabolism and in preventing cell degeneration. Lysine is found in alfalfa sprouts, apples, apricots, beets, carrots, celery, cucumbers, grapes, papayas, pears and soybean sprouts.

METHIONINE — Aids in the functioning of the spleen, pancreas and lymph glands. It is a constituent of hemoglobin and tissues and is found in apples, brazil nuts, cabbages, cauliflower, filberts, kale and pineapples.

NORLEUC1NE — Balances the functions of leucine. Synthesized within the body if needed.

PHENYLALANINE — Is involved in the functions of the kidneys and bladder and in eliminating wastes. It is found in apples, beets, carrots, pineapples and tomatoes.

PROLINE — Involved in manufacturing white corpuscles and in the emulsifying of fats. It is found in apricots, avocadoes. almonds, beets, brazil nuts, carrots, cherries, coconuts, cucumbers, figs, grapes, oranges, pineapples and raisins.

SERINE — Aids in the tissue cleansing of the mucus membrane and in the lungs and bronchial. It is found in alfalfa sprouts, apples, beets, carrots, celery, cucumbers, cabbages, papayas and pineapples.

THREONINE — Aids in the balancing of amino acids. Threonine is found in alfalfa sprouts, carrots, green leafy vegetables and papayas.

THYROXINE — Involved with the activity of the thyroid, pituitary and adrenals and in metabolic functions. It is found in carrots, celery, lettuces, tomatoes and pineapples.

TRYPTOPHANE— Involved in the generation of cells and tissues and in the pancreatic and gastric juices. Tryptophane is also a factor in the optic system. It is found in alfalfa sprouts, beets, carrots, celery, green beans and turnips.

TYROSINE — Is a factor in the development of the cells and tissues and in the generation of red and white blood corpuscles. It is also found in the adrenals, pituitary, thyroid and hair. Food sources of this amino acid are alfalfa sprouts, almonds, apricots, apples, beets, carrots, cucumbers, cherries, figs, lettuces, sweet peppers, strawberries and watermelons.

VALINE — Involved in the functioning of the mammary glands and ovaries. It is found in apples, almonds, beets, carrots, celery, okra. pomegranates, squashes and tomatoes.

5.3.2 Functions of Amino Acids

We can say that, generally, the amino acids serve five functions in the body:

1. They furnish the material from which proteins are synthesized by various cells.
2. They are used by the cells in manufacturing enzymes, hormones and other nitrogenous products.
3. They are used in constructing blood protein.

4. They may furnish a source of energy, with some of the amino acids being transformed into glucose and glycogen.
5. They aid the body in performing many functions as described in their individual descriptions.

5.4 Amino Acids—Essential and Non-Essential

5.4.1 Essential Amino Acids

Of the 23 amino acids, eight are termed essential. These are isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophane and valine. It is also said that a ninth amino acid, histidine, is essential for infants.

An "essential amino acid" is an amino acid that the body cannot produce by reduction (oxidation) from another amino acid. In other words, an essential amino acid must be found in a food source and cannot be produced within the body.

5.4.2 Non-Essential Amino Acids

The remaining 15 amino acids are termed "non-essential." but this term is somewhat misleading. They are essential to our health and well-being, but it is not essential that they be present in the foods we eat (provided that there is an adequate supply of the essential amino acids in our diet).

6. "Complete Proteins"

Now that we have an understanding of the amino acids, we can intelligently discuss one of the biggest myths in nutrition—the necessity of eating complete proteins.

6.1 Definition

A complete protein is usually defined as* a single or combined protein source which has all eight of the essential amino acids. Meat, for example, is said to be a complete protein, and so are eggs, dairy products, soybeans and many nuts. It has been suggested by some individuals and groups that a complete protein (or a combination of proteins that will provide certain proportionate amounts of the eight essential amino acids) be eaten at every meal to make sure that we obtain all eight of the essential amino acids, preferably in certain proportions.

6.2 Are Not Essential In the Diet

This idea of a "complete protein" has been so heavily advertised by special interest groups, such as the meat and dairy industries, that the average person believes he must eat meat (or at least milk and eggs if a "vegetarian") or at the very least prepare protein combinations such as grains and beans or take protein supplements in order to get enough high-quality protein. All of these beliefs are false and. in fact, may lead to practices which increase the toxicity in the body.

This is an important concept in understanding protein needs: *It is not necessary for all eight of the essential amino acids to be present in one food or even within one meal in order to obtain our full protein needs*. As we have discussed, the body has its own amino acid pool to draw from to supply amino acids which may be missing from dietary sources. Needed amino acids may be withdrawn from those already in circulation, or the necessary amino acids may be released by the liver or other cells into the circulatory system. The amino acid pool thus acts as the supplier of the essential amino acids missing from incomplete proteins. This fact is proven by observing patients after lengthy fasts who exhibited not a protein deficiency, but a restored protein balance.

Only the carnivorous animals in nature eat "complete proteins." Most of the vegetarian animals eat grass, tubers, fruits, grains, etc. and often of a limited variety. Yet they never exhibit signs of protein deficiency. In fact, protein poisoning from eating high-protein foods is far more common among Western man than is protein deficiency.

The "complete protein" idea also falls apart if we realise that the amino acids in many of the so-called complete protein foods cannot even be fully used by the body. Meat as eaten, for example, is usually only the muscle meat of the animal, which is particularly low in some of the essential amino acids. The soybean has an anti-enzyme factor which blocks or inhibits the assimilation of some of its essential amino acids. Proteins which have been cooked or heated (such as meat. fish, eggs and most dairy products) may lose-up to 50% or more of their essential amino acids due to the creation of enzyme resistant linkages caused by the cooking. So we can see that many of the so-called "complete proteins" are not even completely used by the body.

6.3 Are Present In Wholesome foods

If you are truly concerned about eating a food that has all eight essential amino acids which are in a form easily used by the body, we would suggest some of these wholesome foods.

All contain the eight essential amino acids:

Fruits	**Nuts**	**Vegetables**
Bananas	Almonds	Alfalfa Sprouts
Tomatoes	Coconuts	Bean Sprouts
Dates	Filberts	Carrots
	Sunflower Seeds	Eggplants
	Walnuts	Sweet Potatoes
	Brazil Nuts	Broccoli
	Pecans	Cabbages
		Corn
		Okra
		Squashes

There are many other foods suitable for the human dietary which also contain all eight essential amino acids.

It should be emphasized, however, that it is *not* necessary for one food or one meal or one day's intake of food to contain all eight essential amino acids. We do not need to eat meat, cheese or soybeans to obtain complete protein, nor do we need to mix grains and beans or milk and cereals to get a complete protein in one meal.

A varied diet of fruits, vegetables, nuts, seeds and sprouts can furnish us with all the essential and non-essential amino acids, along with all the other nutrients we need. And, it can do so in the most wholesome foods suitable for the human diet and in a form most readily and efficiently used.

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7. Protein And The Optimum (Life Science) Diet

So far we have discussed what protein is, why we need it and how much we require. Now it is time to examine the optimum diet for obtaining all our protein needs. A diet consisting of fresh fruits, vegetables, nuts, seeds and sprouts can furnish us with the highest quality protein in a form that is readily digested and assimilated.

The protein in this diet is best for the human body for the, following reasons:

1. It is consumed in its raw state;
2. It is free from toxins and poisons that accompany many other protein sources;
3. It is present in wholesome foods along with other needed nutrients;
4. It is easily digested and assimilated by the body; and
5. It is of sufficiently high quality and quantity to meet all the body's requirements.

7.1 Raw Protein Is The Best

The Hygienic or Life Science diet includes proteins only in their raw form. Fruits, vegetables, nuts, seeds and sprouts do not require cooking to increase their palatability or digestibility.

When proteins are subjected to high heat during cooking, enzyme-resistant linkages are formed between the amino acid chains. Consequently, the body cannot break these amino acids down for its use. What the body cannot use, it must eliminate. The cooked proteins then actually become a source of toxic matter within the body.

When wholesome protein foods are eaten raw, the body can make maximum use of all the amino acids without the accompanying toxins of cooked foods. It should be noted that some high-protein foods, such as soybeans and lima beans, have naturally occurring toxins which are said to be neutralized by heat. It is best not to eat these types of proteins since the cooking process does not totally remove the toxic effect these foods create.

7.2 Wholesome Proteins Are Non-Toxic

Proteins consumed in the Hygienic diet are also free from the poisons and toxins that often accompany other protein sources. We have already mentioned the toxins present in many legumes (which, incidentally, are best neutralized by sprouting the legume instead of cooking it). Similarly, most grains (with the exception of young fresh corn) cannot be digested when eaten raw. The cooked grains, however, still contain the toxic by-products from inhibitory enzymes present in the grains. Although legumes and grains are not a proper part of the Life Science diet, they are not nearly as toxic or poisonous as the other traditional protein sources:. meat, milk, dairy products, fish and eggs.

Not only do meat, milk, dairy products, fish and eggs contain naturally-occurring toxins injurious to the body, but they are also often poisoned during the producing and selling of them. Since the unsuitability of these foods is discussed elsewhere in this course, only a few facts about their drawbacks as protein sources need be mentioned:

1. Meat and fish contain naturally-occurring toxins due to decaying cell nuclei in the flesh as well as toxins the animal itself releases when it is killed.
2. Meat has many pesticides and additives, including but not limited to the following: methoxychlor, chlordane, heptachlor, toxaphene, lindane, benzene, hexachloride, aldrin, dieldrin, DDT, sex hormones, stilbestrol, nitrates, nitrites, etc.
3. Meat, eggs and dairy products contain over ten times as much pesticide as commercially-sprayed fruits and vegetables.
4. Eggs are usually produced on a high chemical-hormone diet and are totally nonconsonant with the human digestive physiology.
5. Milk is poorly tolerated by the majority of the world's population and contains the hormones that are produced in the cow as a result of the artificially induced and prolonged lactation. This writer personally knows a young girl who began lactating due solely to a diet that was heavy in hormone-laden dairy products.
6. Meat, fish, eggs and dairy products are the major contributors to cholesterol problems.

7.3 Wholesome Protein Foods Contain A Wide Variety of Nutrients

Proteins consumed in the Hygienic diet occur in wholesome foods which contain a wide variety of needed nutrients. Many of the traditional high-protein foods such as meat, fish, eggs, dairy products, grains, etc. are usually poor in many vital nutrients.

For example, meat is an exceedingly poor mineral source; cow's milk is so iron-poor that a growing baby must use its own stored iron supplies in the spleen for normal growth; grains are so low in sodium that people add salt to them for palatability.

On the other hand, fruits, vegetables, nuts, seeds and sprouts are rich sources of all the minerals, vitamins and enzymes we need, besides being a source of high-quality protein. The Hygienic diet provides us with a totally balanced supply of all vital nutrients as they naturally occur within whole foods. For instance, for efficient protein use, an adequate amount of carbohydrates must be present. Otherwise, the proteins are converted to carbohydrate fuel for the body and the protein is not used for its original purpose. Meat is so poor in carbohydrates that much of its protein must be used as a secondary and inefficient fuel source for the body. Fruits, vegetables and nuts, however, have a large supply of natural carbohydrates so the body can use all the protein contained within these foods for its original purpose and not create toxic byproducts through unnecessary protein conversion.

7.4 Wholesome Protein Is Easily Digested and Assimilated

Protein in the Hygienic diet is easily digested and assimilated, The Life Science diet stresses the importance of eating compatible foods for ease of digestion. Since protein digestion is the most complex gastric process, it is important that protein foods be eaten in proper combinations with other foods.

For instance, naturally occurring high-protein foods such as nuts, seeds and avocadoes should be eaten with non-starchy and leafy green vegetables for the best results. Salad vegetables aid in the digestion of concentrated proteins and "also supply high-quality amino acids of their own.

In a typical diet, proteins are often combined with starches: meat and potatoes, grains and beans, milk and cereal, and so on. Starches and proteins require completely different digestive environments and enzymes, and when eaten together, neither is fully digested or used by the body. As a result, most protein eaten in a conventional diet which ignores proper food combining is not fully digested by the body.

7.5 Protein in a Hygienic Diet Meets All Our Needs

The protein in a Hygienic diet is of sufficiently high quality to meet all the body's requirements. All essential and non-essential amino acids may be obtained from a diet of fruits, vegetables, nuts, seeds and sprouts.

A varied diet of these wholesome foods eaten in their natural state can provide all our protein requirements without concern for the exact number of grams of protein consumed. It is not necessary when eating a natural diet to be preoccupied with obtaining any specific nutrient. They are all supplied in abundance, including protein. Simply for the sake of scientific validity, and not as a regular practice, we have chosen some examples of Hygienic menus in order to analyze their protein contents.

All of these menus and suggestions have been devised to furnish 30 grams of protein to an adult weighing 150 pounds. This is equivalent to one gram per five pounds of body weight. More or less protein may be required, depending upon body weight, metabolism, body toxicity, etc.

7.6 Daily Menu Suggestions To Supply 30 Grams of Protein

Food	**Ounces**	**Grams of Protein**
Breakfast		
Grapefruit	14.0	2.0
Lunch		
Persimmons	7.0	1.6
Pear	3.5	0.7
Dates	7.0	4.4
Dinner		
Vegetable Salad	11.0	7.4
Kale	4.0	6.0
Squash	3.5	1.1
Avocado	9.0	6.8

Total prams of Protein		30.0
Breakfast		
Oranges	16.0	3.8
Lunch		
Almonds	3.0	14.0
Celery	8.0	2.0
Dinner		
Bananas	18.0	6.5
Dates	6.0	3.7
Total Grams of Protein		30.0
Breakfast		
Figs (fresh)	16.0	5.4
Lunch		
Avocado	9.0	6.8
Tomato	8.0	2.5
Broccoli	6.0	7.1
Lettuce	4.0	1.7
Dinner		

Apricots	12.0	3.0
Cherries	12.0	3.5
Total Grams of Protein		30.0

Of course, we do not suggest that food be weighed or eaten in ounces; nor should we eat according to predetermined menus. These are only suggestions as to what one person might desire to eat in a day. If he did so, he would obtain 30 grams of protein with all the essential amino acids.

It is better to eat according to hunger and body need and not according to grams, ounces or nutrient charts. When presented with a variety of wholesome foods, the body naturally selects the foods it needs to satisfy its particular requirements at that time.

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8. Questions & Answers

When I stop eating high-protein foods I feel weak. Doesn't this prove we need these foods?

> Actually, just the opposite. High-protein foods create an enormous amount of toxins in the body. When we stop eating those foods for a period of time, the body has an opportunity to eliminate those toxins. It is the elimination of the poisons from the body caused by a previous high-protein diet that causes this weakness—not a lack of protein. It is best to fast (for short periods of time or one longer fast) and allow the body to rid itself of these toxins. Then, you will feel quite strong eating those foods normally thought to be low in protein.

Is protein combining harmful. I read a good book about it.

> Unfortunately, most books on protein combining suggest eating two or more concentrated protein foods together at the same time. Different proteins require different digestive processes, and combining two heavy foods, like grains and beans for example, makes the body work too hard. Some protein combinations, like milk and cereals, for example, are so indigestible that little if any good can come from eating them. Quite simply, the ideal protein combinations are those that require the same digestive processes. Nuts and leafy greens, for example, complement each other's ammo acids and at the same time are agreeable food combinations.

I can't digest nuts and seeds. Can I still get my protein from this diet?

> Most definitely. Nuts and seeds are concentrated proteins—all the foods in the Hygienic diet contain protein. If you eat a calorie-sufficient diet of fruits, vegetables and sprouts, you can obtain all the amino acids that you require. Avocadoes are sometimes better tolerated than nuts and seeds, and they too have a high concentration of protein. In time, as your health improves, you will probably gain greater digestive abilities and you will be able to eat moderate amounts of nuts and seeds.

Shouldn't we eat a high-protein breakfast?

I can't imagine why. The idea behind a high-protein breakfast is that it will give us "energy" throughout the day. Actually, it has the opposite effect because protein digestion is the most complex digestive process of all. If you want energy in the morning, eat a high-carbohydrate breakfast of fruits. Better yet give your body a rest from food in the morning. Soon you will be able to function at a higher level of energy than when you ate a heavy breakfast.

I'm a weight lifter, and I feel that I need protein supplements. Aren't I an exception?

Weight lilting and other strenuous physical activities primarily call for an increase in the consumption of natural carbohydrates for muscle fuel. While it is true that protein is used in building muscle tissue. I must refer you to the gorilla or the elephant. These are well-muscled animals. They eat no high-protein foods, take no protein supplements and drink no special protein drinks. In fact, they build their musculature from greens and fruits. If you feel that you need concentrated protein. I suggest seeds or nuts in moderation. Athletes who eat a very high-protein diet (as is the ease with weight lifters) often develop gout later in life and experience severe kidney problems.

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Article #1: The Question Of Proteins By Arnold DeVries

The following is an excerpt from a book by Arnold DeVries called *Fountain of Youth*.

The building blocks of protein consist of 23 amino acids. Eight of these have been proven to be essential for the support of life and growth. A few others are "convenient" in the sense that animals thrive better if they get them. Proteins which contain all of the essential amino acids as well as the convenient ones, are called complete or first class. A food which contains complete protein will support life and growth if used as the sole source of protein in the diet. The foods which contain incomplete protein will not in themselves support life and growth.

It is often claimed that the difficulty of obtaining complete proteins on a fruitarian diet makes such a diet dangerous except when in the hands of an expert. But this is really not so. A child living upon the fruitarian diet could hardly keep from getting sufficient complete protein if he simply used the plant foods according to his own instinctive desires. After all, there is an abundance of plant foods which supply us with complete proteins of the highest biological value. The researches of Cajori, Van Slyke and Osborn have known conclusively that the protein of most nuts is of the very finest type and contains all of the essential and convenient amino acids. Among the nuts possessing complete proteins are butternuts, pecans, filberts, Brazil nuts, English walnuts, black walnuts, almonds, pine nuts, chestnuts and coconuts.

In addition to being complete, the protein of most nuts is of high biological quality. Investigations at Yale University and the research work of Dr. Hoobler of the Detroit Women's Hospital and Infant's Home both demonstrate the superiority of nut protein. The methods of research used by Dr. Hoobler provided a most delicate biological test of the protein of food, and it showed that the protein of nuts not only provides greater nutritive efficiency than that of meat, milk and eggs but that it is also more effective than a combination of the animal proteins.

Coconut globulin is perhaps the best of the nut proteins. Johns, Finks and Pacel of the Protein Investigation Laboratory of the U.S. Department of Agriculture found that this protein produced supernormal growth in young rats when used as the sole protein in the diet. In other words the rats grew more rapidly than when given cheese, meat, eggs, milk or any other high-protein food. McCandish and Weaver have also found that the protein of coconuts is superior to that of other foods and claim that coconut meal is of greater value than soybean meal. As the soybean is equal in biological value to any of the animal proteins, this would mean that the coconut protein is in a class by itself and is perhaps the finest protein known.

No fruitarian need have any worries over his protein supplies. Any well-balanced selection of plant foods should meet the body's protein needs very well; in fact, it will meet them far better than the omnivorous diet, for it supplies the protein in just the right amounts.

All available evidence indicates that a low-protein diet composed of plant foods is most conducive to the best health. In the 19th century two great German scientists, Justus Freiherr von Liebig and Karl von Voit, carried out experiments to determine how much protein the body requires each day. Liebig assumed that, because muscle is composed largely of protein, we should use a diet which is very rich in this dietary factor. Later Voit carried out experiments with dogs, the result of which led him to believe that the daily human requirement is 118 grams.

It is now known that the conclusions of Liebig and Voit are not accurate. Muscles can be built from plant foods, which are relatively low in protein content better than from animal flesh. And the experiments with dogs carried out by Voit can hardly be applied to human beings, for the protein requirements of dogs and other carnivorous animals differ from those of the frugivorous animals.

The most accurate present day estimates of the body's daily protein requirement vary from about 22 to 30 grams. These estimates are based upon experiments with humans. Prof. Henry Sherman of Columbia University places the daily requirement at 30 to 50 grams, but it is probable that the other estimates, which include those of the Swedish scientist Ragner Berg, are more nearly correct. However, even 30 to 50 grams of protein is not much. It could easily be supplied by a diet of plant foods.

Dr. Mikkel Hindhede, of Denmark, made the first mass application of a diet very low in its protein content to an entire nation. During World War I this doctor was made Food Administrator of Denmark. In an effort to prevent food shortages, he greatly lowered the production of livestock and fed the plant foods to the human population rather than to the animals. As an average of only 10 percent of the value of plant foods is recovered in the milk, eggs and meat of the animals, it is obvious that this involved a great saving from the standpoint of nutrition. But Hindhede eventually discovered that the diminished use of animal foods meant far more than that. Within one year's time the death rate had decreased 40 percent. In addition, the Danish people experienced less disease. When thousands of people throughout Europe suffered influenza, Denmark was not affected. The other nations, using their high-protein diets consisting largely of animal foods, suffered greatly and their people died by the thousands.

Nuts are rich in protein, but they are not used to such an extent in the fruitarian diet that the body receives an excess of this material. The normal desires of the fruitarian call for a wide variety of plant foods with no particular dependence upon nuts. Fruits are the chief foods used and the desire for nuts is in accordance with the body's need for protein. Meat, eggs, milk and cheese are all unneeded high-protein foods. Their excessive protein acts as a burden to the body and favors the development of disease.

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Article #2: Protein by Ralph Cinque, D.C.

The following article is from *The Health Crusader.*

> *"Pro-tein: any of numerous naturally-occurring extremely complex combinations of amino acids that contain the elements carbon, hydrogen, nitrogen, oxygen, usually sulfur and*

> *occasionally other elements (such as phosphorus or iron); an essential constituent of all living cells; is synthesized from raw materials by plants but assimilated as separate amino acids by animals."*

Most of what was in the past believed to be true about the body's need for protein has, in recent years, been shown to be false. This is true particularly in regard to the amount of protein the body requires.

The first well-publicized study of protein needs was done by the German physiologist Voit at around 1890. Voit studied healthy, young, physically active German men who were eating their conventional diet. He found that they maintained "nitrogen balance" on a diet containing 120 grams of protein daily. For years this was accepted as the standard.

Urinary nitrogen (in the form of urea, uric acid, creatinine and other substances) is derived almost wholly from protein metabolism. Voit assumed that the amount of urinary nitrogen excreted reflected the body's needs. He observed that when the German males reduced their protein intake significantly, they initially excreted more nitrogen than they consumed, a state he referred to as "negative nitrogen balance." Had he continued his experiments longer, he would have discovered that these same subjects would have re-established a nitrogen balance at the lowered intake level.

Today we know that it is not valid to determine needs on the basis of excretory levels. The body excretes the residues from materials it has merely disposed of. Whatever amount of nitrogen we consume in the form of protein must ultimately be eliminated. When an enormous excess of nitrogen enters the system, the body merely deaminizes the amino acids, converting the amino radicals into ammonia, urea and other by-products of protein breakdown. The remaining *ketogenic* or *glucogenic* acids then undergo combustion in the same manner as the fats and carbohydrates, rendering calories.

High-protein diets actually accelerate the turnover of proteins in the body, causing a metabolic bonfire that may mistakenly be regarded as a state of well-being. When one reduces the amount of protein consumed, it takes time for the body to re-adjust its metabolism, to reset its thermostat, so to speak. This is why a state of negative nitrogen balance may temporarily ensue.

During World War I the Danish government hired a physiologist by the name of M. Hindhede to study protein needs. The hardships of the war had made animal foods scarce and prohibitively expensive. A people who had been accustomed to eating lots of meats, eggs and milk were forced to rely upon grains and vegetables, especially potatoes, to sustain themselves.

Hindhede's task was to determine how little protein people could consume and still maintain health. He did extensive studies on young and old alike over a period of several years and concluded that 60 grams of protein a day was more than adequate to meet the body's needs. Even the lowly potato, Hindhede said, contained enough high-grade protein to supply body needs (assuming that total caloric intake was adequate).

The orthodox scientific community vilified Hindhede. (He is even left out of the 1963 *Encyclopaedia Britannica*, while Voit is in it and his discoveries praised.) Imagine, cutting the Voit standard for protein need in half! More recent studies, however, based upon verified patterns of enzyme synthesis, collagen turnover and muscle metabolism have drastically reduced the Hindhede figure. *Guyton's Physiology* (considered the standard in the field) maintains today that 30 grams of protein a day is fully adequate. Other respectable sources cite figures in the 20s, but even Guyton figure of 30 grams is significantly lower than the daily allowance of 70 grams recommended for active adult males by the Food and Nutrition Board of the National Research Council. This 70 grams includes a considerable "safety factor" (to allow for some degree of malabsorption).

Many if not most Americans are consuming in excess of 100 grams of protein a day despite the much lower recommendation. Eliminating the by-products of this protein overload places great stress upon the body. The liver and kidneys bear the brunt of the punishment. Fats and carbohydrates burn clean, leaving a residue of only carbon dioxide (which is relatively innocuous and is readily excreted by the lungs) and water (which is hardly a waste product). Protein metabolism, on the other hand, leaves non-oxidizable waste products such as urea, uric acids, etc. It is a much greater burden for the body to process great surpluses of protein than to process excesses of fat or carbohydrate. It behooves all of us to consume no more protein than we need so as to prevent premature aging and the deterioration that comes from organ abuse.

Another mistaken concept regarding protein needs has to do with protein quality. For decades it was held that only animal proteins contained a full complement of all eight essential amino acids (those we cannot synthesize from other amino acids) to meet the body's needs. Although most natural foods do contain all eight essential amino acids, the claim was that the proportion of one amino acid to the others was not right. It was observed that animals grew and matured more rapidly on animal proteins than on vegetable proteins, so vegetable proteins were declared to be inadequate. Speed of development and size were considered to be a direct reflection of nutritional thoroughness.

Today we know that weight and size are not necessarily the best indicators of health and well-being, that gigantism is just as pathological when spread throughout a population as it is when it occurs in an isolated individual. We know that an individual's body is not immediately dependent upon the content of his meals in order to maintain nutrition. Referring again to *Guyton's Physiology*, radioisotopic studies have shown that at any given time protein synthesis utilizes two-thirds endogenous amino acids (from the blood circulatory pool) and one-third exogenous amino acids (as derived from meals). In other words, in regard to protein, the body is always living upon its reserves and the purpose of eating is to replenish those reserves. It matters not whether a given meal provides the exact proportion of amino acids because the body is fully capable of withdrawing from reserve sources whatever amino acids are needed to balance out the dietary supply.

Frances Moore Lappe stated in *Diet For a Small Planet* that one must combine different proteins at the same meal or otherwise preclude the possibility of utilization. Ms. Lappe said that consuming single vegetable proteins would not provide adequate nutrition. This idea, however, has been shown to be false, not only by physiological calculations, but also by the empirical evidence gained from observations of countless numbers of people around the world who live and thrive on simple vegetable diets. The experience of Hygienists in this country also provides proof of the sufficiency of simple combinations of non-animal foods.

Many common foods that we don't generally regard as sources of protein actually supply substantial amounts. The case of the potato has already been cited. Even more impressive are green leafy vegetables, which supply 3-6% protein of high-biological value, on the average slightly more than cow's milk and several times more than mother's milk. Eating a large raw vegetable salad every day can alone supply most of the protein the body needs. Eating a variety of whole natural foods that supply an adequate number of calories would, by necessity, supply an adequate amount of protein. The problem isn't how to get enough protein, but how to avoid getting too much.

Another widely-accepted but incorrect idea is that athletes and hard physical workers require more protein than less active people. Actually muscular activity entails no increase in the rate of protein catabolism (breakdown). Urinary creatinine is considered a reliable indicator of muscle breakdown, and it has been found that physical activity does not significantly increase creatinine excretion. Nor does it significantly increase the excretion of urea. What physical activity does entail, however, is a rapid utilization of muscular glycogen. It is carbohydrate replenishment that vigorous activity calls for, not protein.

The average American consumes two to four times as much protein as he needs, and cancer (which is characterized by runaway protein synthesis) is killing one person in four. Cutting down total protein in general and animal protein in particular is a desperate need. It is important to realize that all of the marvelous amino acids contained within flesh foods were derived from the animals diet. Other animals are just as powerless to synthesize the essential amino acids as we are; and we are just as capable as they of deriving our amino acids directly from the only producing source: plants.

Article #3: The Superiority Of Plant Foods by Ralph Cinque, D.C.

This category could also be designated the *detrimental effects of animal foods*. All animal products (with the exception of mother's milk) have certain negative features which make their dietary use questionable. Consider, first of all, the effect that animal foods have upon protein consumption. Even modest use of meat, fish, eggs and dairy foods tends to create a protein overload, and this is one of the most dangerous dietary excesses.

Research has shown that high-protein diets actually promote aging and early degeneration. Too much protein exerts a tremendous burden upon the liver and kidneys. It also leaves acid residues in the blood and tissues which must be neutralized by sacrificing indispensable alkaline mineral reserves.

The process of aging is characterized by the transfer of calcium from the bones to the soft, tissues, that is, to the arteries (arteriosclerosis), to the optic lens (cataracts), to the ureters (kidney stones), to the skin (wrinkles), to the joints (osteoarthritis), to the valves of the heart (producing valvular stenosis and insufficiency), to the tendons and ligaments (producing frozen shoulder) and to other sites. This, of course, leaves the skeleton osteoporotic, leading to the development of stooped posture, a kyphotic spine, spontaneous fractures and other maladies that are so common to the elderly. High-protein diets (due to the accumulation of phosphoric, sulphuric, uric and other acids) accelerate this demineralization of bone and bring about calcific deposits in the soft tissues.

One could argue that nuts and seeds contain as much protein as meats, eggs, etc., and therefore they are as likely to create an excess. However, most people are easily satisfied eating a few ounces of nuts or seeds every day, whereas few people will eat just a few ounces of yogurt. Restaurants serve up to a pound of meat at a sitting, along with other foods. Cottage or ricotta cheese is eaten in huge quantities, even by many so-called vegetarians. The simple truth is that animal proteins tend to promote overeating more so than do plant proteins.

The relationship between high-protein diets and cancer has been clearly established by studying both animal and human populations. Remember that cancerous cells are characterized by runaway protein synthesis and rapid cellular division. Protein synthesis is accelerated by increased protein intake, so it is not surprising to discover that cancer bears a close tie to excess protein. There is a direct correlation between the amount of protein in the diet and the incidence of cancer on a worldwide basis. Americans, Australians and West Europeans, who ingest the largest amounts of protein, also have the greatest incidence of cancer, whereas the rural Chinese, the East Indians and native peoples of Latin America have the lowest cancer incidence. This is no casual relationship and it cannot be written off by blaming it on the "stress of modern life."

Animal products are loaded with the worst kind of fat—saturated, cholesterol-laden animal fat. A mountain of evidence has been accumulated relating high animal fat intakes with the development of cardiovascular disease (which is characterized by the deposition of saturated fat and cholesterol in the intimal layer of arteries), and many different malignancies including breast cancer, colon and rectal cancers, and cancer of the liver. Even such diverse conditions as multiple sclerosis and diabetes have been related to the consumption of animal fats. As we have already stated, heated animal fats have been shown to be even more carcinogenic, and considering that Americans take all of their flesh, milk and eggs well cooked, it's no wonder that one in four eventually succumbs to cancer. Paradoxically, those people who subsist on low-fat, low-protein, largely vegetarian, unrefined diets experience very little cancer. The incidence of cancer, cysts, tumors and heart disease among American Seventh Day Adventists is approximately half the national average. This is quite remarkable considering that only about half of this group are thought to be vegetarian.

Flesh, fish, yogurt and cheese contain various putrefactive products resulting from their bacterial decomposition. Putting partially-spoiled food in the body can hardly be considered a Hygienic practice, despite the arguments of the fermented food enthusiasts. Flesh also contains considerable quantities of the end products of metabolism (like uric acid) which are held up in the tissues at the time of death. These wastes are poisonous, irritating and burdensome to the body. Considering also that animal products tend to be reservoirs for pesticides, herbicides and various other drugs and inorganic contaminants, there are many good reasons to avoid using them.

Excerpt from an article by Ralph C. Cinque, D.C., entitled "Hygienic Considerations in the Selection of Foods," which was published in Dr. Shelton's Hygienic Review.

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Article #4: The Question Of Protein by Dr. Ralph Bircher Benner

> *"Believe those who seek the truth; suspect those who have found it."*
> *—Andre Gide*

Gide's admonition seems to me nowhere more applicable than in the controversy over protein. In pertinent research literature, which it has been my duty to examine critically and without bias for the last 40 years. I have seen the most respectable kind of work and such a shameful pile of ignorance, much of it written by the most respected authors, as I have never seen in any other scientific field. The conclusions contradict so fantastically that the reader finds himself holding his head in despair. The textbooks, though, naturally don't reflect these contradictions. They merely repeat the results of agreements, and a lot doesn't appear in them for the simple reason that "what may not be must not be!"

First the basic question: "How much protein does a human being need to stay healthy and perform well? What is the daily requirement, the minimum, the optimum, for a standard body weight of 70 kg?"

At the turn of the century, the respected opinions were those of Rubner and Voit: we need 120-160 grams per day. But Chittenden showed in human experiments that best performance and health were possible on 50 grams, and Hindhede set the figure at 30. Forty years later. A. Fleisch, president of the Swiss Wartime Nutrition Commission, wrote in his book *Nutritional Problems in Times of Shortage* (Basel, 1947) "No quantity in the physiology of nutrition is so uncertain and finds such extreme advocates as the need of the human organism for protein." Today, after a quarter century during which mountains of pertinent research have been published every year, the situation is exactly the same. Or worse.

In Russia, Jakolev set up a minimum requirement of 141-163 grams. Kuhnau saw an optimum of 200. Kofranyi of the Max Planck Institute proved that complete nitrogen balance and performance ability could be maintained on 25 grams, and Oomen and Hipsley found a population that develops not just full health, but magnificent muscular structure and corresponding physical performance, on a mere 15-20 grams. Elvehjem insists that the optimum is near the minimum.

In the meantime, the American Research Council's Food and Nutrition Board agreed on a daily requirement for adults of 70 grams. This number is. in fact, found in their tables. Sherman, a member of the Board, described the way this figure was arrived at. The evidence pointed toward a much lower amount, somewhere a round 35 grams. But if the protein requirement had been set so low, there would have been a public outcry. And so a corresponding "margin of safety" was adopted, and "70 grams" was published. Because the scientific basis for this was non-existent, the word "recommendation" was used instead of "requirement." But who knows how this recommendation came into being? And it was publicly interpreted as the requirement, in fact as the minimum. Thus, not long ago Stranskky and Krucker in the *Therapeutische Umschau (Therapeutic Review)* expressly listed 70 grams of protein per 70 kg of body weight as the "minimum dosage ... which is indispensable for the maintenance of vital biochemical processes." Sherman had good reason for writing about the "high-protein mentality" of nutritional specialists. It's not unusual for a doctor to prescribe three eggs and yogurt for breakfast, plus meat at each meal, and patients often fear a protein deficiency if they're asked to stay away from meat for a few days.

No less confusing is the matter of evaluating protein quality and whether animal or plant protein is preferable. According to the textbooks, vegetable protein is inferior. At least a third, preferably half, of the protein intake supposedly should be from animal sources, and the public unconsciously thinks "meat" when it hears "animal," though, of course, milk and eggs are also "animal sources." The presumed inferiority of vegetable protein lacks binding scientific proof. If scientists had studied the geography and history of nutrition as well as they conducted their chemistry and animal experiments, they would never have fallen into this dogma. There have been and there are now populations numbering in the millions in various parts of the world, it is known from penetrating research, that have lived and developed enviable health and strength for centuries and even thousands of years on a purely vegan diet.

The quality and requirement of protein depend on several factors, for instance on healing, which can considerably lower the quality of the protein. The usual heating of meats results in a significant decrease in essential amino acids. The same is true of drying and preserving. It probably isn't acceptable to eat raw meat to avoid these degenerations; but eating other raw foods contributes no small amount to reducing the total need for protein.

Raw food decreases the need for protein in yet another way: the usual, everyday diet requires 6-8 grams of protein per day for the synthesis of digestive juices. But raw foods are easily digested, thanks to the enzymic content, thus economizing on digestive enzymes. Vitamin A has a "decisive relationship to protein metabolism." Protein deficiency damage is extensively conditioned by vitamin A deficiency. An everyday diet using margarine is as a rule deficient in vitamin A. It is similar to vitamin K, which like provitamin A is most richly present in fruit and is best assimilated in a raw diet with full-value oil.

We could go on, and repeatedly come back to the central question of protein economy.

Protein economy begins with the feeding of babies. In the early 50s nature failed the test of American medicine. It was found that breast milk contains 60% less protein than the infant needs. A "formula" was created with 2 1/2 to 3 times the protein plus added salt. Today we know that it wasn't nature but science that flunked: The devastating consequences soon appeared: kidney damage, hyperacidity with osteoporosis, dangerously high phenylalanine and tyrosine content in the blood, poor protein metabolism and increased acceleration with consequent stressful disparity of physical and mental growth. An attempt has been made to transfer advertising concepts of growth and weight gain rates to actual human beings —and it fell through. There was a harmful habituation to the wear and tear of a high-protein diet. The frugal use of protein was not learned. From birth on, the child was being burdened with both "stress conditioning factors" (Selye), high protein and salt. Important developmental phases were shortened by accelerated growth and this, according to Portmann, works against the development of the "super-type" (Wellek), that human type which is most needed in our timer who is not just able to analyze but also grasp the whole of a phenomenon in its form and essence.

To return to stress theory: "It is a matter of experience," wrote A. Fleisch, president of the Swiss Wartime Nutritional Commission, in his book *Nutritional Problems in Times of Shortage* (Basel, 1947) "that increased protein consumption also lowers the number of calories taken in." The stimulating qualities of protein—especially meat protein—lead to over-estimation and over-consumption, which are not justified by nutritional physiology because they lead to "luxuriant combustion"—an inefficient "burning off" of excess. There must be another, especially stimulating, irritative effect of eating meat above and beyond the irritative effects of excess protein (specific-dynamic effect) and the extractive and general products of roasting. This irritative effect, which has since been isolated, is caused by uric acid, a very strong irritant on the sympathetic nerves. And so in meat we have a strongly hypermetabolizing three- to four-fold irritative effect.

This has contributed to its reputation as "strength food," far above its actual nutritive value. ("Meat broth" means the same as "strength broth" in German.)

Our contemporary situation demands the mobilization of our best powers to overcome the crisis of existence in our culture. I believe we have reasons for reconsidering our use of stimulants, which has become continuous and excessive. Continuous prickling of the ergotropic nervous system, which seems to be a vital necessity in these times, is no sign of strength. It stands in the way of the regenerative work of the trophotropic nervous system. This is the main reason why we renounce all stimulants including meat. Regeneration demands detoxification and metabolic economy. This is also true in athletics, where the last degree of performance must be extracted. This refers not only to alcohol, about which the French learned bitter lessons at two Olympiads, and nicotine and other stimulants—it is just as true of meat, and this is proved by the proportionally unheard-of string of international athletic records set by vegetarians. The advantages show up with special clarity in high mountain exercise. Some typical consequences of conversion to a protein-economical, full-value diet are a 10-20% reduction in oxygen requirement and a 30% lower calorie requirement with correspondingly improved performance, recovery and adaptation ability. I personally was surprised to find this out while climbing 17,343 foot high Ixtacihuatl. Indian populations living at 13,000 feet in the Andes highlands hold stubbornly to their ancient carbohydrate diet "in spite of the well-meaning advice from the!" World Health Organization Council. They race bicycles at that altitude for distances of 150 miles at an average speed of 25 mph. Similarly the Tarahumara Indians of Mexico run 90 miles at seven mph, with no heart expansion or shortness of breath. Experience has taught this highland people to stick to carbohydrates. Even rats that were taken to high altitude's suffered deficiencies in nutritional utilization on a high-protein diet, but not on lower-protein fare. The luxuriant combustion and hypermetabolizing effect of an excess-protein diet occur at sea level too, but they have immediate practical significance in the high mountains.

A further turn was taken in the protein question with the recent rise of amyloidose research. Schwarz, a professor of physiological pathology in Frankfurt, described the storing and slowly destructive effect of the penetration of tissues and organs by amyloid. This is a waxy, fatty protein mixture considered "the most important and perhaps decisive cause of decline with age," in so-called diseases of old age and specifically, atheromatosis. Katenkamp and Stiller called this amyloidosis "extraordinarily pervasive in every kind of deposited tissue."

In amyloidosis must lie the key to healing of those diseases of old age which have previously been casually unclarified. It is clear that amyloid consists exclusively of degenerate protein reduction by productions which could be the result of excess protein. Excess protein must be quickly burned, but cannot be sufficiently eliminated. Amyloid contains rich amounts of the amino acids tryptophane and tyrosine. Five to ten times as much tryptophane and five to seven times as much tyrosine are found in the dry substances of meat as that of vegetable protein sources. It remains to be investigated whether other sulphurous amino acids play a similar role, and what the amyloid situation is among populations living on protein-frugal diets. All the essential amino acids, especially the sulphurous, can cause damage in overdoses, through creation of poisonous substances or other disturbances. On 70 grams of protein a day containing all the essential amino acids, there can be excessive intake of some amino acids. The connection between amyloidosis and excess protein is easily proved by animal experiments. It is produced with special ease in case of high cholesterol intake and intestinal poisoning (pathological microorganisms in the intestines create amyloid-dissolving antigens). Amyloid is created, according to Katenkamp and Stiller, in wrongly nourished mesenchyme cells with increased protein production and formation of "pathologically fine fibrillary sclero-protein"; here we should remember that regeneration of the mesenchyme as well as that of pathological intestinal flora are best accomplished by raw diet.

In this connection it should be mentioned that in investigations at Harvard, an excessive amount of the aromatic amino acid methionine was discovered to favor the formation of nearly insoluble protein bodies, and hardening of the inner surface of the arteries. The human need for methionine, which is found most abundantly in meat, egg and cheese protein, and which is three times as abundant in cow's milk as in breast milk, has been set much too high (at 930 mg/day) by the F.A.O. according to Kofranyl and is actually just 273 mg/day. Excesses of the amino acid tryptophane—which, as mentioned, is seven to ten times more richly present in meat and eggs than in plant sources—are, as proved on radioactive molecules, eagerly, consumed by cancer cells, which produce serotonin from it, block tryptophane metabolism and have been demonstrated to lead to a strong increase in cancer-producing ortho-aminophenols.

Bone atrophy (osteoporosis) is extraordinarily widespread among us; it begins in childhood, is almost considered a normal accompaniment of aging and is conceived as quickly increasing. Extensive scientific literature deals with the possible causes. Wachmann and Bernstein of the Department of Nutrition at Harvard University investigated all previous research results in the Lancet and arrived at the considered conclusion that a protein-rich, and especially meat-heavy diet plays the strongest role in the genesis of osteoporosis, more so even than denatured carbohydrates and fats. It is caused when the function of the bone system as a reservoir of basic minerals is continually overstrained. This corresponds to the fact that athletes who eat much meat are especially susceptible to arthrosis. Helas found among 20 professional football players who were observed for 18 years, 100% incidence of ankle arthrosis and 97.5% incidence of knee arthrosis. A negative lime balance is easily produced in experimental animals by increased protein supply, and they then die of disease associated with lime deficiency. The Walker group found in investigation among the Bantu tribe, that on an almost purely plant-source, low-protein diet there were no signs of calcium deficiency and no weakening of the bones.

Further work during recent years makes Ragnar Berg's acid-base theory, once set aside, again pertinent. The eminent importance of potassium and magnesium is emphasized by several authors. These two basic mineral substances are known to be deficient in an everyday diet rich in meat, eggs, cheese, fat, sugar and grains, but richly present in a full-value diet rich in vegetables and raw foods. One-sided chemical fertilization and refinement detract from these good effects. Also, animal protein-rich diet and alcohol consumption both hinder the absorption of magnesium from the intestine and correspondingly raise the magnesium requirement. The "magnesium deficiency syndrome." which has been prevalent now for 20 years, includes arteriosclerosis, high blood pressure, migraine, eclampsia, the leaching of calcium from teeth and bones, liver damage and disturbance of the neuro-muscular vessel system (Holtmeyer).

Strangely enough, the old Haig uric acid theory is also making a comeback. It seemed at one time to have been rendered invalid when no raised uric acid level was found in the diseases listed by Haig, except for gout. But now it has turned out that the reason for this was simply the introduction of new medicines for rheumatism, and that the evaluation of all uric acid tests on blood must be preceded by at least eight days during which anti-rheumatism medicines have been omitted. Uric acid has again assumed a position among the chief factors causing arterial blockage diseases—including rheumatism, kidney disease and cancer, as well as the amyloid formation, discussed above.

Naturally, the kidneys a re deeply involved in all the above factors from birth on in the child, and this has been especially true since the early '50s, when protein and salt-enriched baby foods were introduced. No wonder athletic medicine services in the U.S.A have had to treat an extraordinary number of kidney injuries and kidney breakdowns after athletic competitions and that the American Heart Association arrived at the conclusion that "almost all instances of these diseases"—arteriosclerosis, high blood pressure and coronary disease "are significantly related to the kidneys," and that, therefore, "more than half of the population die of kidney disease."

Only two more subjects still deserve a short mention, since they make the protein question particularly topical at this time.

First, environmental pollution. The individual has no or insufficient, effect on changing this situation. But what he can do is to put the defense and detoxification organs of his own organism in the best possible condition first by detoxifying his body, and then by making it more powerfully reactive by dietary economy and raw food. Not everyone can supply himself with unsprayed and rationally fertilized food, but he can and must consider that meat and eggs have been far more contaminated since the 1960s than plant products—a result of conversion to industrial production. Anyone who fully understands the extent to which, for example, meal is treated will certainly forego these products. Besides pesticides, meat is treated with tetracycline, chloramphenicol, estrogen, tranquilizers, preservatives, plus metabolic toxins of the fattening process.

Second, and finally, what Sherman wrote two decades ago now applies to a much greater extent. "Feeding grain and potatoes to animals represents an enormous waste of nutritional production potential; and more than that, every person with a social and international sense of justice must become most deeply conscious of the fact that our excessive meat and egg consumption is a leftover from the times of colonial exploitation habits. If we ourselves do not see the provocative injustice in this situation for poorer classes and peoples, they themselves will certainly feel it with increasing intensity."

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Lesson 9 - Vitamins: The Metabolic Wizards Of Life Processes

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1. Prologue

1.1 The Role Of Vitamins In Human Nutrition: A Hygienic View

1.1.1 Misconceptions About Vitamins

The role of vitamins in nutrition is one of the most widely misunderstood subjects in a study of nutritional science. Today, in this age of technology, industry, food products, pills, powders and potions, vitamin supplementation is considered essential for good health in most circles—from the medical circles to the holistic groups and naturopaths. Some advocate a multiple vitamin each day from the drug store; others promote several bottles of a variety of vitamin tablets from the natural foods stores or distributors. Some say we also need to get a balanced variety of minerals in our supplementation program, and others say we also need a protein powder supplement. Both of the latter emphasize the need for a "complete" nutritional supplementation program and not just vitamins alone.

The cons of using food supplements and why they are harmful and unnecessary will be treated in greater depth in a later lesson. Here we will only note that the current preoccupation with vitamins is totally inappropriate and that, while vitamins are necessary, they are amply supplied in natural raw foods of our biological adaptation.

Keep in mind, also, that foods are not to be prescribed in place of supplements as "cures" for symptoms that people often interpret as vitamin and other nutrient deficiencies. Foods should be consumed as much for their carbohydrate (calorie) content as for their vitamin, mineral or protein content. Also, the importance of the water and the undiscovered nutrients in whole fresh foods should not be underestimated. At all times foods should be considered in their entirety and not as specific sources of specific vitamins and other nutrients.

In the following lesson, foods particularly rich in each vitamin will be listed, but this is not so you or your clients can eat certain foods to obtain certain vitamins; rather, it is just to show you how the foods of our biological adaptation (fresh fruits, vegetables, nuts and seeds) provide adequate amounts of all the known vitamins that we need.

1.1.2 The Quantity of Vitamins We Need Is Small

In a national bestseller, *Everything You Always Wanted To Know About Nutrition*, Dr. David Reuben pooh poohs our preoccupation with vitamins by pointing out that if we took all the vitamins we need in the quantities recommended (which is much higher than actually required), a whole year's supply would not fill a thimble!

For further perspective as to the minuteness of our quantitative needs, let's look at vitamin A. It is recommended that the average adult get 5,000 international units daily to meet needs. One IU weighs one microgram, or one-millionth of a gram, and there are 28 1/2 grams in an ounce. Therefore, 5,000 IUs of vitamin A equal one 5700th of an ounce. If 5,000 IUs were supplied in the diet every day, it would be more than fifteen years before we would have consumed a single ounce!

Or look at vitamin D. This vitamin is formed by the interaction of sunlight and ergosterol in the skin. Our needs are met by so little sunlight that Dr. Reuben has pointed out that while a vitamin D deficiency could occur to a black nun living in Norway, it is an unlikely occurrence in most cases.

Dr. Reuben has observed that, despite the atrociousness of most diets, it is difficult to keep from getting enough vitamins. We can't avoid repleteness of some vitamins even if we try. Let's examine vitamins B-12 and K as examples. Scientists who tried to test for these deficiencies could not create them. Why? Because bacteria in the gut formed an ample supply of these vitamins.

Or examine vitamin C. A single ounce will meet our needs for about 2 years. Despite a denatured diet of deranged and depleted foods, most Americans get enough vitamin C from vegetable salads, slaws and fruits to meet needs. Scurvy hasn't been observed in ages, though some symptoms of vitamin C deficiency have been noted in smokers.

Americans think in terms of deficiencies when, as Dr. Reuben says, almost no American physician has ever witnessed a case of beriberi, pellagra, rickets, scurvy or other disease due to vitamin deficiency.

1.1.3 Toxemia, Not Deficiencies, Causes Most Diseases

We Hygienists recognize that deficiency is not the problem nearly so much as is toxemia. The reason why toxemia and not deficiency is the cause of symptoms is twofold. First, some vitamins are depleted because they play a role in the body's detoxification of harmful substances within. Vitamin C is a notable example of this. Secondly, drugs and drug-like substances, such as coffee, teas, colas, aspirin, medications, junky foods, sugar, alcohol, birth control pills and, in fact, all non-food substances, interfere with the body's absorption and/or utilization of vitamins and other nutrients. Also, certain foods contain toxic substances and should not be consumed. Notable examples of this are foods containing mustard oil—onions and garlic.

The causes of symptoms of ill health that are blamed on vitamin and mineral deficiencies are really drugs and drug-like (toxic) substances ingested—and not vitamin or mineral deficiencies at all! This is a key fact to keep in mind. So, instead of prescribing food supplements or recommending certain foods containing large amounts of certain vitamins (or minerals), which is legally outside the purview of non-physicians anyway, the Hygienic practitioner will simply have the client eliminate the causes of toxemia and consume a wholesome natural diet that contains no toxic substances. Not only will the real causes of disease symptoms be removed and health be regained, but also a natural diet of all or mostly raw foods of our biological adaptation will supply ample amounts of all the vitamins we need—without the expense or harmfulness of supplements.

Let's look at vitamin B-12 as an example. Its insufficiency results in pernicious anemia. Most sufferers are meat-eaters who obtain B-12 from their diets. So what gives?

Toxemia has impaired the body's ability to absorb vitamin B-12. The body has numerous substances that are engaged in active transport of nutrients from one medium to another through separating membranes. The transport mechanism for vitamin B-12 is called *intrinsic factor*. It is loss of this factor that accounts for B-12 deficiency and anemia. Pernicious anemia is due to toxemia, not deficiency. A fast will restore the lost faculty in almost all cases, and the anemia disappears even before the end of a fast! Such are the powers of the body when liberated from the baneful influences of toxicity.

Vitamins are absolutely essential in our diet—make no mistake about that. But, if we're on a proper diet of mostly fruits with some vegetables, nuts and seeds, we do not have to worry any more about vitamins or other nutrients than we have to worry about each heartbeat, the secretion of bile, or millions of other physiological processes.

1.2 Hygienic Perspectives On Vitamins Compared With Medical Perspectives — Marti Fry

As this is a course not just in nutritional science, but also in Natural Hygiene, or Life Science, it is appropriate that we point out how the Hygienic perspective on the subject of vitamins differs from the generally accepted conventional perspective.

1.2.1 Attempts To Be Scientific

Thanks to scientific research and experimentation, we have learned a great deal about vitamins (and other nutrients). In fact, thanks to the efforts of "science," we have "discovered" the existence of vitamins. We are now able to make a large variety of statements about vitamins—their functions in the body, approximate amounts needed and many other interesting facts.

However, it should be kept in mind that "science" or technology is also responsible for the refining and processing of foods that led to the discovery of vitamins. What the texts fail to note overtly is that many humans (and animals) have suffered (and, in some cases, still suffer) because of the tampering with foods by food industries, who are usually in intimate association with the scientific laboratories. Oftentimes the scientific studies done relative to nutrition are done in laboratories and research centers owned, operated and/or supported by the food processing and refining firms.

The point is that "science" does not always do the favors for humanity that they lead most of us to believe they do. Much suffering has stemmed from "scientific meddling" in the regular order of nature. This is not to condemn the efforts of scientists as much as it is to enlighten students of nutritional science of certain realities. We are not saying that scientists should stop studying phenomena, but that their approach and motives ought to be changed so that humans are truly benefitted by their efforts instead of allowed to believe they are benefitted while much suffering and harm is done. A shockingly high portion of scientific study is done to discover new drugs (poisons) to "cure" diseases, when, in fact, diseases cannot be "cured." The causes of disease must be removed and then the body will spontaneously heal without interference by drugs, medications, herbs, colonies or anything else.

1.2.2 The Scientific Approach to Vitamin Study

A look in physiology and nutrition texts shows that, while many facts about vitamins have been discovered, much more is unknown than is known. Not only that, but much of what is "known" is based on studies in which many animals and some humans have had to suffer. The rationale is that, in the long run, a greater number of living creatures, especially humans, will suffer less due to the greater store of knowledge.

However, this rationale is to be seriously questioned because the reality is that humans suffered less disease before "science" became so advanced and before technology started refining rice and flour and sugar and marketing these products, along with milk and other unwholesome foods, to the people of the world. In other words, humans, in their pristine state, do not need the supposed benefits of so-called "science" to maintain radiant, sickness-free health. Fresh, untampered-with raw foods of our biological adaptation, not from the food industries, but from the garden and trees, will amply provide all our needs without the need for scientific studies. We certainly do not object to studies that uncover interesting information for our entertainment and use, but we do object to the thinking that we are dependent on and forever grateful to "science" for making it possible for us to live healthfully. We can live much more healthfully without science—at least the way science's priorities stand today.

This is the basis of Natural Hygiene. It involves a simple, wholesome lifestyle and diet that is in full harmony with our needs. Diseases will not occur if the simple, basic laws of life are not violated. If orchards predominated our lands instead of cattle, drug industries, food industries, chicken farms and dairy farms, etc., it would be a lovely and healthful world!

Life Science is, however, scientific. The basic laws of life and principles of Life Science are all provable in scientific laboratories. Many have already been proved. There is absolutely nothing unscientific about Hygiene. In fact, the attempts of so-called "scientists" to discover drugs to "cure" diseases is unscientific in that these efforts are not based on the laws of life. As stated earlier, the ingestion of drugs and medications can result in only harm and can lever, under any circumstances, bring about true health.

As stated in Lesson 5, a tiny cell has more intelligence than a team of scientists seeking "cures."

1.2.3 The Deficiency Approach to Vitamin Study

Perhaps the most revolting aspect of the medical/scientific approach to vitamin study is the preoccupation with deficiencies, and especially with deficiency diseases. The grotesque photos in texts of people suffering with various "deficiency diseases" graphically illustrate the distorted perception the medical scientists have of the role of vitamins—"to prevent horrible deficiency diseases." That whole concept of "prevention" is erroneous, as has been stated in earlier lessons. Deficiency diseases are not normal or natural and do not have to be "prevented." We have only to live in accord with the laws of life and nature, and we will be healthy—as nature intended.

A conventional/medical study of vitamins, as presented in textbooks, leads people to think in terms of deficiencies when they think about vitamins. But the study of vitamins should not be a study of deficiency diseases; it should be primarily a study of their role in human nutrition. In fact, identifying individual vitamins and naming the deficiency, disease connected with the lack of each is totally unneccessary. All we really need to know is that they are present in sufficient quantities in natural foods and that we will meet our needs for them on a natural diet of fruits, vegetables, nuts, sprouts and seeds. It is also well to realize that food processing, storage and preservation destroy Vitamins in foods and that drugs and drug-like substances deplete vitamins in the body and interfere with their absorption and utilization.

2. Introduction

2.1 Definition of Vitamins

Vitamins are organic compounds which the body needs to function normally. They cannot be manufactured by the body (with few exceptions); therefore, they must be supplied by food. In their absence, disease will develop.

2.2 Discovery of Vitamins

The first vitamin was discovered in 1897 by a Dutch biologist named Eijkman. He found that when bran was removed from rice, people consuming the refined rice developed beriberi, a serious disease. Eijkman also observed that when people ate the rice with the bran intact, no beriberi resulted. This finding directed Eijkman and other scientists to chemically analyze rice for the substance which, when not present in adequate amounts, resulted in the development of beriberi. Thiamine, named vitamin B1, was discovered to be this mystery substance.

In the following years, scientists found that there are many chemicals in food which are necessary for maintenance of health. One by one, as they were discovered, names were given to these chemicals As a group, they were named "vitamins."

2.3 Sources of Vitamins

It is crucial to understand that scientists have not isolated every substance in food that is essential for normal functioning of the body. Thus, we must depend on food, not vitamin pills, for good nutrition. There is no vitamin pill that contains all the vitamins the body needs.

2.4 Function of Vitamins

Vitamins function in the body as coenzymes. To understand this function, consider an analogy. Suppose you were trying to build a house. The size of the house is strictly limited by your budget. You begin the process by buying the major raw materials: cement, wood and outdoor siding material. Once you have laid the foundation and framed the walls, you go to the store and buy all the windows you need. The number of windows is obviously limited by the spaces you have built in the walls for windows. For proper function of the house, you need windows.

Vitamins are like the windows in the house. Your body has a need for vitamins (windows) when it is trying to manufacture something: new tissue, energy, etc. (a house). Your body determines the exact amount it wishes to produce and brings together just enough raw materials for the purpose of construction (cement, wood, etc.). The body manufactures the necessary amount of apoenzyme (window frame) to combine with the vitamin coenzyme (window) to form an active enzyme. The active enzyme then makes a chemical reaction progress quickly (it catalyzes the reaction) leading to the formation of the desired end-product.

2.5 Vitamins Are Inert

"Vitamin function" is a commonly used phrase, as is "vitamin action." Yet these expressions convey a misconception Vitamins cannot act, since they are inert chemical substances. In any and all physiological processes, it is the body that acts. Vitamins are used by the body for many purposes. Usually, vitamins combine chemically with other substances, thereby fulfilling the mandate of the body. It is crucial to remember that it is the body that acts on the vitamin, not the vitamin that acts on the body.

2.6 Vitamins Work Together and With Other Nutrients

Although this lesson discusses vitamins exclusively, it is important to realize that vitamins do not function alone or in a vacuum within the body. Vitamins work together; for instance, production of energy by the body when food is burned in the cells depends not only on vitamin B1, but also on vitamins B2 and niacin.

Furthermore, vitamins work together with all other nutrients such as fats, carbohydrates and proteins. For instance, vitamin B6 is needed for the normal metabolism of protein. So, even though this is a lesson on vitamins, don't think of vitamins alone when you consider the functioning of the body. Vitamins are only one small part of the metabolic machinery of the body.

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3. A Study Of Each Individual Vitamin

The discovered vitamins will be studied one by one. You will learn about their discovery, measurement, chemistry, physiology, functions, requirements, sources, effects of deficiency and effects of excess.

3.1 The Fat-Soluble Vitamins

Vitamins can be categorized according to their properties. The two basic groupings of vitamins are the fat-soluble vitamins (A, D, E and K) and the water-soluble vitamins (vitamin C and the B-complex vitamins).

Certain common characteristics distinguish the fat-soluble vitamins from the water-soluble vitamins:

1. Fat-soluble vitamins are absorbed into the body as fat and with fat and are soluble in fat solvents (alcohol and ether), whereas water-soluble vitamins are soluble in water.
2. Fat-soluble vitamins are excreted mainly by the fecal pathway, whereas water-soluble vitamins are excreted via the urinary pathway.
3. A text which states that the fat-soluble vitamins are stored in the body but that water-soluble vitamins are not goes on to state in a later chapter that vitamin C, a water-soluble vitamin, can be stored. They state, "It has been shown that human beings are able to store some vitamin C; healthy, well-fed subjects store about 1500 mg. On vitamin C deprivation diets, these stores are used at an average rate of three percent of the existing reserve (pool) per day and supply the body with vitamin C for a period of about three months." As you can see, significant amounts of this vitamin can be stored in the body.

3.1.1 Vitamin A

a. *Discovery*. This fat-soluble vitamin was discovered by McCollum and Davis of the University of Wisconsin and by Osborne and Mendel of Yale University in 1913. They found that rats on a diet with lard as the only source of fat developed eye problems and failed to grow. It was later found that a shortage of carotene, the yellow pigment of plants, led to the development of these problems. Carotene is converted into vitamin A within the organism.
b. *Measurement*. Vitamin A is measured in international units. A complicated formula exists whereby micro-grams (1/millionth gram) of vitamins are converted into international units (IUs). Amounts of vitamin A in foods and requirements for this vitamin are expressed as IUs.

c. *Chemistry*. Vitamin A is relatively stable to heat but is easily destroyed by ultraviolet radiation (as in sunlight). Chemically, it occurs in many forms: retinal, retinol and retinoic acid.

d. *Physiology*. Most dietary vitamin A is in the form of carotene, the yellow pigment of plants. About half of the carotene consumed is converted into vitamin A in the body and the other half is utilized as a hydrocarbon. Because vitamin A is fat-soluble, if the diet is devoid of fat, or if too little bile is secreted by the liver (bile is needed to digest fat), or if too little thyroid hormone is secreted, there will be poor absorption of vitamin A in the intestines. This vitamin is stored in the liver.

e. *Functions*. Vitamin A is used by the body in many important ways. The body needs it to maintain normal vision in dim light. Vitamin A is also needed for synthesis of mucus, a secretion the body uses to maintain the health of membranes lining the eyes, mouth and gastrointestinal, respiratory and genitourinary tracts. When enough vitamin A is present, when other nutrients are sufficient, and when the body is not toxic, these membranes will be in a high state of health. However, if there is not a vitamin A deficiency, taking more of this vitamin will not protect the body from diseases nor "cure" diseases. This is a myth that has been scientifically disproven many times.

Vitamin A is also needed for normal skeletal and tooth development, for formation of sperm, for the normal progression of the reproductive cycle of the female, for formation of the adrenal hormone cortisone from cholesterol, and for maintenance of the stability of all cell membranes.

f. *Requirements*. Male adults need 5000 IUs, female adults 4000 IUs, pregnant or lactating females 5000 IUs and infants about 1/10th the adult requirement of vitamin A per day. Infant needs are easily supplied by breast milk.

g. *Sources*. Healthful sources of vitamin A include dark green leafy vegetables (lettuce and other greens), green stem vegetables (broccoli, asparagus), yellow or orange vegetables (carrots, etc.) and yellow or orange fruits (peaches, cantaloupe, etc.).

h. *Effects of deficiency*. A deficiency of vitamin A is rare in the U.S. and is usually only seen in chronic diarrhea from colitis and other such diseases, liver disease or use of mineral oil. A deficient person manifests night blindness and degeneration of membranes (eye, nose, sinuses, middle ear, lungs, genitourinary tract).

i. *Effects of Excess*. Intake of excess vitamin A results in toxicity (poisoning), causing a loss of appetite, increased irritability, drying and flaking of skin, loss of hair, bone and joint pain, bone fragility, headaches and enlargement of liver and spleen. An overdose of this vitamin is about 50,000 IUs per day in adults and 20,000 IUs in infants.

3.1.2 Vitamin D

a. *Discovery*. Vitamin D was chemically isolated in food in 1930. For hundreds of years previous to the 20th century, people had used cod liver oil to supply, a factor which the body needed to maintain normal bone structure. Scientists in the 1900s were able to identify vitamin D as the necessary substance.

b. *Measurement*. Vitamin D requirements and the amounts present in foods are expressed in international units. One international unit (IU) of vitamin D is equal to 0.025 meg (a meg is one millionth of a gram) of vitamin D.

c. *Chemistry*. Chemically, vitamin D is very stable. Neither heat nor oxygen will destroy this substance. Vitamin D is produced when the skin (or flesh) of animals is exposed to ultraviolet light.

d. *Physiology*. Like vitamin A, vitamin D is fat-soluble. Therefore, bile salts are needed for absorption. Vitamin D is stored mainly in the liver. Significant amounts of this vitamin are formed by the skin of human beings exposed to sunlight.

e. *Functions*. The body needs vitamin D to maintain normal calcium and phosphorus metabolism in the body and to maintain the health of bones and teeth. With adequate D, the body is able to regulate the absorption of calcium and phosphorus from the intestines and the amount of phosphorus eliminated through the kidneys.

f. *Requirements*. Men, women and children need approximately 400 IUs of vitamin D per day. Moderate exposure to sunlight allows the body to produce all the vitamin D it needs. In the summer the body produces excess vitamin D and stores it in the liver. In the winter, when there is less sunlight, the body draws upon the stores of D in the liver to maintain normal vitamin D metabolism.
g. *Sources*. Clothing prevents formation of D in the skin with sunlight exposure, and window glass, fog and smog may also interfere. There is no scientific evidence, however, that sunlight exposure will not allow the body to produce sufficient vitamin D if the skin is exposed to light for enough time. One-half hour per day in the warm months should suffice.
h. *Effects of deficiency.* A deficiency of vitamin D will, result in rickets in infants and osteomalacia in adults. The body cannot maintain normal bone structure when too little vitamin D is present. Rickets is characterized by soft and fragile bones, especially in the legs; curvature of the spine; enlargement of certain joints; poor development of many muscles; irritability and restlessness; poor dental structure; and abnormality of the blood. Osteomalacia also is characterized by soft bones, plus leg and lower back pain, general weakness, and fractures that occur without significant trauma.
i. *Effects of excess*. Excess vitamin D results in nausea, diarrhea, loss of weight, frequent urination, all in mild cases; kidney damage, calcium deposits with damage to the heart, blood vessels and other tissue, in severe cases. A dose of vitamin D approximately 100 times the amount needed will cause poisoning and the above symptoms.

3.1.3 Vitamin E

a. *Discovery.* Shortage of another organic compound which dissolves in fat solvents was discovered in 1922 to result in destruction of the fetus in the uterus of animals. In 1936 vitamin E was chemically isolated as this substance.
b. *Measurement*. Amounts of vitamin E are expressed as international units (IUs). One IU is equal to 1 mg (1/1000th gram) of vitamin E.
c. *Chemistry.* Vitamin E is relatively stable but will break down on exposure to ultraviolet light and when exposed to rancid fats, lead or iron.
d. *Physiology.* Since vitamin E is a fat-soluble vitamin, bile salts are needed for absorption (see under vitamin A). Most vitamin E is stored in muscle and fat tissue.
e. *Functions*. The body uses vitamin E mainly as an antioxidant. It chemically combines with oxygen, and, as a result of this, other organic compounds are not destroyed by oxygen. Scientists think that vitamin E is also needed for production of certain essential tissues, especially red blood cells.
f. *Requirements*. The amount of vitamin E needed for normal body function is about 15 IUs per day. Fortunately, one of the richest sources of E in nature is un-saturated fats (oils, as found in seeds and nuts). This vitamin is also found in fruits, vegetables, sprouted grains and sprouted legumes.
g. *Effects of deficiency.* Symptoms of deficiency in animals continue to baffle scientists. When E is in extremely short supply, disease in many areas of the body results. There is breakdown of the reproductive system, muscular system, nervous system and vascular (blood vessel) system. But the conditions needed to produce such destruction in animals involve such extreme deficiency that scientists think no such problems develop in human beings from a dietary deficiency of vitamin E. Therefore, impotence, infertility, heart disease and other such problems in people are not from vitamin E deficiency and will not be helped by taking excess vitamin E.
h. *Effects of excess*. Excess intake of vitamin E, long thought to be harmless, has now been implicated in the causation of cholesterol deposits in blood vessels, elevated blood fat levels, interference in the blood-clotting process, enhanced growth of lung tumors, interference with vitamin A and iron, disturbances of the gastrointestinal tract, skin rashes, interference with thyroid gland function and damage to muscles. Megadoses of vitamin E are certainly not to be

considered harmless.

3.1.4 Vitamin K

a. *Discovery*. Vitamin K was discovered in 1935. A doctor in Scandinavia found that this substance was necessary for normal clotting of the blood.
b. *Measurement*. Amounts of vitamin K are expressed as micrograms, one millionth of a gram.
c. *Chemistry*. Vitamin K is the fourth of the fat-soluble vitamins (others are A, D and E). It is easily destroyed by light but is stable to heat.
d. *Physiology*. Vitamin K is a vitamin that does not need to be supplied in food. Bacteria which live in the human intestine are fully capable of producing the vitamin K needed for normal functioning of the bloodclotting apparatus. Vitamin K, being fat-soluble, is absorbed with fat and as a fat and therefore requires the presence of bile salts.
e. *Functions*. The liver produces certain organic compounds needed for the bloodclotting process. Vitamin K is required by the liver for production of these compounds.
f. *Requirements*. A dietary requirement has never been set for vitamin K because it is supplied by intestinal bacteria. A deficiency of vitamin K is unknown.
g. *Sources*. Dietary sources of vitamin K are kale and other green leafy vegetables, cabbage and cauliflower.
h. *Effects of deficiency*. A deficiency of vitamin K results in failure of the bloodclotting system, resulting in hemorrhage. This is found only in premature infants of mothers taking anti-bloodclotting drugs, in people with intestinal malabsorption and patients on sulfa drugs and antibiotics (which kill the intestinal bacteria that produce vitamin K). Intestinal malabsorption can occur as a result of liver or gallbladder disease, severe diarrhea, colitis and some other conditions; it can result in deficiency of any essential nutrient.
i. *Effects of excess*. The effects of excess vitamin K are unknown.

3.2 The Water-Soluble Vitamins

3.2.1 Vitamin C

a. *Discovery*. Vitamin C, also known as *ascorbic acid*, was isolated chemically in 1932 at the University of Pittsburgh. Feeding this organic compound was found to prevent scurvy. Almost 200 years previous to the chemical identification of vitamin C, Dr. James Lind, a British physician, found that scurvy would not occur if citrus fruits were consumed.
b. *Measurement*. Amounts of vitamin C are expressed in milligrams, 1/1000th of a gram.
c. *Chemistry*. Vitamin C and all the B vitamins dissolve in water but not in fat as with A, D, E and K. Vitamin C is more easily destroyed than any of the other vitamins. Heat, light, copper, and iron are especially destructive.
d. *Physiology*. Most forms of life synthesize the vitamin C they need and thus do not need a dietary source. However, humans do not synthesize this vitamin. When vitamin C is supplied to the body, the tissues quickly become saturated and excesses are eliminated in the urine.
e. *Functions*. The body uses vitamin C in many important ways. The main one is in the formation of connective tissue, the underlying structure of bone, cartilage, blood vessel walls and most other tissues. Without vitamin C, the body cannot rebuild injured tissue.
   There are many other important roles of vitamin C: It is needed for normal cellular metabolism and enzyme function, for the normal metabolism of iron and folic acid (a B vitamin) and for the formation of adrenal gland hormones.

f. *Requirements*. There is much controversy about the requirement for vitamin C. The recommended dietary allowance is no more than l/10th of a gram, yet Linus Pauling states that we need 100 times that amount. Scientific evidence clearly states that l/10th of a gram, 100 milligrams, is more than enough. Some evidence indicates that slightly more than this amount may be desirable. On a Hygienic diet, with its great abundance of raw fruits and vegetables, it is easy to get over 500 milligrams per day. There is certainly no need for supplements, despite the allegations of Dr. Pauling.

g. *Sources*. Vitamin C is supplied in fruits and vegetables, especially citrus fruits, tomatoes and bell peppers. Other foods also contain small amounts of this vitamin.

h. *Effects of deficiency*. A deficiency of vitamin C results in poor connective tissue structure. Symptoms include joint pain, irritability, growth retardation, anemia, shortness of breath, poor wound healing, bleeding of gums and pinpoint hemorrhages. If the diet contains enough vitamin C and these symptoms still develop, causes other than vitamin C deficiency must be searched for. Taking large amounts of vitamin C for diseases which are not the result of a vitamin C deficiency may alleviate symptoms but will not remove the cause of the problem.

i. *Effects of excess*. Excess vitamin C, even though water-soluble and so not stored in large amounts in the body, can be harmful to your health. Problems include destruction of red blood cells; irritation of the intestinal lining; kidney stone formation; interference with iron, copper, vitamin A and bone mineral metabolism; interference with the reproductive tract, causing infertility and fetal death; diabetes; and, believe it or not, scurvy. Intake of excess amounts of vitamin C, as with most vitamins, is only possible when pills or crystals are taken.

3.2.2 Vitamin B1

a. *Discovery*. The existence of vitamin B1, also known as *thiamine*, was first theorized in 1897 by a Dutch doctor who found that eating polished rice would result in a serious disease called beriberi. When unpolished and unrefined rice was eaten, however, *beriberi* did not develop. In the 1920s and 1930s, thiamine was chemically isolated from rice bran.

b. *Measurement*. Amounts of vitamin B1 are expressed in milligrams (mg), 1/1000th of a gram, or micro-grams (meg), 1/millionth of a gram.

c. *Chemistry*. Vitamin B1 is readily destroyed in the cooking process.

d. *Physiology and functions*. This important vitamin plays a crucial role in the body's energy-producing processes. In the body, when glucose is burned in the cells, energy is produced. This energy is stored when an organic substance named ATP is produced. Vitamin B1 is needed for the formation of ATP.

e. *Requirements*. The requirement for vitamin B1 is approximately 1/2 mg daily for infants and children, 1-1.5 mg daily for adults.

f. *Sources*. If mainly fruits and vegetables are eaten, as we recommend, significant amounts of vitamin B1 will be supplied. Other sources are nuts, seeds, sprouted legumes and sprouted grains. When grains are refined, much of the vitamin B1 (and other vitamins) is lost.

g. *Effects of Deficiency*. A deficiency of vitamin B1 results in serious breakdown of cellular metabolism. Manifestations of this breakdown include fatigue, emotional upsets, appetite loss, weakness, vomiting and abdominal pain, heart failure and nervous system destruction (generalized weakness and/or paralysis occur). Again, it is essential to note that there are many other causes of these problems. If the diet contains enough vitamin B1, these problems will not be helped by getting more of this vitamin.

h. *Effects of excess*. The problems which develop when excess vitamin B1 is consumed have not been investigated. We can be sure, however, that problems will result when "megadoses" are ingested.

3.2.3 Vitamin B2

a. *Discovery*. In the late 1920s and early 1930s, scientists discovered a substance in food which the body needed for normal nervous system function. This substance was chemically identified and named *riboflavin*, also called vitamin B2.

b. *Measurement*. As with thiamine, amounts of riboflavin are expressed as milligrams or micrograms.
c. Chemistry. Vitamin B2 is more stable to heat than vitamin B1, but it is easily destroyed by light.
d. *Physiology and functions*. The function of vitamin B2 is much the same as B1, although neither vitamin can substitute for the other. Riboflavin is needed for the synthesis of ATP.
e. *Requirements*. The requirement for riboflavin is about the same as for thiamine. About 1/2 mg daily is needed by infants, and 1-1.5 mg per day is needed for older children and adults.
f. *Sources*. Riboflavin is supplied by green leafy vegetables, seeds and nuts.
g. *Effects of deficiency*. Symptoms of a vitamin B2 deficiency include the eyes becoming sensitive to light, easy fatigue of the eyes, blurred vision, itching and soreness of the eyes, cracks in the skin at the corners of the mouth, purplish red appearance of the lips and tongue, and eczema.
h. *Effects of excess*. Symptoms of excess intake of riboflavin have not been clearly elucidated.

3.2.4 Niacin

a. *Discovery*. Niacin deficiency disease, called *pellagra*, was written about hundreds of years ago. It was not until the 20th century, however, that this disease was related to a dietary deficiency. This took place when a researcher placed subjects on a diet identical to that which caused pellagra-type symptoms in certain groups of people in the South. When these symptoms occurred in the experimental subjects, the researcher concluded that pellagra is a deficiency disease. Soon after, other scientists found that niacin was the missing link.
b. *Measurement*. Amounts of niacin are expressed in milligrams.
c. *Chemistry*. This important B vitamin (called B3 by some nutritionists) is more stable than most other B vitamins; it is not easily destroyed by heat, light or exposure to oxygen.
d. *Physiology*. Not all the niacin needed by the body need be supplied as niacin. Tryptophan, an amino acid (subunit of protein), is easily converted by the body into niacin. Therefore, to have a niacin deficiency, the diet must be deficient in both niacin and tryptophan.
e. *Functions*. Niacin is intimately involved in cellular metabolic reactions which release energy from the oxidation ("burning") of fats, carbohydrates and proteins. In this function it is quite similar to vitamins Bl and B2, but niacin cannot substitute for or be replaced by other B vitamins.
f. *Requirements*. The requirements for niacin are about 5-10 mg per day for infants and children and 15-20 mg per day for adults.
g. *Sources*. There are many sources of niacin in the diet: green leafy vegetables, potatoes, nuts arid seeds, to name a few.
h. *Effects of deficiency*. Deficiency of niacin leads to development of pellagra. This disease involves the gastrointestinal tract, skin and nervous system. Common symptoms include fatigue; headache; weight loss; backache; appetite loss; poor general health; red sore tongue; sore throat and mouth; lack of hydrochloric acid in the stomach (which results in anemia from vitamin B12 deficiency); nausea; vomiting; diarrhea; red, swollen and cracked skin; confusion; dizziness; poor memory and, in advanced cases, severe mental illness.
If the diet contains sufficient amounts of niacin, and if a person suffers from any of the aforementioned symptoms, taking extra niacin will have no beneficial effect.

i. *Effects of excess*. Intake of excess niacin has been found to cause liver damage, high levels of blood sugar, unsafe levels of uric acid in the bloodstream, and gastrointestinal distress ("stomachache").

3.2.5 Vitamin B6

a. *Discovery*. A deficiency of vitamin B6, or *pyridoxine*, was first produced in animals in 1926. In. 1938, this vitamin was isolated from food and identified. In 1939, scientists synthesized it in the laboratory.
b. *Measurement*. Amounts of vitamin B6 are expressed in micrograms or milligrams.

c. *Chemistry*. Vitamin B6 is easily destroyed by light but is somewhat stable to heat.
d. *Physiology and functions*. Vitamin B6, sometimes referred to as pyridoxine, is deeply involved in the metabolism of protein. When amino acids (subunits of protein) are converted into other substances (such as tryptophan to niacin), vitamin B6 is often needed. Also, when non-protein substances are converted into amino acids, vitamin B6 is often needed.
e. *Requirements*. Infants and children require about .5-1 mg of vitamin B6 per day. Adults need about 2 mg per day.
f. *Sources*. Vegetables are the main source of vitamin B6 in the diet.
g. *Effects of deficiency*. Deficiency of vitamin B6 leads to problems in the skin, nervous system and blood in animals. It has been difficult for researchers to produce any deficiency in adult humans. In extreme experimental situations, skin disease has resulted in adults from a vitamin B6 deficiency.
h. *Effects of excess*. Generalized symptoms of toxicity (poisoning) have been recorded in rats upon intake of excess vitamin B6. Future research will certainly find damage in human beings from intake of excess vitamin B6.

3.2.6 Pantothenic Acid

a. *Discovery*. Pantothenic acid was first isolated in 1938. Two years later researchers synthesized this vitamin in the laboratory.
b. *Measurement*. Pantothenic acid is measured in milligrams.
c. *Chemistry*. It is relatively stable, yet significant amounts are lost in cooking.
d. *Physiology and functions*. Pantothenic acid is part of coenzyme A, an organic substance which plays a critical role in many cellular metabolic pathways.
e. *Requirements*. Four to seven mg of pantothenic acid per day will fulfill the body's needs in both adults and children.
f. *Sources*. Sources of pantothenic acid include fruits, vegetables, sprouted legumes and grains.
g. *Effects of deficiency*. A deficiency of pantothenic acid has been observed only in laboratory animals. This vitamin is widely available in common foods so that deficiency outside of the laboratory is unlikely. Symptoms of deficiency include vomiting, fatigue, a feeling of generalized sickness, pain in the abdomen, burning cramps, personality changes and blood abnormalities.
h. *Effects of excess*. Diarrhea is the only symptom thus far shown to result when excess pantothenic acid is taken.

3.2.7 Biotin

a. *Discovery*. The discovery of biotin was made when large quantities of raw eggs were fed to animals before World War II. Scientists found that raw egg whites contain avidin, a substance that inactivates biotin. The diet high in raw eggs therefore led to development of deficiency symptoms in animals.
b. *Measurement*. Amounts of biotin are expressed in micrograms.
c. *Chemistry*. This vitamin is stable to heat and light but is sensitive to oxygen.
d. *Physiology and functions*. The body uses biotin as coenzymes needed for normal metabolism of protein, carbohydrate and fat.
e. *Requirements*. The requirement for biotin is about 150 micrograms per day for adults.
f. *Sources*. Nuts and seeds are high in biotin. Another excellent source is sprouted legumes.
g. *Effects of deficiency*. Biotin deficiency is produced only when many raw eggs are consumed. Symptoms which develop include skin problems, fatigue, muscle pain, lack of appetite, nausea and blood abnormalities.
h. *Effects of excess*. The effects of excess biotin have not yet been described.

3.2.8 Vitamin B12

a. *Discovery*. Vitamin B12 was not identified until 1955. Long before, in the early 1920s, foods high in this vitamin (such as liver) were used in cases of *pernicious anemia*.
b. *Measurement*. Amounts of this vitamin are expressed in micrograms.
c. *Chemistry*. Vitamin B12 is not damaged by heat, but it is inactivated by light. Very little is lost in cooking.
d. *Physiology*. The physiology of vitamin B12 is complex. To be aborbed into the bloodstream, vitamin B12 must combine with an organic substance secreted by the stomach called *intrinsic factor*. The resultant complex can then be absorbed only at the far end of the small intestine, the terminal ileum. Disease of the stomach often results in deficiency of intrinsic factor. This condition, not a dietary deficiency of vitamin B12, is called pernicious anemia.
e. *Functions*. All cells in the body need vitamin B12 to function normally, but certain tissues need more of this vitamin than do others. These include the gastrointestinal tract, nervous system and bone marrow (where blood cells are produced).
f. *Requirements*. Infants and children need about .5-2 meg of vitamin B12 per day, with the larger amounts needed in later years. Adults need about 3 meg per day; 1 meg additional is recommended for pregnant and lactating women.
g. *Sources*. Vitamin B12 should perhaps be called the "vegetarian's nemesis," since standard nutrition teaches that it is only present in animal foods (meats, eggs, dairy products) and that none is found in vegetables, fruits, seeds, nuts, sprouted legumes or sprouted grains. Yet vitamin B12 is produced by bacteria that are so widely prevalent in nature that many or most vegetarian foods contain small amounts of vitamin B12. Also, scientific evidence has shown that bacteria in the human intestine can produce vitamin B12. Although vegetarians often have low blood levels of vitamin B12, there has almost never been a well-documented case of a vegetarian who was sick from a dietary vitamin B12 deficiency. Therefore, there is no need for the subject of vitamin B12 to be a "vegetarian's nemesis."
h. *Effects of deficiency*. When the body has a poor supply of vitamin B12, pernicious anemia will result. Fewer red blood cells are formed in the bone marrow. Advanced cases of vitamin B12 deficiency show nervous system disease characterized by "pins and needles" sensations in the hands and feet, poor balance and mental depression.
i. *Effects of excess*. The effect of taking too much vitamin B12 has not been described.

3.2.9 Folic Acid

a. *Discovery*. An unknown organic substance, distinct from all other vitamins, was found in the early 20th century to be necessary for animal health. In the 1940s the chemical structure of folic acid was described. The name comes horn *folium*, Latin for leaf, since folic acid is present in such great amounts in green leaves.
b. *Measurement*. Amounts of folic acid are expressed in micrograms.
c. *Chemistry*. Folic acid is not stable to light and heat so that large amounts are lost in cooking.
d. *Physiology and functions*. Folic acid is needed for the normal functioning of the genetic material in cells (DNA), for metabolism of protein and some other organic substances.
e. *Requirements*. Adults need about 400 micrograms of folic acid per day. In pregnancy, an additional 400 meg are needed, while in lactation, an additional 200 meg will suffice: Needs in infancy, as with all vitamins, are much lower, about 50 mcg per day.
f. *Sources*. Folic acid is best derived from green leafy vegetables and sprouted grains.
g. *Effects of deficiency*. A deficiency of folic acid will lead to anemia. If anemia is from vitamin B12 deficiency and folic acid is given, the body will be able to correct the anemia. The nervous system disease from vitamin B12 deficiency, however, will not be affected by giving folic acid.
h. *Effects of excess*. Effects of excess folic acid intake have not been described.

4. Questions & Answers

Is the conventional American diet generally deficient in vitamins, and is this the major health-destroying aspect of this diet?

> No. While the conventional American diet has been shown to be deficient in vitamins in many cases, this is not the major problem with this diet. The major problems result from excess intake of toxins, calories, fat, protein and sugar. Taking vitamin pills will have no beneficial effect on the problems resulting from the excesses in the American diet.

Should I take vitamin pills?

> A person eating a diet of whole, unrefined foods, mostly uncooked, has no need for supplements.

When the necessary amount of vitamins is supplied in the diet, will additional vitamins help?

> Definitely not. The body can use only a limited amount of vitamins as supplied in food. Excess vitamins often cause damage to the body.

Are extra vitamins needed because of stress, smoking and pollution?

> Yes, and the extra amounts are easily supplied from food.

A deficiency of a vitamin will lead to development of a certain disease, for instance night blindness and vitamin A. If the diet contains enough vitamin A and a person still develops eye disease, will additional vitamin A solve the problem?

> No. Taking vitamin A will only correct a vitamin A deficiency and the problems associated with such a deficiency. There are multiple causes of eye problems and all the other symptoms that develop when there is a vitamin deficiency.

I know that too much of vitamins A and D can be harmful, but I heard that you cannot take too much of the water-soluble vitamins like vitamins C and B. Is this true?

No. Although excesses of vitamins C and B will be eliminated rapidly from the body, there will be damage to the body before and during their elimination.

Caution: Megavitamins May Be Dangerous To Your Health by Dr. Alan Immerman, D.C.

Surprising as it may sound, vitamins—especially the fat-soluble ones—when taken in unnaturally large quantities, can be dangerous to your health. In fact, megavitamin therapy carries risks similar to those of other drugs. Just as with other medications, the taking of large amounts of vitamins can cause side effects and other more serious health problems.

For years I took large daily doses of many vitamins. I read many of the magazines which are sold in health food stores and I believed what I read. I was convinced that large doses of vitamin C would "prevent" and "cure" colds and that some of the B-complex vitamins would calm my emotions "naturally" with no side effects. I believed that large amounts of vitamin E would prevent heart disease and delay the aging process. Fortified daily as I was, I was certain that I was doing myself a world of good, even though I didn't feel better while I was taking the supplements in such large doses.

Then it happened: I put down my health food store paperbacks long enough to read a few scientific textbooks and journal articles. I studied the biochemistry of vitamins (I have a B.S. in chemistry) and I read scientific studies which investigated the possibility of side effects from taking vitamins. I was more than a little surprised by what 1 found.

First, what is a "megavitamin"? I consider it to be a level of dosage that one could never get from food. For example, if you ate a large amount of fruits and vegetables, you could get 500 to 1,000 milligrams (.5 to 1 gram) of vitamin C per day from food. Although the RDA (recommended dietary allowance) is only 60 milligrams, it is possible to get ten, even 20 times this amount from foods. Therefore, in the case of vitamin C, I would use the term megavitamin to describe something in the neighborhood of 2 grams per day. While this may seem extraordinarily large, bear in mind that some self-appointed authorities recommend that we take 5-10 grams of vitamin C per day.

In large doses, vitamins act like drugs, not nutrients. If you eat more than the amount required, your body won't be able to use them. In its wisdom, the body will try to eliminate the excess, but too much of an overload may cause the excess to remain in the bloodstream, causing drug-like effects.

Megavitamin proponents argue that the requirement for vitamins differs from one person to another (biochemical individuality). This is true. But the conclusion that some people must, therefore, take megadoses of vitamins is false. Taking the recommended dietary allowances of vitamins fulfills the body's needs since the RDAs have been formulated with full awareness of biochemical individuality. The RDA compensates so well for the fact that some people need more of a certain vitamin that it has even been occasionally criticized for being too generous, for instance in the RDA for vitamin E.

Megavitamin proponents claim that large amounts of vitamins are used as nutrients. A nutrient is a substance that is used in normal physiological processes and causes no harm to the system. Other chemicals, such as drugs, are not used by the body and do cause harm. Scientific studies have shown that megavitamins can cause harm to the body. Therefore, I classify them as drugs.

Our bodies are capable of using nutrients supplied in the proper amounts. But when a nutrient is supplied in too great an amount, havoc is the result. We have all heard of the rare cases where someone has drunk too much water and died. The same is true with vitamins: too much of a good thing is harmful.

Experiments such as the following have often been repeated. Megadoses of vitamin B3 (niacin) were given to large groups of experimentees for a number of weeks at a time. Before and after the dosage period, blood was drawn from the subjects and analyzed for many chemicals. At the end of the experiment, scientists found that up to 45% of the subjects had liver damage, 50-66% had abnormally high levels of blood sugar, 62-78% had unsafe levels of uric acid and 20-40% had "gastrointestinal distress" (stomachaches). Though it may be hard to swallow that our old friend niacin is harmful in large doses, swallow it we must if we want to align our beliefs with reality.

Niacin has been recommended in large doses to lower blood cholesterol levels and to control schizophrenic symptoms. I suggest that better ways be found to deal with these problems (such as eating less meat and eggs to lower cholesterol).

Megadoses of vitamin C are also potentially harmful. Consider the following side effects: destruction of red blood cells; irritation of the intestinal lining; kidney stone formation; interference with iron, copper, vitamin A and bone mineral metabolism; interference with the reproductive tract, causing infertility and fetal death; diabetes; and something called rebound scurvy. Scurvy is vitamin C deficiency disease. If you take large amounts of vitamin C for a long time (many months, at the least), your body will increase its level of elimination of vitamin C (more evidence that your body doesn't want it around). If you then decide suddenly to stop taking vitamin C cold-turkey you will become deficient in this vitamin because it takes a period of time (many weeks sometimes) for your body to adjust downward its level of elimination of vitamin C. Does this sound safe? I would rather have a cold any day than the possibility of the side effects of megadoses of vitamin C. Besides, a cold is actually a detoxification process that shouldn't be interfered with by use of anything, even it is a supposedly friendly vitamin.

The third vitamin that has been investigated in depth is vitamin E. Megadoses of this vitamin (over about 100 IU per day) have been found to cause deposits of cholesterol in blood vessels; elevations of blood fat levels; interference with the bloodclotting process; enhanced growth of lung tumors; interference with absorption of vitamin A and iron; gastrointestinal disturbances; skin rashes; interference with thyroid gland function; and damage to muscles. Thus, megadoses of vitamin E also function as drugs, complete with side effects.

All nutritionists recognize the hazards from large doses of vitamins A and D: Megadoses of vitamin A have been known to cause the following negative effects: fatigue; generalized feeling of sickness; stomach discomfort; bone and/or joint pain; severe headaches; insomnia and restlessness; night sweating; loss of body hair; brittle nails; constipation; irregular menstruation; emotional instability; dry scaly and rough skin and other effects. Megadoses of vitamin D can cause nausea, diarrhea, weight loss, kidney damage and other problems.

I have no argument with those who claim that megadoses of vitamins will change the way you feel. They may, although in most cases there is no solid scientific proof that they will. But the way you feel is not in itself a valid criteria with which to judge megavitamins. If it were, then we could endorse drugs as completely beneficial. Both drugs and megavitamins may change symptom patterns. If you take vitamin C, there is a slim chance that you may experience a reduction in cold symptoms due to an antihistamine (not nutritional) effect. If you have arthritis arid take cortisone, you will experience a reduction in joint pain. But both these substances have side effects; and neither of these substances are getting at the cause of the health problem, just the symptoms. In fact, both are causes of other problems!

And there is even more: By treating yourself with vitamins, you may mask a serious disease until it has progressed to the point of no return. For instance, if you are anemic from vitamin B12 deficiency and you take folic acid, the folic acid will correct the anemia but you will have continuing subtle nervous system damage from the B12 deficiency.

Megadoses of vitamin C interfere with tests for sugar in the urine (a common indicator of severity of diabetes) and for blood in the stool (a test for cancer of the large intestine, among other things).

Once you find out what your problem is, I have one bit of advice: Don't try megavitamins for a solution. If they give you any relief, it will only be symptomatic: the cause of your problem will remain untouched. And the megavitamins may cause even further disruption of your health because of the many harmful side effects they can have.

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Article #2: Vitamins And Disease Causation By Marti Fry

Conventional medical practice attributes disease causation to: 1) bacteria or viruses; 2) hereditary or genetic disorders; or 3) deficiencies of vitamins or other nutrients. They do not blame disease causation on the habits and lifestyles of people who get diseases—except in the cases of deficiency diseases. Food supplements are supposed to solve the problems ("cure" the diseases) resulting from nutrient deficiencies. Sometimes nutrient-rich foods are also or instead recommended. For example, oranges or tomatoes may be recommended in cases of vitamin C deficiency or carrots or other orange foods for vitamin A deficiency, etc. However, with the popularity of food supplements today, especially among "alternative health groups," but also among conventional practitioners, pills are more often prescribed or recommended.

The error made by conventional medical and "health" practitioners is even worse than prescribing or recommending vitamin pills. They do not recognize that the true cause of diseases in most cases is not bacteria, viruses, hereditary or genetic disorders or nutrient deficiencies—rather, diseases result from enervation and toxemia; that is, lowered nerve energy, retention of toxic metabolic wastes, and consumption of toxic substances (wrong foods, drugs, etc.).

Even the "alternative healers," though many recognize that diseases are body-created processes for elimination of toxins, think more in terms of nutrient deficiencies and food supplements than of removing the true causes of most diseases—body toxicity. Supplying the normal needs of life as recommended by the Life Science health system while simultaneously removing the causes of diseases is the only way health can be restored effectively and permanently.

The idea of getting more vitamins, protein or other nutrients to prevent or overcome diseases is erroneous. Most diseases are not deficiency diseases as so many people believe today. Also, vitamins are not specific detoxifying substances that assist the body in eliminating its pathogenic toxic load. In massive amounts they are like drugs that add to the body's toxic load and must be expelled. In normal amounts as supplied in wholesome, raw foods, they play many varied roles. It is really foolish to tamper with normal body functioning in any way, including the use of vitamin supplements which do not go to the root—do not deal with the cause—of disease any more than do drugs or medications.

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Article #3: Why RDAs Are Too High by T.C. Fry

Before entering into a discussion of how RDAs are set, it is appropriate to distinguish between Recommended Dietary Allowance (RDA) and Minimum Daily Requirement (MDR). These are not the same, though MDRs are usually set unduly high, as are the RDAs.

RDAs are set by the Food and Nutrition Board of the National Research Council. Minimum Daily Requirements are mandatory on labelling of processed foods. They are required by the FDA, who has published the MDRs. MDRs generally closely parallel the RDAs. Supposedly the minimum requirement is the least amount you can ingest and adequately meet need. RDAs are recommended as intake to be on the safe side. RDAs are, therefore, higher than MDRs.

In setting RDAs, the NRC has criteria for each nutrient, vitamin or mineral. For instance, it figures vitamin C need based on what is required as a minimum. Say this minimum is set at 15 milligrams daily, which is the generally recognized minimum in much of the world. The NRC figures there is perhaps a 30% difference between individuals in their vitamin assimilation abilities. Thus they add on 30% to this minimum.

Further, the NRC gives a biologic value of about 2/3 to dietary vitamin C (could this be due to cooking or due to synthetic C or both, making 1/3 not available?) Instead of 19.5 mg, we now have 30 mg. As a margin of safety, the recommendation allows an extra 100%.

Thus, a man of say 154 pounds is said to need 60 mg of vitamin C daily. This is the RDA when, in point of fact, the needs of a healthy person are amply met on an intake of 15 to 20 mg daily. But, as this water-soluble vitamin in its natural form is easily excreted, there is no great danger in an intake of 60 mg daily. In fact, a natural diet furnishes 200 to 500 mg daily.

While establishing an RDA some four times in excess of what a healthy individual really needs is not harmful in the case of natural vitamin C, in other cases the RDA is positively pathogenic! This "generosity" amounts to recommended overfeeding. In people's minds the RDA becomes a mandatory minimum and they add on perhaps another 100% just to be sure! In the case of protein this is a great contributing cause of widespread disease!

As a Hygienist, be ever cognizant of those principles that go like this: The healthier you are, the more efficient your body becomes up and down the line. On a proper diet the biological value of nutrients is at or near 100%! The food will not be deranged by cooking or processing. Further, it will be 100% in accord with human digestive adaptations and capabilities. The healthy person will have about 100% uptake of dietary intake up to an optimum point and nearly 100% usage. Hence most RDAs are some 200% to 1,000% too high at the least!

Why get into a meaningless numbers game when all that we need in nutrients to repleteness is amply furnished with a great margin of safety by a modest diet consisting mostly of fresh fruits with some vegetables, nuts, seeds and perhaps some dried fruit. All, of course, must be eaten in the raw or live state to assure nutrient integrity on the one hand and non-toxicity on the other.

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Article #4: Vitamin B-12 And Your Diet By Dr. Alan Immerman

If you do not eat animal foods of any kind your fears about dietary deficiency in this highly publicized vitamin will be allayed by this report.

Do we get enough vitamin B12? This is a major concern to people who consume no animal foods (vegans). Much of their worry arises from the wide publicity given to statements like the following which appeared in the prestigious journal, *Nutrition Reviews*: "Strict vegetarianism in western countries is a form of food faddism which can have serious consequences" due to the possibility of a vitamin B12 deficiency. What are the facts?

First of all, it cannot be said that vegans consume too little vitamin B12 unless it can be shown they have a definite deficiency of this vitamin. Therefore, in order to understand the facts, we must decide how we will determine who is deficient. To be diagnosed as having a dietary deficiency of vitamin B12, all the following five criteria must be fulfilled:

1. Intake of less than the minimum daily requirement of vitamin B12.
2. Abnormally low blood vitamin B12 level.
3. Normal absorption of vitamin B12.
4. Presence of sickness specifically associated with a vitamin B12 deficiency; a specific type of anemia (megaloblastic) and/or nervous system degeneration.
5. Elimination of the signs and symptoms of such sickness following consumption of a small amount of vitamin B12-containing food.

The finding of a vitamin B12-deficient state without fulfillment of every one of these criteria cannot be blamed solely on the diet. This is because all of the following can also cause a vitamin B12 deficiency:

stomach disease (interferes with production of intrinsic factor, a chemical necessary for normal absorption of vitamin B12), intestinal disease (may interfere with normal absorption), kidney or liver disease (may increase loss of vitamin B12 from the body), use of alcohol or tobacco, use of some drugs such as neomycin and oral contraceptives and a multitude of other problems. Unless these problems are ruled out by fulfillment of the five criteria, a dietary cause of a vitamin B12 deficiency cannot be diagnosed.

Let's take a few examples. Say a 58-year-old man on a vegan diet goes to his doctor with signs of nervous system disease. It comes out in the history that this person is a vegan so the doctor presumes that the disease is from dietary vitamin B12 deficiency and prescribes large doses of vitamin B12 supplements. But, without investigation of this person's ability to absorb vitamin B12, his disease cannot be said to come from dietary deficiency alone. He could have pernicious anemia—deficiency of the intrinsic factor needed for absorption.

Or consider the vegan who has routine blood analysis done and it is found that his vitamin B12 level is low compared to the standard American range. The doctor would probably warn this individual of the grave consequences of continuing on his diet, even though this person feels fine. This individual cannot be classified as vitamin B12-deficient, however, because he has no symptoms of the diseases associated with a vitamin B12 deficiency.

As a third example, let's consider the most complex case: a vegan with a vitamin B12 deficiency-associated illness, normal absorption as reflected by use of routine absorption testing (the Schilling test) and disappearance of symptoms after ingestion of vitamin B12 supplements of routine dosage. Wouldn't this be a clear case of dietary vitamin B12 deficiency? Not necessarily—it could be a case of poor absorption not revealed by routine testing. A case like this occurred where the fault in absorption was not detected until sophisticated methods were used.

Short of sophisticated testing available only in research centers, the only way this fault in absorption, and probably many other similar faults, would be discovered is by experimental oral administration of small amounts of vitamin B12, as opposed to the large amounts routinely used. For this reason, fulfillment Of criterion No. 5 (positive response to consumption of small amounts of vitamin B12) is essential for a diagnosis of dietary B12 deficiency.

As simple and full of common sense as are these five criteria, we see many cases in the medical literature in which one or more of them have not been fulfilled. For example, Smith in 1962 investigated twelve vegans and found vitamin B12-associated illness in three of them.

He did not, however, check to see if they were able to absorb vitamin B12 efficiently; thus his diagnosis of dietary vitamin B12 deficiency is unconvincing. There are even cases presented as dietary vitamin B12 deficiency in which no accurate diet history is reported to show that no vitamin B12-containing foods have been eaten.

Verjaal, et al., in 1967, presented the case of a vegan with nervous system disease which the researcher attributed to the diet without checking absorption or the response to small amounts of oral vitamin B12. Connor, et al., in 1963, discussed two cases in which he also failed to investigate absorption.

In preparing this article, I have reviewed every article discussing cases of reported dietary vitamin B12 deficiency, and I can say that lack of fulfillment of all five criteria, as in the articles just described, is the rule, not the exception.

On the other hand, many studies have reported vegans with normal vitamin B12 status and complete health. Hardinge, et al., in 1954, studied 26 vegans and found them to be healthy. Ellis, et al., in 1970, studied 26 vegans and found the same.

Roberts, et al., in 1973, investigated 322 Indian vegans during pregnancy. All but one were perfectly healthy and this one was not studied to determine whether she could normally absorb vitamin B12. Sanders, et al., in 1978, studied 34 vegans and found no sickness.

The conclusion must be that the vast majority of the studies which have reported abnormal vitamin B12 status in vegans have not been thorough enough to prove the problem was from the diet only, and that, on the the other hand, many studies have found normal vitamin B12 status in vegans. Though this is hard for a western nutritionist to accept, no Indian doctor would have the slightest problem with it.

Indians, for the most part, are not pure vegans, as they consume small amounts of dairy foods. These amounts, however, fall far below the amounts that would be needed to supply adequate amounts of vitamin B12 if western dogma is valid.

Yet, in India, vegetarians have lived for ages and have begotten and reared healthy children who, in turn, have never eaten fish, fowl or meat. There is no evidence to suggest that such a vegetarian population consuming adequate lactovegetarian food is any way different from the non-vegetarians.

As Dr. David Reuben points out, the news that an almost-vegan diet is dangerous "will come as a surprise to 500,000,000 Hindus, most of whom don't eat any meat or animal products at all from the moment they are born until the moment they die (with the exception of mother's milk for a while). The Hindu religion has been around for over 10,000 years, or about 98 centuries longer than modern American medicine.

But how do vegans get their vitamin B12? Since it is produced only by bacteria, and vegans don't eat the animals that had the bacteria growing in their second stomach (rumen), what is the source of this vitamin B12?

There are no definite answers to this question, but the fact that most vegans are healthy shows one of the following answers must be applicable: Absorption of the vitamin B12 routinely produced by bacteria living in the intestine (supposedly they live in a area where the vitamin cannot be absorbed, but an adaptation may occur in vegans); no loss of vitamin B12 from the body, thus no need for additional dietary vitamin B12; ingestion of vitamin B12 in water (from the well or the distiller) due to bacterial contamination; accidental ingestion of insects or bacteria containing vitamin B12; presence of vitamin B12 in root vegetables due to absorption of vitamin B12 from the soil where it was produced by bacteria; presence of vitamin B12 in soil on poorly washed root vegetables; presence of vitamin B12 in seaweed (all but green) and/or contamination of plant foods with vitamin B12 produced by bacteria.

It is true that vitamin B12 is produced only by bacteria, but these bacteria are almost everywhere, and for this reason vitamin B12 has been found in some samples of many vegetables.

A vegan diet, therefore, does not have "serious consequences" as threatened by *Nutrition Reviews*; it is quite the reverse, as contrariwise it has such "beneficial consequences" as vegans not having to fear any risk of ever suffering cardiovascular disorders or colon and breast cancer. The low fat intake of vegans minimizes the chance of these diseases. The threat of a vitamin B12 deficiency is more often than not hypothetical rather than actual.

It is important to emphasize that deficiency may be present only if a person has low blood vitamin B12 levels plus illness associated with vitamin B12 deficiency. Indications of a low vitamin B12 level by itself will not interfere with attaining a long and healthy life with full capacity for normal reproduction. The contrary has never been proven to be so, unless the deficiency is accompanied by illness as discussed above.

Article #5: Do We Need To Take Vitamins? By Alan M. Immerman, D.C.

A few months ago I picked up a copy of a promotional magazine in a health food store. This magazine, *Better Nutrition*, contained an article entitled "The Care and Feeding of Vitamins," which addressed itself to the need for taking daily vitamin supplements. Since this is a subject about which I get many questions, I thought I would discuss this issue. The article on vitamins was in a question and answer form; I will give an alternative opinion in the same form.

I eat a good diet, why should I lake vitamins or other supplements?

> ANSWER: The *Better Nutrition* article (to be referred to as BN) stated that "your idea of a 'good diet' may not include all the essential nutrients" and that with pollution, stress, chronic illness, drugs and food of low nutritional value (presumably from conventional farming methods), it is reasonable that "a number of distinguished nutrition experts" believe that we should take supplements.
>
> MY ANSWER: It is no doubt true that many peoples' idea of a "good diet" is inadequate. The nutritional orthodoxy believes that enriched flour is entirely adequate even though many nutrients are removed by processing and only a few are replaced by enriching. But this does not mean that supplements should be taken, but rather that proper foods should be chosen! Also, there is no proof that pollution and stress increase vitamin needs. If drugs increase vitamin need, the obvious answer is to discontinue their use if at all possible. Drugs have many harmful side effects besides increasing vitamin needs.
>
> Also, the mention of nutritional values of foods grown with today's conventional farming methods brings up an important point. Plants synthesize all the vitamins they need from carbon dioxide, water and sunlight. Therefore, foods grown conventionally will have the same amounts of vitamins as those grown organically.
>
> Finally, in all respect for the "distinguished nutrition experts" who believe that supplements are needed, it would be far preferable to choose the proper foods; many equally distinguished experts support this position.

How much do I need of vitamins and minerals?

> ANSWER: (BN) Official recommended dietary allowances (RDAs) ... are for perfectly healthy 22-year-old men and women ... anyone not perfectly healthy and not 22 years of age may need more.
>
> MY ANSWER: This statement in BN poorly reflects the intent of the National Research Council in establishing the RDAs. The RDAs are for the vast majority of people, not for a small group. In setting these figures, the National Research Council estimated the requirements of the nutrients and then established recommended intakes in excess of requirements so as to "exceed the requirements of most individuals." The RDAs have even been criticized as too ligh in some cases! In any case, it is quite easy on a properly chosen diet to far exceed the recommended intake of vitamins. There is no need for nutrients in pill form.

Isn’t it possible to get too much of vitamins or minerals?

> ANSWER: (BN) Not if you take reasonable amounts ... there is no record of any damage

> from large amounts of vitamin E. Vitamin C and the B vitamins, being water soluble, are excreted harmlessly if you happen to take more than you need.
>
> MY ANSWER: False again. Although there probably is no direct harm from taking small amounts of vitamins, there is indirect harm. For one, many who take supplements tend to be less cautious with their diet because they feel protected by the pills. This is false security, as there are many substances needed by humans which are not yet in vitamin/mineral tablets. Some substances known at the present time include vanadium, nickel, tin and silicon; also, as any research biochemist will admit, there are probably many vitamin-like substances which will be discovered to be essential as the years go by, and they are not yet in supplements, even the supposedly "natural" supplements from food sources. So the threat of deficiency remains unless care is exercised in choice of foods.
>
> Also, to state that there is no danger from large doses of vitamins E, C and the B complex is to display ignorance of present scientific knowledge. Megadoses of niacin (B3) may damage the liver, raise the blood sugar and uric-acid levels and cause other problems. Megadoses of vitamin C may cause: irritation (leading to diarrhea), kidney stones, problems with mineral metabolism (iron, copper, calcium and phosphorus), and possibly infertility and fetal death. Large doses of vitamin E may elevate the blood fats (high blood fat levels are associated with heart disease), interfere with vitamin A and iron metabolism, interfere with thyroid gland function and cause severe fatigue, perhaps due to muscle damage.

I have heard that some vitamins are incompatible with others and will cancel out their good effects, so they should not be taken together.

> ANSWER: (BN) Basically, take your supplements and don't worry about it.
>
> MY ANSWER: When one tries to provide proper nutrition by extracting nutrients from food and taking them in various proportions and quantities, there is indeed a risk of creating imbalances. The best way to supply vitamins to the body is to eat them as nature provided them: in foods.

Should old people and children take vitamins?

> ANSWER: (BN) "To produce strong bones, teeth, muscles and perfectly functioning organs," children should take vitamins. "Old age is stress ... so taking supplements is even more important."
> MY ANSWER: Both groups definitely need vitamins. But is it too old-fashioned to suggest that they get their vitamins from food at 1/1000 the cost and in a preferable form?

To conclude, then, a proper diet, consisting of mainly raw fruits and vegetables, will supply amounts of vitamins far in excess of the recommended daily allowances. Pollution and stress should be avoided, but their effects are not compensated for by taking supplements. Fruits and vegetables available in the supermarket have enough vitamins to support health in its highest state.

Also, there are many possible sources of harm from megadoses of vitamins, even the water soluble ones such as vitamin C and the B complex. Therefore, avoid these.

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Article #6: Antivitamins And Vitamin Antagonists By Marti Fry

Definition

An antivitamin is simply "a substance that makes a vitamin ineffective." A vitamin antagonist is essentially the same thing as an antivitamin. It is a substance that lessens or negates the chemical action of a vitamin in the body.

Following are some examples of antivitamins, or vitamin antagonists.

Some Antagonists of a Few Specific Vitamins

Vitamin A Antagonists

Blood-thinning medications and other drugs, including aspirin, phenobarbitol, arsenicals and dicumarol (a drug used medically to retard bloodclotting), destroy vitamin A in the body.

Vitamin A is also depleted when nitrosamines are formed in the stomach from the union of nitrites with secondary amines and when the mucous membranes of our respiratory passages are exposed to air pollutants (carbon monoxide, ozone, sulphur dioxide, nitrogen dioxide, lead, hydrocarbons, etc.) In addition, mineral oil used as a laxative absorbs vitamin A and carotene (a naturally-occurring substance in foods which is used by the body to make vitamin A), thereby destroying it.

Vitamin K Antagonists

The amount of vitamin K needed by humans is very small, and a deficiency is highly unlikely because this vitamin is in a wide variety of commonly eaten plant foods and is synthesized by bacteria in the intestinal tract. However, antibiotic therapy (the taking of any antibiotics such as penicillin, streptomycin, tetracyclin, Chloromycin, Terramycin, etc.) suppresses bacterial growth and, consequently, the synthesis of vitamin K.

Other vitamin K antagonists include the drugs dicumarol and hydrocoumarol, which are used by medical people to relieve thrombosis (abnormal formation of blood clots in the blood vessels). Because the chemical structure of these antivitamins is similar to that of vitamin K, they act as anticoagulants by interfering with the synthesis of pro-thrombin and the other natural clotting factors.

Vitamin C Antagonists

It is well known that cigarette smokers have lower vitamin C levels than nonsmokers. A Canadian physician, Dr. W. J. McCormick, tested the blood levels of vitamin C in nearly 6,000 smokers. All had below normal readings. the March 9, 1963, issue of *Lancet*, similar findings are revealed by a group of three researchers. Frederick Klenner, M.D., has been quoted for many years as saying that a single cigarette can deplete as much as thirty-five milligrams of vitamin C from the body. (Calcium and phosphorus, both minerals, are also depleted in cigarette smokers.)

Because vitamin C reacts with any alien substance in the bloodstream, all drugs and pollutants can be considered to be vitamin C antagonists. Some of the foremost vitamin C antagonists include ammonium chloride, stribesterol, thiouracil, atropine, barbituates and antihistamines. Alcoholic beverages are also vitamin C antagonists, as are all stresses (surgery, emotional outbursts and upsets, acute pressures, extremes of heat and cold and all drugs).

B Vitamin Antagonists

Cortisone is an antagonist of vitamin B6 (pyridoxine). Since the body needs B vitamins to metabolize sugars, B vitamins are depleted when refined sugar or flour is consumed because refined sugar and flour, are devoid of B vitamins that existed in the beet, cane or grain before refining. Specifically, the body's supply of vitamin Bl, vitamin B2, biotin, choline, niacin and the mineral magnesium are depleted when refined sugar and flour are consumed.

Alcoholic beverages are antagonists of thiamin and the other B-complex vitamins, and coffee is another popular beverage that is a B vitamin antagonist—because it contains caffeine and other noxious substances, one of which is chlorogenic acid. Inositol deficits may occur among coffee drinkers, too, as well as deficits of biotin and thiamin.

Raw fish and raw shellfish, including oysters, are also B-complex antagonists. This is one of many reasons not to eat the Japanese dish, sashime (raw fish) or any other raw seafoods.

Birth control pills are antivitamins, especially of the B vitamins riboflavin, vitamin B6, vitamin B12 and folk acid. Two Indian physicians discovered that women taking oral contraceptives had much lower levels of riboflavin than a control group who used no oral contraceptives. These contraceptives are especially damaging to vitamin B12 and folic acid. (The estrogen in oral contraceptives is also an antagonist of vitamin E.)

The most potent folacin (folic acid) antagonist is aminopterin. This substance has been used in the medical treatment of leukemia, a disease in which there is a marked increase in the production of leucocytes (white blood cells). Though aminopterin has, in some cases, resulted in a temporary relief (remission) of leukemia, it does not "cure" this disease. This is because there are no "cures;" there is only body healing—and antivitamins interfere with body healing but never help it.

A Mineral Antagonist

Most, if not all, vitamin antagonists (all drugs and other stresses) are also mineral antagonists. A specific mineral antagonist is oxalic acid, which is present in too-large amounts in spinach, rhubarb, beets and beet greens, Swiss chard and chocolate. Oxalic acid is a calcium antagonist. Calcium binds the oxalic acid in the body in order to render this toxic acid harmless. In doing so, the calcium is unavailable for its normal uses in the body.

Some Specific Antivitamins

Stresses Are Antivitamins

All kinds of stresses are vitamin antagonists. Drugs are serious stress producers in the body because the body must exercise great effort in expelling them as quickly as possible, lest they damage tissues and cells and interfere too much with normal functioning. In addition, surgery, accidents, overly exhausting work or exercise, exposure to extreme's of heat or cold, and emotions such as fear, hatred, anger, worry and grief all produce great stress on the body. The B vitamins (thiamin, niacin, folic acid, pantothenic acid and vitamin B12) and vitamin C, as well as proteins and minerals, are all depleted and/or unassimilable as a result of stresses on the body. But don't think for a minute that the other vitamins can be properly or fully utilized when the body is under stress—they can't!

Aspirin Is An Antivitamin

Aspirin interferes with digestive processes and can result in stomach bleeding. It interferes with blood-clotting and lessens the ability of cells to absorb glucose for heat and energy. It depletes most, if not all, nutrients and results in especially high losses of vitamin C and the B vitamins plus the minerals calcium and potassium.

Antibiotics Are Antivitamins

Besides being a vitamin K antagonist, the antibiotic penicillin is also an antivitamin of vitamin B6. The antibiotic streptomycin is a folic acid antagonist and the antibiotic streptomycin inactivates manganese, a mineral which is needed for the functioning of many enzyme systems.

Diuretics Are Antivitamins

Diuretics are drugs prescribed medically to promote weight reduction or to relieve pressure of retained fluids. Even so-called "natural" diuretics, including herbal types, are harmful, for all diuretics result in great losses of B vitamins, vitamin C, other vitamins, and the minerals potassium and magnesium. Diuretics would never be prescribed to anyone on a natural diet containing no rock salt or sea salt, as these salts are poisonous and cause the body to retain fluids to hold the salt in suspension so it doesn't harm cells and tissues.

Laxatives Are Antivitamins

All laxatives, including the herbal types, are vitamin antagonists. Mineral oil is perhaps the most devastating laxative. It absorbs vitamin A and carotene, as well as the other fat-soluble vitamins (vitamin D, vitamin E and vitamin K). It also absorbs calcium and phosphorus, carrying them out of the body. (Hospitals today still use mineral oil as a laxative for their patients, one of thousands of reasons why hospitals are antivital places.) Laxatives will never be used by people on a natural all-raw diet of fruits, vegetables, sprouts, nuts and seeds.

Soil, Air and Water Pollutants Are Antivitamins

Most people regard soil, air and water pollutants as "unavoidable" antivitamins that necessitate the use of vitamin supplementation. However, not only are the vitamins from fresh whole foods more than adequate to meet our needs when our diet is all or mainly raw foods of our biological adaptation (as described in the Life Science health system), but they will also meet our needs adequately despite our polluted air and water.

Besides this argument against food supplementation, we can control completely the water we drink by drinking only pure distilled water. To some extent we can also control the quality of the air we breathe by keeping the pollutants out of our homes and/or by locating away from the pollution of cities and other highly-populated or polluted centers. Foods not grown organically are "fed" (via their soil) synthetic chemical fertilizers which contain excessive nitrogen. This excessive nitrogen increases the crop yield, but the ultimate health costs are high—too high. Nitrates and nitrites are formed, and these pollutants are potent antivitamins.

Dr. E. E. Hatfield revealed, from his results in an animal research project, that nitrates and nitrites systematically and subtly reduce the vitamin A stored in the liver. They also prevent formation of this vitamin in our body from its precursor, carotene, which is present in much produce. Also, according to Dr. W. M. Beeson of Purdue University's Department of Animal Sciences, fruits picked green contain far higher amounts of nitrates and far less carotene than tree and vine-ripened fruits.

Nitrites join with amines in the stomach, forming nitrosamines. Nitrosamines are highly carcinogenic, though not necessarily moreso than other pollutants and drugs. As often and as much as possible, purchase organically-grown produce and/or produce that has been fully ripened on the tree or vine.

Keep in mind, too, that buying organically-grown foods and then cooking them, seasoning them, or taking any kind of drugs or medications whatsoever makes little sense. You are far better off not to concern yourself with whether or not your food is or isn't organically grown and just discontinue use of any and all drugs and medications. The ideal, however, is to both discontinue drugs and to purchase organically-grown foods when possible.

Nitrites, chlorine, flourides, inorganic minerals and many other harmful substances found in city, spring, well and other nondistilled waters are all antivitamins. Therefore, only distilled water should be drunk.

Antivitamins found in polluted air, especially city air, are carbon monoxide, hydrocarbons, lead, ozone, sulphur dioxide and nitrogen dioxide. Vitamin A and vitamin C are both depleted when the body is exposed to air containing these pollutants, as is vitamin E. Arsenic dust, found on commercially-grown produce, is an antagonist of the B vitamin PABA (para-aminobenzoic acid). This vitamin is important for the growth of valuable bacteria in the intestines, for the metabolism of proteins, for manufacture of red blood cells and for healthy skin and hair.

Conclusion

This has been only a partial listing of a few specific vitamin antagonists or antivitamins. In reality, any substance that is not food of our biological adaptation and any living practice that is not in accord with our physiological needs is a vitamin antagonist—in fact, a nutrient antagonist. All substances and practices not normal (physiologically, not in the commonly-used meaning of what is widely practiced) to humans interferes with normal functioning, including the normal use of vitamins in the body.

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Article #7: What To Do About Vitamin Antagonists By Marti Fry

If you've read any popular health books or magazines, you've no doubt heard about vitamin antagonists, or anti-vitamins. They are portrayed as "thieves out for the highest stakes: your health and well-being." They are described as criminals. However, while these descriptions may make for colorful writing, they do not point to the real culprits. Even worse, they point their readers to harmful and ineffective solutions to the problem.

Drugs, medicines, pollutants, stresses, refined sugar and flour, coffee, alcohol, the Pill, etc. are inert, lifeless substances, and they are not anxiously waiting to get into human bodies where they can ravage and plunder and make off with booty. People are the real culprits, the thieves. From the consumer or user to the manufacturer, inventor and promoter, people are the living beings who are responsible for depleting their own vitamin supplies and rendering vitamins consumed nonusable. Humans are responsible for the living practices that so enervate their bodies that assimilation of nutrients is impaired. We are responsible for informing ourselves (and others) of a healthful lifestyle.

Popular health magazines make statements such as the following from *Bestways* (September 1981): "Drugs are antagonists in many ways. They destroy nutrients, cause them to be used up quickly, keep them from being absorbed, rush them through the system before they can do the most good, and sometimes replace them chemically."

What they're saying is that drugs interfere with normal body functioning. Drugs are vitamin antagonists, however, only if humans consume them. We humans do not have to consume any drugs. Therefore, we need not deplete our vitamin stores, etc. We need only avoid drugs and eat wholesome foods in appropriate amounts. Pollutants that are unavoidable (such as soil and air pollutants) cannot deplete our vitamin stores and intake to the extent that we need concern ourselves about deficiencies or consider using vitamin supplements.

The best way (and the only healthy way) to deal with the problem of vitamin antagonists is to stay away from the physicians, hospitals, pharmacies, etc. that prescribe and sell drugs and medications. We should also do the best we can to live in a healthful environment and lead a stress-free lifestyle. The idea that we can counteract the harmful effects of drugs and other stresses with the use of vitamin and/or mineral supplements is entirely erroneous. A proper diet and lifestyle will simultaneously supply the nutrients we need and include no vitamin antagonists or anti-vitamins. Health results from healthful living—that's a fact to keep in mind at all times!

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Article #8: Factors That Lower Vitamin Needs By T. C. Fry

Healthy people require less of all nutrients because their bodies make more efficient use of them. Not only that, but healthy people eat wholesome foods that furnish more nutrients. Thus, their needs are lower and their supplies are simultaneously higher than that of unhealthy people.

Certain societies of the world, notably some West Indian and Carib tribes of the world, have been thriving on 15 to 20 grams of daily protein intake, far less than is considered necessary. These people live on foods such as cassava, manioc and other starchy roots that contain only .2 to .3 percent protein. Just as they thrive on an "abnormally" low protein intake, they also thrive on a vitamin intake that would quickly result in deficiencies in our stressful and self-poisoned people.

For the reasons that other societies can thrive on diets that would make ours deficient, there are those within our society who so live as to parallel the healthful groups in other lands. Thus, a raw food fruitarian within our society that has a highly efficient body requires but a fraction of the vitamins as his counterpart who eats meats; dairy and poultry products; cooked foods; condiments and seasonings; refined, processed and preserved foods, and who may have one or several drug habits such as tobacco, alcohol, coffee, medications, etc.

The seeming unfairness of this situation is that, though raw food fruitarians eat less than half as much as their perverted cousins, their intake of usable vitamins, minerals and other nutrients are usually much greater though their needs are much lower.

The healthier our lifestyles, the less vitamins we need in the face of greater supply, whereas the less wholesome our lifestyles, the greater our needs in the face of lowered supply and lowered ability to utilize.

Exercise and Vitamin Utilization

Vigorous exercise activity on a regular basis slightly increases our need for vitamins on the one hand but, on the other, so fine-tunes our system that they vastly increase their efficiency in uptake, assimilation and usage. With all other life factors properly observed, including a proper diet of mostly fruits with some vegetables, nuts and seeds, body toxicity is very low. All other needs are correspondingly lower due to the higher efficiency of the organism.

Emotional Poise Necessary to Optimum Vitamin Usage

Being emotionally balanced is normal. Abnormal emotional conditions vitiate and drain our resources and heighten our need for vitamins while at the same time impairing our ability to utilize them. Thus can be seen the enormous benefit of establishing self-mastery and a becalming philosophical outlook.

Raw Foods and Vitamin Usage

A proper diet of mostly ripe raw fruits and some raw vegetables with raw nuts and seeds not only furnishes us with problem-free eating, but it also heightens body efficiency, thus lowering need. On the other hand, the nutrient values obtained from this proper diet are greater by far than conventional diets, even in the face of intake amounting to less than half that of conventional feeders.

Correct Foods and Feeding Practices

Vitamin utilization is more efficient if intake is of those foods to which we are biologically adapted. Our digestive expenditures are lowered and body energy needs are likewise lowered. More nerve and chemical energy are available for the regular pursuits of life. Less sleep is required to restore "our fund of nerve energy in view of decreased need and increased efficiency of generation when faculties are operating better.

Vitamin intake is greater on a proper diet, while vitamin need decreases on several accounts. The big bonus is increased body efficiency that makes better use of nutrients.

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Article #9: Factors That Interfere With Vitamin Utilization And The Applicable Principles By T.C. Fry

You can read much in conventional health magazines about smokers requiring more vitamin C, about alcoholics requiring more B-Complex vitamins and so on. Peddlers of vitamins highlight greater need for vitamins by those on drugs, both habitual and medical, in order to induce drug users to purchase vitamin supplements. However, vitamin utilization is the least of the ill effects of drug habits, whether they be alcohol, tobacco, coffee, condiments and seasonings, medicinal, recreational or internally created drugs from the toxicity of retained metabolic wastes.

Factors That Interfere With Usage Also Destroy Health

There would be no argument against drugs if the destruction of vitamins within the body were their only evil because our natural foods would more than compensate for the loss. But vitamin depletion is only one of the minor effects of drugs. They are far more destructive to the organism itself!

Drugs are a three-edged sword! For practical purposes we must classify sugar, white flour, processed and refined foods, cooked foods, meats and animal products, coffee, condiments and seasonings, tobacco, alcohol, marijuana, herbs, inorganic minerals, prescribed and over-the-counter drugs, synthetic foods and supplements, etc. as drugs.

The first bad effect of so-called "foods" that have drug effects is less vitamin intake, even if they are "enriched." The second effect is that the body requires extra vitamins in order to deal with the toxicity. Thirdly, and even worse, these substances impair our ability to utilize vitamins.

Some by-products of drug use are loss of sex potency; interference with vitamin utilization; loss of vital senses such as taste, smell, eyesight, hearing and touch; increasing ugliness of both appearance and disposition; and loss of mental faculties.

Stress and Vitamin Depletion

Stress might be likened, in its effects upon the body and its fund of nerve energy, as crossing the wires to a battery. The battery shorts out and is quickly drained. Stress thusly requires more body resources on one hand, while impairing body functions on the other hand. When the body is bereft of a normal fund of nerve energy and other faculties, there is a great increase in uneliminated body wastes. Toxemia arises and problems proliferate.

Emotional upsets are perhaps the most stressful experiences of all. Cultivating self-mastery and a philosophical attitude lowers our liability in the face of stress.

Toxemia and Decreased Vitamin Usage

Toxins within the body have drug effects. They interfere with vitamin uptake and usage while simultaneously increasing need for vitamins in order to cope. Further, they impair the faculties involved with vitamin assimilation and usage.

Principles That Apply

A theme that runs through the observations of vitamin antagonists can be expressed as principles that are highly instructive:

1. The less wholesome our food and practices, the fewer usable vitamins we will get.
2. The less wholesome our food and practices, the more vitamins we'll require.
3. The less wholesome our food and practices, the less able we are to make use of vitamins.

Thus, again, we can see demonstrated that bad practices proliferate bad results.

Lesson 10 - The Role Of Minerals In Human Nutrition

- 1. Introduction
- 2. The Minerals In The Body
- 3. Organic And Inorganic Minerals
- 4. Mineral Deficiencies
- 5. Obtaining The Minerals We Need
- 6. Questions & Answers
- Article #1: The Minerals Of Life By Dr. Herbert M. Shelton

1. Introduction

1.1 The Study of Minerals Is a Fragmentary View

> *"We have become so accustomed to the practice of dividing foodstuffs into their various nutritive factors—proteins, carbohydrates, fats, minerals, vitamins, etc.— that we often miss the importance of the whole food."* —Dr. Herbert M. Shelton

As we begin our lesson on minerals, it is important to keep Dr. Shelton's observation in mind. Phrases like "iron deficiency" and "calcium-rich foods" are all too common in the study of minerals, and they represent a fragmented view of our diet and nutritional well-being.

A mineral deficiency rarely exists by itself in a vacuum, nor can a single food be recommended exclusively because of a particular mineral content. The study of minerals by themselves necessarily leads to a fragmented view of nutrition, and the student should not be quick to attribute conditions in the body solely to a mineral deficiency, nor should he choose certain foods entirely because of their mineral content.

Instead, it is more important to realize that minerals have an interdependence between many other various elements of food and with the complex actions of the organism itself. Minerals are not isolated food factors, but parts of the nutritional whole.

1.2 What Are Minerals?

The broadest definition of a mineral is that it is something that is "neither vegetable nor animal." It has also been defined as a "solid homogeneous crystalline chemical element or compound" such as iron, copper, carbon, aluminium and so forth. For this lesson, we define a mineral as follows: A naturally occurring inorganic element in the soil which is transformed into an organic compound for use and assimilation by the human body.

Notice that there are two parts to the definition: 1) We are concerned only with those minerals that are directly usable by the human organism and that are vital to the healthy functioning of the body. 2) We make a very important distinction between the inorganic form of the mineral as it occurs in the soil and the organic form of the mineral as it is used by the human body. This difference between organic and inorganic mineral forms is the crucial point in understanding mineral nutrition, and is discussed at length later in this lesson.

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2. The Minerals In The Body

2.1 A List of Major and Trace Minerals

We still do not know all the minerals that are present and utilized within the body. We do, however, recognize twenty-eight minerals that have definite uses in the body, and twelve other minerals whose uses are not fully understood.

The following thirteen minerals are found in appreciable quantities within the body and are listed in the order of their total percentages of the body's composition:

Mineral	**Percentage of total body weight**
Calcium	2.00%
Phosphorus	1.00%
Potassium	0.40%
Sulfur	0.25%
Chlorine	0.25%
Sodium	0.25%
Fluorine	0.20%
Magnesium	0.05%
Iron	0.008%
Manganese	0.003%
Silicon	0.002%

Copper	0.00015%
Iodine	0.00004%

The other following minerals are sometimes referred to as "trace minerals" because of the minute amounts present in the body:

Trace Minerals		
Zinc	Titanium	Argon
Cobalt	Tin	Beryllium
Molybdenum	Silver	Boron
Aluminium	Rubidium	Cerium
Chromium	Nickel	Helium
Lead	Mercury	Lanthanum
Neodymium	Neon	Scandium
Selenium	Strontium	Vanadium

2.2 Traditional Approach to Mineral Nutrition

Of the twenty-eight recognized minerals, recommended dietary allowances have been determined for only six: Calcium, phosphorous, iodine, iron, zinc and magnesium. The rest of the minerals are also important to the functioning of the body, but the exact body needs are too indeterminate to list.

We will discuss all the major minerals and some of the trace minerals as to their uses in the body, the recommended daily allowance (if known), the deficiencies caused by their absence and the Food Sources of these minerals.

This is the traditional approach to studying minerals and is a basis for understanding some of the other facts in this lesson. However, this approach does have some shortcomings, and we should note them.

First, their use in the body: No mineral is used in isolation within the body. All minerals interact with other minerals, vitamins, enzymes and so on. It is overly simplistic to say that "iron builds rich blood" or "calcium makes strong bones." For instance, copper must also be present for the iron to be used in blood-building. Likewise, a certain amount of phosphorus must also be present along with the calcium to build bones. However, it is also a fact that certain minerals are utilized by the body as nutrients for specific organs moreso than other organs. Also, the body uses certain minerals in performing certain body functions. Nonetheless, in studying an individual mineral, keep in mind that it is only a part of a whole complex process.

Next, the effect of a mineral deficiency: A mineral deficiency rarely exists in a vacuum and is seldom the only cause for a condition exhibited by the body. Often, a mineral deficiency occurs even when there is an abundance of the needed mineral in the diet, but the body cannot digest nor assimilate the mineral. Mineral deficiencies are discussed at length later in this lesson.

The recommended allowance of a mineral: This can be almost meaningless. Mineral requirements depend upon individual constitution, climate, type of work, personality, age, sex, body weight, level of health and hundreds of other factors. There can never be one recommended allowance of a mineral that applies to everyone. All given Recommended Allowances may vary considerably and they should not be considered as "law."

Finally, Food Sources of a mineral: Minerals are abundantly supplied in all foods natural to man's diet (fruit, vegetables, seeds, nuts and sprouts). There are certain mineral-rich foods such as calf liver, clams, milk, etc. that are not suitable for the human organism, and any mineral content they may have is negated by the harmful effects they have on the body. Only suitable foods for man are listed in this lesson as sources of a particular mineral. Note also that the mineral contents of foods are calculated upon a fixed size portion (e.g., 100 grams, 4 ounces, etc.). This type of calculation unfairly favors the concentrated foods such as dried fruits, seaweed, nuts, seeds, etc. When choosing such foods keep in mind that ounce for ounce, a person normally eats a larger amount of the less-concentrated foods.

2.3 The Major Minerals in the Body

2.3.1 Calcium

Use in the Body: Calcium is the most abundant mineral in the body. Almost 99% of the body's calcium is in the skeletal structure and the teeth. Calcium is essential for the clotting of blood, the action of certain enzymes and the control of the passage of fluids through the cell walls. It is also essential to normal heart action and muscle contraction.

Effect of deficiency: Calcium deficiency results in retarded bone and tooth development and a fragile skeletal structure. Nervous irritability and muscle sensitivity are, also signs of calcium deficiency. Since calcium is needed for bone and tooth growth, children especially need an adequate calcium intake.

Recommended Allowances: The National Academy of Sciences has made the following recommendations for daily calcium intake:

Men and Women	800 milligrams
Children	800 milligrams
Teenagers	1200 milligrams
Infants	500 milligrams
Pregnant and Nursing Mothers	1200 milligrams

Food Sources: The following foods are high in calcium content:

Sesame seeds	*Oranges*
Green vegetable leaves	*Strawberries*

Almonds	*Papayas*
Figs	*Most nuts*
Sunflower seeds	*Most seeds*
Broccoli	*Most green vegetables*
Apricots	*Most fruits*
Dates	

2.3.2 Phosphorus

Use in the Body: Phosphorus occurs in the protoplasm and nucleus of every cell. It is used in more functions than any other mineral in the body. Phosphorus is necessary to metabolize fats, carbohydrates and proteins. It is used with calcium in the building of bones and teeth. The building of nerve tissue and brain cells requires phosphorus. Like calcium, the largest amount of phosphorus is found in the bones.

Effect of deficiency: A deficiency of phosphorus affects the skeletal structure similarly to a calcium deficiency. A lack of this mineral may also result in mental fatigue and a feeling of depression resulting from exhausted nerve energy.

Recommended Allowances: The following are the official Recommended Allowances for daily phosphorus intake (revised 1974):

Infants	400 milligrams
Children	800 milligrams
Teenagers	1200 milligrams
Adults	800 milligrams
Pregnant and Nursing Mothers	1200 milligrams

Food Sources: All seeds and nuts are excellent sources of phosphorus. In addition, the following foods contain a high percentage of phosphorus:

Coconuts	*Apples*
Peaches	*Pears*
Apricots	*Avocados*

Broccoli	*Green vegetable leaves*
Figs	*Carrots*
Dates	*Mung bean sprouts*
Cabbage	*Beets*
Squash	*Persimmons*

2.3.3 Potassium

Use in the Body: Potassium is a factor in tissue elasticity, healing injuries in the body, liver functioning, normal bowel activity and regular heart rhythm. It is used in regulation of nerve and muscle action and is needed for intercellular fluid balance.

Effect of deficiency: A lack of potassium often results in liver ailments, pimpling of the skin and the slow healing of sores. Weak muscular control and incomplete digestion also accompany a potassium deficiency.

Recommended Allowances: No official recommendations exist for potassium, but unofficial sources estimate the body's daily potassium needs at about 3000 milligrams for adults and 1500 milligrams for children.

Food Sources: Potassium is abundantly supplied in a proper diet, and non-meat eaters should never have a problem in obtaining sufficient potassium. The following foods are especially rich in potassium:

Apricots	*Green vegetable leaves*
Sunflower seeds	*Tomatoes*
Peaches	*Bananas*
Almonds	*Carrots*
Raisins	*Beets*
Dates	*Nectarines*
Figs	*Cabbage*
Avocados	*Lettuce*
Pecans	*Almost all fresh fruits*
Papayas	*Almost all fresh vegetables*

Melons	

2.3.4 Sulfur

Use in the Body: Sulfur is found in the hair, nails, cartilage and blood. It is essential in digestion and elimination, bile secretion, and the purification and toning of the system.

Effect of deficiency: The lack of sulfur may result in inhibition of functioning. It also results in restricted growth, eczema and poor growth of the nails and hair.

Recommendes Allowances: No official recommendations are made for sulfur. Almost all diets contain adequate amounts of this mineral.

Food Sources: The following foods are rich in sulfur:

All cabbage family members	Cucumbers
Lettuce	Pineapples
Avocadoes	Peaches
Tomatoes	Watermelon
Carrots	Strawberries
Apples	Oranges

2.3.5 Chlorine

Use in the Body: Chlorine is required for digestion and elimination. It is needed for normal heart activity and osmotic pressure in the blood and tissues.

Effect of deficiency: A lack of chlorine results in disturbed digestion and in waste retention. Also, a chlorine deficiency may manifest in pyorrhea.

Recommended Allowances: Unofficial estimates place daily chlorine needs at about 500 milligrams.

Food Sources: Sodium chloride (salt) and chlorinated drinking water are not sources of organic chlorine and are poisonous to the body. The following foods are good sources of organic chlorine:

Tomatoes	*Coconuts*
Celery	*Bananas*
Kale	*Pineapples*
Turnips	*Raisins*

Lettuce	*Mangoes*
Avocados	*Strawberries*
Watermelon	

2.3.6 Sodium

Use in the Body: Sodium is utilized in the formation of digestive juices and in the elimination of carbon dioxide. It is needed in the osmotic pressure, maintenance of water balance and proper nerve function. Sodium is also necessary for the utilization of iron.

Effect of deficiency: A sodium deficiency can result in indigestion, arthritis, rheumatism and in gallbladder and kidney stones. Muscle cramps and nausea also accompany a lack of sodium.

Recommended Allowances: Sodium is usually plentiful in most diets. No official recommendations are made, but unofficial estimates of the body's daily sodium needs are about 500 milligrams.

Food Sources: Sodium chloride (table salt) is not a source of organic sodium and is poisonous to the body. The following foods are good sources of organic sodium:

Strawberries	*Sunflower seeds*
Celery	*Broccoli*
Carrots	*Melons*
Raisins	*Cabbage*
Kale	*Lettuce*
Beets	*Peaches*
Sesame seeds	

2.3.7 Flourine

Use in the Body: Flourine is found in the bones, teeth, blood, skin, nails and hair. It is essential to the body's healing processes.

Effect of deficiency: A lack of flourine in the diet can result in tooth decay, weakened eyesight and spinal curvature.

Recommended Allowances: No recommended, allowances exist for flourine.

Food Sources: Flouridated water is not a source of organic flourine; it is injurious to the health. The following foods contain high amounts of organic flourine:

Almonds	Carrots

Vegetable greens	Exists in some quantities in all plants

2.3.8 Magnesium

Use in the Body: Magnesium is found in the blood albumen, bones and teeth. It is employed in carbohydrate metabolism and elimination. Magnesium is necessary for strengthening the nerves and muscles and in conditioning the liver and glands.

Effect of deficiency: A lack of magnesium contributes to nervous conditions and irritability. A poor complexion, heartbeat acceleration, digestive disorders and soft bones may also indicate a magnesium deficiency.

Recommended Allowances: The following reccommendations are made by the National Academy of Sciences:

Infants	60-70 milligrams
Children (1-4 years)	150 milligrams
Children (4-6 years)	200 milligrams
Children (7-10 years)	250 milligrams
Males (11-14 years)	350 milligrams
Males (15-18 years)	400 milligrams
Males (19 older)	350 milligrams
All females	300 milligrams
Pregnant and Nursing Mothers	450 milligrams

Food Sources: The following are good sources of magnesium:

Almonds	Cherries
Dates	Green vegetable leaves
Bananas	Beets
Walnuts	Avocados
Raisins	Pears

Raspberries	Broccoli
Mangoes	Canteloupe

2.3.9 Iron

Use in the Body: Iron is found primarily in the hemoglobin of the body and is closely connected with the quality of blood. About two-thirds of all the body's iron is in the bloodstream, with the remainder distributed in the marrow of the bone, the liver and the spleen. Iron is also used in the building of bones, brain and muscle and in the carrying of oxygen throughout the body.

Effect of deficiency: The most dramatic sign of an iron deficiency is anemia and paleness of complexion. A lack of sufficient iron also results in limited growth and a low vitality level.

Recommended Allowances: The Official recommended daily allowances for iron (revised 1974) are:

Children (1-3 years)	15 milligrams
Children (4-10 years)	10 milligrams
Males (11-18)	18 milligrams
Males, Adult	10 milligrams
Females (11-50 years)	18 milligrams
Females (51 and over)	10 milligrams

Food Sources: The following are good sources of organic iron:

Sesame seeds	*Figs*
Peaches	*Green vegetable leaves*
Apricots	*Lettuce*
Raisins	*Mung bean sprouts*
Walnuts	*Broccoli*
Almonds	*Berries*
Dates	*Cherries*

2.3.10 Manganese

Use in the Body: Manganese is chiefly found in the liver, kidneys, pancreas, lungs, prostrate gland, adrenals, brain and bones. It is used in the metabolism of carbohydrates, and in strengthening tissue and bone. Manganese, like iodine, is used in thyroxine formation in the thyroid. It also seems to be connected with regulation of the blood sugar level.

Effect of deficiency: It should be noted that the National Academy of Sciences has officially stated that no one has observed a manganese deficiency in humans. In laboratory experiments with animals, an induced manganese deficiency produced restricted growth, glandular disorders and defective reproductive functions.

Recommended Allowances: No official recommendations are made for manganese. Unofficial sources place the body's daily manganese needs at about 15-25 milligrams for adults and 2-15 milligrams for children.

Food Sources: Manganese is found in significant quantities in the following foods:

Bananas	Leafy vegetables
Beets	Carrots
Celery	Squash
Cucumbers	Nuts

2.3.11 Silicon

Use in the Body: Silicon is found in the blood, muscles, skin, nerves, nails, hair, connective tissue and teeth. The pancreas is especially rich in silicon. Silicon is also noted for its use in antiseptic action.

Effect of deficiency: Insufficient silicon in the body may result in baldness or the graying of hair. Skin irritations and rashes may develop easily. Hearing and vision may also be affected, and the teeth may decay.

Recommended Allowances: No official daily allowance has been determined for silicon.

Food Sources: Silicon is often concentrated in the skins and outer layers of vegetables and fruits. The following are good sources of silicon:

Lettuce	*Beets*
Strawberries	*Carrots*
Cucumbers	*Tomatoes*
Sunflower seeds	*Cabbage*
Celery	*Watermelon*
Cherries	*Apples*

Apricots	*Bananas*
Figs	*Grapes*
Pears	

2.3.12 Copper

Use in the Body: Copper is found in the liver, gallbladder, lungs and heart. It is essential primarily for the absorption and metabolism of iron.

Effect of deficiency: A deficiency in copper results in the same effects as an iron deficiency, such as retarded hemoglobin production, general debility, limited growth, etc.

Recommended Allowances: No official recommendations are made for copper allowances. Some sources have estimated about 2 milligrams per day. Very few cases of copper depletion have been observed in humans.

Food Sources: All of the following foods contain a significant amount of copper:

Nuts	Sunflower seeds
Raisins	Sesame seeds
Leafy vegetables	

2.3.13 Iodine

Use in the Body: Iodine is found mainly in the thyroid gland. It is essential for the formation of an organic iodine compound called thyroxine which regulates some of the metabolic functions. Iodine is required in the oxidation of fats and proteins and for circulatory functioning.

Effect of deficiency: An iodine deficiency is partially responsible for goiter (the enlargement of the thyroid gland) and cretinism (a subnormal metabolism). A lack of iodine also leads to sensitivity to toxic accumulations, low physical and mental activity and a susceptibility to nervous disorders.

Recommended Allowances: Daily iodine needs are very small. The following are the Daily Dietary Allowances (revised 1974):

Infants (0-5months)	.035 milligrams
Infants (5-12 months)	.045 milligrams
Children (1-3 years)	.060 milligrams
Children (4-6 years)	.080 milligrams
Children (7-10 years)	.110 milligrams

Males (11-14 years)	.130 milligrams
Males (15-18 years)	.150 milligrams
Males (19-22 years)	.140 milligrams
Males (23-50 years)	.130 milligrams
Males (51 over)	.110 milligrams
Females (11-18 years)	.115 milligrams
Females (19-50 years)	.100 milligrams
Pregnant & nursing mothers	.125-.150 milligrams

Food Sources: Iodine is found in high amounts in all sea vegetation. The following are also good sources of iodine:

Swiss chard	Kale
Turnip greens	Strawberries
Squash	Peaches
Mustard greens	Lettuce
Watermelon	Bananas
Cucumbers	Carrots
Spinach	Tomatoes
Pineapples	Grapes

2.3.14 Zinc

Use in the Body: Zinc is found in the brain, genital organs, thyroid, liver and kidneys. It is needed in the healing of wounds and in the transfer of carbon dioxide from the tissue to the lungs. Zinc is also required in the manufacture of insulin and in the regulation of blood sugar.

Effect of deficiency: A lack of zinc may result in mental depression, prostrate troubles and absence of taste. A zinc deficiency may also result in defective intestinal absorption and restricted growth.

Recommended Allowances: The allowances for zinc as recommended by the National Academy of Sciences in 1974 are:

Infants (0-5 months)	3 milligrams
Infants (5-12 months)	5 milligrams
Children (1-10 years)	10 milligrams
Adults	15 milligrams
Pregnant and Nursing Mothers	20-25 milligrams

Food Sources: Zinc is found in the following foods:

All seeds and nuts, especially pumpkin seeds
Sprouted wheat
Most green and yellow vegetables

2.3.15 Other Minerals

The functions and daily allowances of the other minerals in the body have not yet been fully understood. All are important to the health of the human organism, however, and should not be disregarded.

These minerals, often called "trace minerals," will usually be found in sufficient quantities in diets which contain adequate amounts of the major minerals. Like the major minerals, all requirements of the trace minerals are supplied in a varied diet of fruits, vegetables, nuts, seeds and sprouts.

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3. Organic And Inorganic Minerals

3.1 The Differences in Mineral Forms

Most knowledgeable people today recognize that the body must have certain minerals to accomplish its work and preserve its health. However, only a few realize that these minerals must be in their organic state to do us any good at all.

Please understand these facts:

1. Minerals are inorganic as they exist naturally in the soil and water.
2. Minerals are organic as they exist in plants and animals.
3. Only plants can transform inorganic minerals into organic minerals.
4. Animals must eat plants or plant-eating animals to obtain their organic minerals.
5. Inorganic minerals are useless and injurious to the animal organism.

3.2 How the Confusion Began

Because inorganic minerals and organic minerals have the same chemical compositions, they were confused by the early nutritionists. The mineral, iron, in the bloodstream has the same chemical composition as the mineral, iron, in a nail—iron is iron, after all. However, these nutritionists incorrectly reasoned that there were no other differences between these two forms of iron. As a consequence, there actually were iron mineral supplements that consisted of surplus powdered nails.

Perhaps you have heard the expression, "mad enough to chew nails." In this case, mad or unbalanced is certainly the correct word.

These nutritionists made an error in reasoning by assuming that a chemical similarity in minerals also meant there was a nutritive similarity between organic and inorganic minerals. While it is true that the same minerals found in the human body are also found in the soil and water it is wrong to assume that the minerals in the soil are food for man. We are not soil eaters—we are plant eaters.

It is necessary that the minerals in the soil be elaborated into organic compounds by the plant before they can be |assimilated by the body. The various mineral compounds produced by the chemist differ in their structure and in the relative positions of their component molecules than those produced in the plant.

Over sixty years ago a German scientist named Abderhalden conducted a series of experiments comparing how several species absorbed different forms of iron. He found that animals fed with food poor in iron, plus in addition of inorganic iron, were unable in the long run to produce as much hemoglobin as those, receiving a natural iron-sufficient diet.

While the inorganic iron may be absorbed into the body, it is not utilized in the formation of hemoglobin, but remains unused within the tissues. Abderhalden also concluded that any apparent benefit of the inorganic iron resulted from its stimulating effect.

Chemically, it is true that iron in the bloodstream and iron in nails are the same and that calcium in rocks (known as dolomite) is identical to calcium in the bones.

However, it is a grave error to believe that the body can digest and assimilate and utilize powdered nails and crushed rocks.

3.3 Mineral Supplements

The idea of administering inorganic minerals as foods and remedies for man started with the German scientist Hensel in the early twentieth century. Later the homeopaths expanded upon his idea and made numerous artificial mineral preparations called cell salts, which are still sold today as popular "cures" for mineral deficiencies. Today mineral supplements exist in many forms and come from many sources. They are all useless.

Mineral supplements are of no benefit to the body because they are: 1) inorganic and 2) fragmented.

Because mineral supplements are inorganic, the body cannot assimilate or use them. In fact, the body must work harder to compensate for the inbalance created by ingesting these supplements. The body accelerates its eliminative activities and works hard to expel these foreign substances. This stimulation is often mistaken for the "beneficial action" of the supplement. Actually, the supplements are not beneficial—they are harmful—and they are inanimate and therefore incapable of acting (except chemically).

As health consumers have grown more aware of the differences between organic and inorganic minerals, so have producers of these supplements. Consequently, there are now mineral supplements which are advertised as coming from "organic" sources. These are equally useless because they exist in a fragmented state, extracted from the sources within which they naturally occur.

Minerals do not work in isolation. When they are extracted from their natural sources, the other co-existing vitamins, minerals, enzymes, etc., are not also extracted. Even if they were, the process of laboratory extraction destroys any vital benefits that may have been associated with the minerals.

Minerals must be consumed in their natural, unfragmented and organic state to be of any use to the body. The best mineral supplements are those naturally occurring in mineral-rich foods in their unprocessed state—fresh fruits, vegetables, nuts, seeds and sprouts.

3.4 Mineral Waters

Like mineral supplements, mineral waters cannot provide any beneficial minerals to the body. Any minerals contained in such waters are inorganic and must be expelled by the body. Should an excess of these inorganic minerals be consumed in the water, the body cannot rid itself of them fast enough and they are deposited within the body.

These inorganic mineral deposits lead to kidney and gallstone formation, hardening of the arteries, arthritis, heart trouble, ossification of the brain and other serious diseases. The unexpelled mineral matter from mineral-containing waters combines with cholesterol to form plaques. These plaques lead to cardiovascular problems, and they join with uric acid to cause arthritic and rheumatic complaints.

The body cells can use only pure (distilled) water—such as that found in fruits and plants—and they reject all inorganic minerals consumed in mineral-laden waters.

When mineralized waters are drunk, a condition known as leukocytosis occurs within the body in thirty minutes to three hours after drinking. Leukocytosis is the proliferation of white blood cells which are the body's first line of defense against foreign and harmful body substances—in this case, the inorganic minerals in the water.

Mineral waters cannot furnish the body with any needed elements other than the water itself. The remaining inorganic minerals are either eliminated through the skin, kidneys, etc., or they are deposited within the body where they may cause eventual harm.

Sea water is our "richest" mineral water, yet it is poisonous. Similarly, all other mineralized waters are simply dirty waters, contaminated with inorganic matter which is pathogenic to the body.

3.5 How Inorganic Minerals Are Transformed

Even plants, when in their embryonic state, cannot use inorganic minerals in the soil, but instead feed on the organic compounds contained within its seed. Not until its roots and leave? are grown can a plant utilize the inorganic minerals of the soil.

The changing of inorganic matter into organic matter takes place principally in the green leaves of the plant by means of photosynthesis. Only by the presence of chlorophyll is the plant able to utilize the inorganic carbon molecule and convert it with hydrogen and oxygen into the organic combinations of starch and sugar. And, ultimately, the plant combines nitrogen and other mineral elements from the soil into more complex organic combinations. Only the chlorophyll-bearing plants have the ability to assimilate iron, calcium and other minerals from the soil and to use the resulting combinations to construct nucleo-proteins.

Vital changes occur in all minerals as they pass into the structure of plants. These changes cannot be isolated by normal chemical laboratory processes which destroy living plant tissues to analyze them. Such crude methods of studying the role of organic minerals in an organism is somewhat akin to the old medical practice of dissecting cadavers to look for evidence of the human soul.

4. Mineral Deficiencies

So far we have discussed the differences between organic and inorganic minerals and how inorganic minerals cannot be used by the body. Such inorganic mineral forms as supplements and mineral waters are therefore useless in correcting mineral deficiencies. We might now ask what causes a mineral deficiency in the first place.

A mineral deficiency only occurs for two reasons: 1) improper diet and 2) inability of the organism to assimilate and use the mineral.

4.1 Improper Diet as a Cause

An improper diet can be defined as the habitual consumption of foods that are incompatible with our biological heritage, or the eating of usually wholesome foods in a processed state.

For example, we are not biologically adapted to meat-eating because our digestive juices are not strong enough to digest the bones and cartilage of the animal along with its flesh. Consequently, meat-eating humans only get the flesh of the animal and neglect the bones, blood and cartilage—unlike naturally carnivorous animals. It is the bones, blood, cartilage, etc. that contain many of the minerals that are needed by carnivorous animals. Humans who eat only the flesh of animals thus receive a diet very poor in sodium, calcium, sulfur, magnesium and iron.

This is not an argument for eating animals in their whole state—blood, bones, and all—but a serious question of the value of flesh-eating as practiced by humans.

Like meat, grains are also very poor in sodium. Because of these sodium deficiencies, people salt grains and meats to make them more palatable. They add an inorganic chemical, sodium chloride (salt), in an effort to correct the inherent sodium deficiency within these unnatural foods. Of course, the body cannot use sodium in this inorganic form, and it must try to eliminate it. Grains, then, being minerally unbalanced, are not a good food for the human diet.

Foods that are usually regarded as wholesome and mineral-rich can also be rendered minerally unbalanced by processing them. For example, the potato, while not an optimum food, is an acceptable addition to the diet in its whole state. It, too, is somewhat sodium deficient, but its skin is a storehouse of many other minerals. When peeled, boiled or fried, the potato loses much of its mineral content and becomes an unfit food.

A truly mineral-rich diet, then, should consist of food best suited and natural to the human diet which are consumed as they are found in nature with a minimum of processing or preparation.

4.2 Metabolic Deficiencies

Although an improper diet is usually viewed as the main cause of a mineral deficiency, it is also important to realize that a mineral deficiency can occur even when there is an excess of minerals in the diet. Although the minerals may be present, the body, for some reason or other, is unable to digest and assimilate them. In this case, a metabolic deficiency occurs.

For example, in cases of pernicious anemia, which is often viewed as a serious iron deficiency, there is often an excessive amount of iron-containing pigment in all the organs. Post-mortem diagnosis of several anemic patients showed that there was enough iron stored in the spleen to correct the deficiency in the body. The mineral was present, it just was not being metabolized.

Also, in cases with fasting anemic patients, it has been discovered that their number of red blood cells improve and iron is utilized more efficiently while on a fast. It is interesting to note that this occurs when the patient is not receiving any iron at all in his diet. The fasting condition enables the patients to metabolize the iron already stored within their system.

Similarly, in cases of patients with rickets, a condition often associated with a calcium deficiency, improvements were noted in their conditions after they had fasted for a length of time. They were allowed exposure to sunshine in. sufficient amounts to develop Vitamin D within their bodies. The presence of Vitamin D then allowed them to use the calcium within the body more effectively. These patients were suffering more from a "sunshine deficiency" than from lack of a certain mineral.

Many factors may cause an individual to be unable to assimilate and use the minerals present in his diet. Personal habits, working environment, state of mind, manner of cooking, overworked emotions, lack of sleep, overeating, worry, grief and so on are all causes of impairment of the metabolic process.

To allow the body to assimilate and use the minerals in the diet, the individual may need to correct his habits of living. He may need a physical or mental rest or even a complete physiological rest which can only happen while fasting.

4.3 Minerally Deficient Soils

One last cause of a mineral deficiency should be noted—not because it is a common cause, but because it may be an important consideration for those people who are attempting to grow all their food for self-sufficiency. That cause is: The exclusive consumption of foods which are grown on minerally poor soils.

If the soil itself is minerally deficient, it will be difficult to obtain the minerals we need from the plants grown on that soil. The mineral content of soils in certain locales may be deficient in one or two important minerals. As a result, there can be a wide range of mineral contents in the same variety of food, depending upon the soil in which it was grown. Consider, for example, the variations in these minerals as found in grapes grown in different soils:

Percent ot total Mineral Matter Grapes Grown on different Soils	
Sodium	From 0.29 to 10.54 percent
Calcium	From 1.70 to 22.60 percent
Iron	From 0.05 to 1.68 percent

In this one example you can see how the mineral content of a food can vary up to 35 times, depending upon the soil in which it is grown.

Proper mineral nutrition begins with proper agriculture, and the commercial fertilizing methods of adding chemical nitrogen, potash and phosphoric acid ignore the many other mineral elements required to grow healthy plants.

People who eat fruits, vegetables, nuts and seeds grown n a wide variety of soils rarely have to worry about developing a mineral deficiency because of a single soil deficiency. Those people who do grow and eat all their foods from a single soil source should make compost to insure that their soil contains all the essential minerals needed for good health.

5. Obtaining The Minerals We Need

5.1 All Minerals Present in a Natural Diet

All mineral needs may be supplied to the body by eating a varied diet of fruits, vegetables, nuts, seeds and sprouts as they are found in their natural unprocessed state.

Before these minerals can be efficiently used, it may be necessary to give the body a complete physiological rest through fasting. A fast will enable the body to increase its metabolic powers.

Given that we lead our lives in a healthy manner, free from undue emotional and mental stress, we should have no trouble at all satisfying all our mineral and other nutritive needs from a simple Hygienic diet.

The efficiency of a Hygienic diet in supplying all of our mineral needs can best be illustrated by analyzing the mineral contents of two typical daily menus. These menus were taken at random from Herbert Shelton's book Superior Nutrition, and the reader is referred to this source for more examples of the Hygienic dietary.

The first menu is a summer menu and the second is a fall-winter menu. The amounts of each food below were chosen to be the similar amounts an adult woman or man might eat. For increased mineral or nutritive content, the amounts of food eaten could also be increased in accordance with environment, type of work done, physical constitution, etc. All mineral content estimates were made on the conservative side.

5.2 Examples of Mineral Contents of Meals

SUMMER MENU

Meal	*Food*
Breakfast	Watermelon
Lunch	Bibb lettuce
	Yellow squash
	Sunflower seeds
Dinner	Cherries
	Nectarines
	Bananas

MINERAL CONTENT OF FIVE ESSENTIAL MINERALS

CALCIUM	400 milligrams

IRON	18.2 milligrams
MAGNESIUM	16 milligrams
PHOSPHOROUS	1150 milligrams
IODINE	.245 milligrams

FALL/WINTER MENU

Meal	*Food*
Breakfast	Oranges
	Grapefruit
Lunch	Lettuce
	Asparagus
	Chard
	Almonds
Dinner	Persimmons
	Apples
	Grapes

MINERAL CONTENT OF FIVE ESSENTIAL MINERALS

CALCIUM	600 milligrams
IRON	18.9 milligrams
MAGNESIUM	458 milligrams
PHOSPHOROUS	800 milligrams
IODINE	.235 milligrams

Looking over the mineral contents of these two daily menus, we discover that they usually supply anywhere from 100 to 180 percent of the officially recommended allowances, except for calcium, which totals 70 - 90% of our daily requirements.

It should be noted that calcium needs on a vegetarian diet (such as this one) are significantly less than the calcium requirements for a carnivorous diet, upon which the official recommendations were based. Consumption of flesh causes the body to excrete calcium to neutralize the toxins within the meat and the uric acid formed. Calcium needs are less on a vegetarian diet.

By adhering to a diet of fresh fruits, vegetables, nuts, seeds and sprouts, a person need never worry about obtaining sufficient minerals in the diet. In fact, this is the most minerally-rich and efficiently utilized diet for humans.

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6. Questions & Answers

You said that even mineral supplements from organic sources are fragmented and therefore not wholesome. Isn't there sometimes a need for a megadose of a particular nutrient when there is a severe deficiency?

> First, remember that a deficiency of an individual mineral rarely exists in isolation. If a person, for instance, has a "calcium deficiency," it may be because there is not enough phosphorous in the diet which is used by the body together with calcium, or a Vitamin D deficiency may be responsible for the exhibited calcium deficiency. By supplying a large amount of a specific mineral, you ignore the other accompanying needs of the body.
>
> Finally, along with this idea is the concept of the "law of minimum." This law states that the body is able to use a certain nutrient only to the extent that other necessary nutrients are available. If, for example, you had only enough copper in the body to aid in assimilation of 10 milligrams of iron, taking 30 extra milligrams of iron would do the body no good. Nature provides the minerals and other nutrients we need in a perfectly balanced combination within foods. When we introduce large amounts of minerals, vitamins, etc. in a fragmented form, we throw the body out of balance.

But I've taken dolomite for years and no longer suffer from the signs of calcium deficiency I had before. Why is that?

> When mineral supplements, etc. are added to the diet, it usually is a sign that an individual has become aware of problems within the body. Consequently, along with the taking of supplements, a person often improves his diet, his exercise program or whatever. These changes are what improve a condition, not the supplements.
>
> Supplements and pills of all forms often have a placebo effect upon the individual. That is, you believe you are getting better by taking an external agent—a supplement. Dolomite's chief effect is to cause the formation of stones in the body from the inorganic calcium it contains.

If we get all the calcium we need from fruits, vegetables, nuts, seeds and sprouts, why does the National Dairy Council say we need milk and milk products? Other health organizations say the same thing.

> Milk is such an inappropriate food for humans that some reason has to be given for drinking

> it. Since calcium is its most abundant mineral, the National Dairy Council has based its campaign on this fact. First, the calcium in dairy products, and especially in pasteurized products, is not completely assimilable by the body. The calcium in chocolate-flavored milk quickly forms stones of calcium oxalate within the kidneys. Cows' milk cannot even be digested by over 80% of the world's population because they lack the necessary enzyme. Within the milk itself are so many other harmful items (casein—used in glue making, artificial hormones to induce lactation, etc.) that any value obtained from the calcium is completely negated.

Almost the entire health community advocates the use of food supplements, including minerals, because they realize that most people will not eat the strict diet you advocate. How can people who don V eat the most healthful diet still get the minerals they need?

> I believe that even people on a typical "junk food" diet can be convinced to eat one or two pieces of fruit a day or a small raw salad or a handful of raisins. There are more usable minerals in a single apple than in a whole bottle of mineral supplements. You simply cannot get the minerals you need from a bottle or a drugstore. Only the diet can supply needed minerals. If a person is unwilling to adopt a healthy diet, then at least let him eat a small amount of "real" food each day. The body will work hard to make do with any minerals in their natural food form, no matter how small the amount.

Article #1: The Minerals Of Life By Dr. Herbert M. Shelton

It seems quite clear that the vital importance of the organic salts of foods was established by men who were outside the regular folds. The older physiologists and physiological chemists gave no attention to them. In the tables of food analysis they were regulated to the "ash" column and ignored.

At the present day their importance is everywhere recognized. It is no longer thought that only the "nutritive values"—proteins, carbohydrates, fats—are important.

Animals fed on foods deprived of their salts (minerals) soon die. In the same manner, they die if, to these demineralized foods, are added inorganic salts in the same quantities and proportions as are found in the ashes of milk. The salts must come to the body in the organic form. These inorganic salts are not used except in the presence of vitamins.

Berg has pointed out that there does not exist one single complete analysis, either of the human organism or its excretions or of our foodstuffs. Not everything is known about the function of minerals in the body and of some of them almost nothing is known. Some of them, such as zinc and nickel, apparently perform functions similar to those of vitamins. Prof. E. V. McCollum showed that animals deprived of manganese lose the maternal instinct, refuse to suckle their young, do not build a nest for them, and even eat their young. Their mammary glands do not develop properly and they are unable to secrete proper milk for their young. Here are effects commonly attributed to vitamin deficiency.

This "ash" enters into the composition of every fluid and tissue in the plant and animal body and without even one of these minerals, life could not go on. They are of the utmost importance. They serve a number of purposes. They form an essential part of every tissue in the body and predominate in the harder structures such as bones, teeth, hair, nails, etc. The bones consist largely of calcium phosphate.

They are the chief factors in maintaining the normal alkalinity of the blood as well as its normal specific gravity. They are also abundant in the body's secretions, and alack of them in the diet produces a lack of secretions. They are also used as detoxifying agents, by being combined with the acid waste from the cells. The wastes are thus neutralized and prepared for elimination. Their presence in the food eaten also aids in preventing it from decomposing. Acidosis produced by the fermentation of proteins and carbohydrates often comes because the mineral salts have been taken from the food, thus favoring fermentation.

In a simplified sense we may consider the blood and lymph as liquids in which solids are held in solution—much as salt is dissolved in water. The cells, which are bathed at all times in lymph, are also semi-fluid with dissolved matter in them. If the lymph outside the cells contains much dissolved solid, as compared to that within the cells, the cells shrink in size. If there is more dissolved solid within the cell than without, the cell expands and sometimes bursts. In either case the result is pathological.

If the amount of dissolved solids within and without the cell are equal, so that internal and external pressure are equalized, the cell remains normal. It falls very largely to the minerals of the food to maintain this state of osmotic equilibrium.

The waste formed in the body, due to its normal activities, is acid in reaction. The greater part of the work of neutralizing these acids is done by the mineral elements—the "ash."

These minerals enter into the composition of the secretions of the body. The hydrochloric acid in the gastric juice, for example, contains chlorine. Clotting of the blood does not take place without the aid of calcium or lime.

The mineral matters in food undergo no change in the process of digestion, prior to absorption, as do proteins, fats and carbohydrates. They are separated from these other elements in the process of digestion and pass directly into the blood.

If our foods do not contain enough of the right kinds of mineral salts we simply starve to death. It does not matter how much "good nourishing food," as this is commonly understood, that we consume, if these salts are not present in sufficient quantities we suffer from slow starvation, with glandular imbalance or disfunction, more disease and other evidences of decay. McCarrison showed, definitely, that foods and combinations of foods that are inadequate and unsatisfactory in feeding animals are equally as inadequate and unsatisfactory in feeding man.

Life and health are so directly related to these salts, of which little enough is known, that we can never have satisfactory health without an adequate supply of them. We may be sure that each salt has its own separate function to serve, while certain combinations of them have long been known to serve vital services in the body.

No drug salts can be made to take the place of those found in food. As Dr. William H. Hay, says: Nature provides all her chemicals for restoration of the body in the form of colloids, organic forms, and man has for a long time sought to imitate her in this, but he has not been so very successful that we are now able to insure the recouping of the mineral losses of the body by any artificial means, and must still depend on nature's colloids as found in plant and fruit." Well or sick, no compound of the chemist, druggist or "biochemist" can recoup your mineral losses.

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Lesson 11 - Fats In The Diet

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1. Introduction

Fat makes up a larger caloric portion of the American diet than any other foodstuff. The average American's food intake is 40% fat. He eats animal foods rich in fat; he tosses his salads in fat; and he spreads his bread with fat. When he eats out, he patronizes fast food restaurants that deep-fry and grill-fry most of their food in fat.

He lives off the "fat of the land" and "high on the hog," and he suffers from some of the most serious health problems in the world. His arteries become clogged with cholesterol, his breathing becomes short and he dies in what should be his prime years.

Fat is not the only culprit in the American diet, and indeed fat is not "bad," just as proteins and carbohydrates are neither good nor bad. Fat is needed in the diet. It is present in every food we eat—even cucumbers, watermelons and apples have fat.

It is the particular sources from which people get their fat and the way in which fat is utilized in the diet that is "bad," or at least unhealthy.

What you will learn in this lesson is what fats are, how the body uses them, how they are digested and how they should be obtained in the diet. This is the type of understanding we need to evaluate intelligently the role of fats in the human diet.

2. What Are Fats?

2.1 Basic Composition

Fats, or hydrocarbons, are one of three food categories, the other two being proteins and carbohydrates.

Fats are composed of the same three elements as carbohydrates—carbon, oxygen and hydrogen. However, they are much poorer in oxygen and richer in carbon and hydrogen than are carbohydrates. Because of this higher carbon and hydrogen content, fats have a greater heat or energy equivalent than carbohydrates.

The fats found in plants are manufactured from water and carbon dioxide with the aid of chlorophyll, much in the same manner that the carbohydrates in a plant are produced. The fats found in humans and animals come from two sources: 1) from the fats in the diet and 2) from the metabolism of excess carbohydrates into fat. The greatest amount of fat in the body usually comes from carbohydrate metabolism.

As far as the human digestive process is concerned, fats are composed of two components: 1) glycerin (or glycerol) and 2) fatty acids.

Glycerin is the energy source of fats and is metabolized much in the same manner as are the carbohydrates. The glycerin is broken down into sugars which may be used by the body for fuel.

The fatty acids are often spoken of as chains of hydrogen, carbon and oxygen atoms. Simplistically speaking, the fatty acids are to fat what the amino acids are to protein. These chains of fatty acids have links within them where additional hydrogen, oxygen or carbon atoms may be attached to the chain.

If hydrogen is attached to these links, the fat becomes it more solid. This is called *hydrogenated* fat.

All the solid vegetable fats, such as Crisco, margarines, etc., are hydrogenated. If oxygen is attached to one of, these fatty acid links, the fat becomes rancid. Thus, fats left exposed to the air begin to oxidize and become rancid rapidly.

2.2 Unsaturated, Saturated and Hydrogenated Fats

Fat that is unsaturated is composed of fatty acids in which one or more of the carbon atoms in the chain do not have all of their accompanying hydrogen atoms. In other words, unsaturated fatty acids have open available links in their chains.

These open links in fatty acid chains are important. The body is able to combine various nutrients with the fatty acid chains through these open links. This combination of nutrients and fatty acids allows both of them to be transported through the body where they can be used in building cell structure.

Animal fats contain very little unsaturated fats. The chief sources of unsaturated fatty acids are nuts and seeds. Almost all vegetable fats in their natural state have a high proportion of unsaturated fatty acids.

The term *polyunsaturated* means that there is a large number of fatty acids which have two or more open links in their chains. These vegetable polyunsaturated fats are used in making margarine and shortening. This is done by the process of *hydrogenation*.

Hydrogenation causes liquid fats to become solidified by introducing hydrogen atoms into the open links of the fatty acid chains. If a fat becomes completely hydrogenated, it is rock-hard. The process is controlled, however, so that varying consistencies of hydrogenated fats can be produced.

The hydrogenation process consists of heating the fats and oils to a temperature of 212 to 400 degrees. Hydrogen is then mixed in, along with Some catalytic agents, such as nickel or platinum. The fatty acids then take on the hydrogen atoms and begin to solidify.

The heating of the oils during this process destroys any vitamins that might be present. The addition of the hydrogen atoms fills the open links in the fatty acid chains and thus prevents nutrients from binding with the acids. As a result, hydrogenated fats can supply only empty calories and no nutritive value.

Since hydrogenated fats cannot become rancid (nor can they support life), they are manufactured extensively. Margarine, cooking fats, processed cheeses, lard and peanut butter are but a few products subjected to hydrogenation.

The *saturated* fats are found chiefly in animal fats. Saturated fats are solid at room temperature, unlike the liquid unsaturated fats. Saturated fats are found in animal flesh, dairy products, eggs and coconuts. It should be noted that the saturated fats in coconuts have a different chemical structure.

Like hydrogenated fats, the saturated fats cannot enter into a nutrient bonding within the body. Consequently, they cannot be used effectively by the body in cellular composition than the saturated animal fats metabolism. The saturated fats are usually empty calories that contribute to a fat build-up within the body. They serve no useful function.

2.3 Cholesterol: Villain or Hero?

Accompanying the saturated animal fats is cholesterol, which can be considered a "cousin" to the fat family. Since cholesterol is generally discussed in terms of fats in the diet, this is an appropriate place for its inclusion.

Cholesterol is not a harmful substance as such. The body uses it in all of its tissues. It occurs in the brain, spinal column and skin. Cholesterol is part of the raw materials from which bile salts, sex and adrenal hormones and vitamin D are made. It combines with proteins to enable fats to be carried to the cells.

The liver produces all the cholesterol the body needs for its functions. In an average adult, about 3,000 milligrams of cholesterol are produced each day, regardless if cholesterol is present in the foods eaten or not.

When additional cholesterol enters the body through diet, an excess occurs. Typically, a person consuming animal products ingests about 800 milligrams of cholesterol a day. This extra cholesterol is deposited along the walls of the arteries throughout the body.

As these deposits grow, a condition known as atherosclerosis or "hardening of the arteries" occurs. The arteries become constricted and circulation is seriously impaired. This impaired circulation contributes to a wide variety of problems, including loss of hearing, baldness, shortness of breath, dizziness and heart attacks. All tissues the body are harmed since a reduced amount of oxygen and nutrients reach the cells.

Atheroschlerosis now affects a majority of Americans, regardless of age. Autopsies of infants less than one year old, many of them fed commercially prepared baby formulas, revealed large amounts of cholesterol already deposited within their arteries.

There is absolutely no need for saturated fats or cholesterol in the diet. The body manufactures all of its cholesterol needs. The consumption of additional amounts in the form of saturated animal fats destroys the health of the body at the cellular level.

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3. Fat Digestion

Fat digestion takes much longer than the digestion of carbohydrates and somewhat longer than the digestion of proteins. A raw salad consisting of nonstarchy vegetables can be digested within two to three hours. When free fats such as corn, sesame, peanut or other oils are added to the salad, digestion is delayed for another two or three hours.

Coating our food with free oils inhibits the natural digestive processes by preventing digestive juices access to these foods until the oils are digested. Consequently, by the time the oils or fats surrounding the other food particles are digested, the elementary carbohydrates or proteins in the vegetables have begun to ferment (carbohydrates) or putrefy (proteins) in the stomach.

3.1 Fats Require Special Digestion

Free fats, unlike carbohydrates, require special digestive action before absorption. This is because the end products of all digestion are carried in a water medium (that is, the blood and lymph). Free fats are not soluble or transportable in these water mediums until they undergo special changes.

3.2 Tracing Fat Digestion

After fats leave the stomach, they enter the duodenum of the small intestine. Their presence causes the stimulation of the gallbladder, which forces bile down into the small intestine. The bile emulsifies, all the fats in the intestines.

The emulsified fats are then split by enzymes into fatty acids and glycerol. At this point, the fats can be absorbed through the intestinal mucosa. During absorption, the fatty acids and glycerol recombine with a small amount of protein to form microscopic particles of fat called chylomicrons.

The fats in the form of chylomicrons are now soluble enough to enter lymph circulation. The fatty acids are converted to the liver to acetate or ketone bodies as an energy source for the cells.

The fat which is not used immediately for the body's energy needs is stored primarily in adipose tissue. Adipose tissue is a special kind of tissue (found mainly around the stomach, thighs and buttocks) which contains the necessary enzymes to continually produce and release new fat to meet the body's needs.

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4. How The Body Uses Fat

Fat is used in the body in four main ways:

1. As a source of heat and energy;
2. As padding and insulation for the organs and nerves;
3. As a regulator for the fat soluble vitamins (A, D, E and K); and
4. As a source of the essential fatty acids.

4.1 Fats Supply Heat and Energy

Each gram of fat supplies nine calories. This is more than twice the amount of energy supplied by a gram of carbohydrates. The body uses fat in much the same way as it uses carbohydrates. That is, fat is used mainly as an energy food.

Fats are converted to energy by being split into fatty acids and glycerol. Glycerol is then converted to either glucose or glycogen. At this point, the usual processes of carbohydrate metabolism take over to produce needed energy from the glucose and glycogen.

While fats may supply twice the caloric energy of carbohydrates, we find that they must undergo a longer digestive process before they are ready for an essentially carbohydrate metabolism. In general, carbohydrates do a more efficient job of providing the body with readily usable fuel. Fats are valuable in that they may provide a form of stored energy, but strictly speaking, they are not a necessity in the diet as far as a fuel source goes.

Fats, however, are usually more extensively stored within the body than are carbohydrates and may be converted into fuel when the body's carbohydrate reserves are depleted. In fact, this is exactly what occurs when a person goes on a diet, fasts, or is exposed to extremely cold weather. As the stored carbohydrate reserves in the liver are exhausted, the body's fat reserves are metabolized for a new supply.

It should be understood that these fat reserves in the body do not simply come from the fat that is eaten in the diet. When an excess of carbohydrates is eaten, it is converted by the body into fat and stored.

In this way, the body can store and use fat without having a large amount of fat in the diet. The fat deposits could be viewed as a carbohydrate bank, where deposits and withdrawals are made as necessary.

We can see that fat within the body is an important energy and heat source, but strictly speaking, fat in the diet is not an essential outside source for this fuel.

4.2 Fats Provide Padding and Insulation

Within the body, fat deposits provide padding and support for the organs and insulate the body from cold.

For instance, a certain amount of fat is necessary in the buttocks. A loss of most of the fat in this body area actually makes sitting down uncomfortable. Fat tissue is also a special type of connective tissue that aids in the support of certain organs, such as the liver.

Most animals in nature experience an increase in their fatty tissues with the advent of the cold weather. This fat may be used as a fuel source during the winter months when food is naturally scarce and help in the insulating of the body.

This function of fat in the body should not be confused with the role of fat in the diet. Fat reserves in the body do not necessarily come from fat intake in the diet but may instead be developed from the carbohydrates consumed.

4.3 Fats Aid in Absorption of Fat-Soluble Vitamins

Some of the vitamins are termed "fat-soluble." This means that fatty compounds must be present in the intestines for these vitamins to be absorbed. The fat soluble vitamins are A, D, E and K. The other vitamins (B, C, etc.) are termed "water-soluble."

If these fat-soluble vitamins are obtained from the foods in which they naturally occur and eaten in an unprocessed state, they will be readily absorbed by the body. The wholesome foods which contain these vitamins also contain the necessary fatty compounds for their absorption.

If these vitamins, however, are extracted (as in supplements) or occur in foods which have been fragmented, processed or subjected to heat, then their absorption will be impaired. Heating fatty foods, for example, renders almost all of the fat-soluble vitamins useless.

4.4 Fats Are Sources of the Essential Fatty Acids: Vitamin F

Even if no fat is eaten, the body can manufacture most of its fatty acids from fruit and vegetable sugars. There are three fatty acids, however, that the body is said to be unable to synthesize. These are called the essential fatty acids.

The three essential fatty acids are linoleic acid, arachidonic acid and linolenic acid. The linoleic acid is generally thought to be the most important and has been termed absolutely essential to life by some nutritional researchers. The arachidonic acid can act as a fairly good substitute for linoleic acid. The third acid, linolenic, is said to be only a partially satisfactory substitute for linoleic acid in that it can support growth but cannot aid in the other functions that linoleic acid performs.

4.5 Functions

Collectively, these essential fatty acids are sometimes referred to as vitamin F. The fatty acids or vitamin F are considered necessary for normal glandular activity, especially the adrenal glands. The adrenal and sex hormones seem to require the presence of these fatty acids for their manufacture.

The essential fatty acids are thought to be involved in many of the body's metabolic processes. They promote the availability of calcium and phosphorous to the cells and help form the fat-containing portion of every cell's structure. They are also considered a factor in growth and in reproduction.

4.6 Effect of Deficiency

A lack of vitamin F (the fatty acids) is said to contribute to skin disorders, gallstones, loss of hair, impaired growth and reproductive functions, kidney and prostate disorders and menstrual disturbances.

Since the fatty acids are also said to aid in the growth of intestinal bacteria which help produce the B vitamins, the symptoms of a B-vitamin deficiency may be related to a lack of fatty acids in the diet.

4.7 Requirement

No minimum requirement for vitamin F or the essential fatty acids has been established. The National Research Council has stated that about 1% of the total daily calories of about 2200-2800 per day should consist of unsaturated fats to provide a margin of safety for the intake of essential fatty acids.

The following wholesome foods contain the shown percentages of linoleic acid, the major fatty acid. In general, if the intake of linoleic acid in the diet is adequate, then all other fatty acid needs are also well satisfied.

Food	**% Linoleic Acid**
English walnuts	40
Sunflower seeds	30
Black walnuts	28
Sesame seeds	22

Pumpkin/squash seeds	20
Brazil nuts	17
Pecans	14
Almonds	11
Filberts	10
Pistachios	10
Cashew nuts	3
Avocados	2
Coconuts	1
Raw sweet corn	Trace

It is interesting to determine how much of the above foods would supply the 1% caloric intake of unsaturated fatty acids (in this case, linoleic acid). This is not to suggest that we accept this "1%" figure as an absolute or even as a necessity at all.

However, for the sake of argument, let's assume a daily intake of 2500 calories. At this level, official figures tell us we should have 25 calories of unsaturated fatty acids. By examining the total amount of linoleic acid available in the nuts and seeds in our previous chart and knowing their calorie contents per ounce, we discover that anywhere from one-half to an ounce and a half of these nuts and seeds would give us 25 food calories of linoleic acid.

That is not the sum total of all the unsaturated fatty acids in these foods, nor is it the total of all the other fats we get in our daily diet. It is merely a statement that even if one-half to an ounce and a half of these nuts and seeds were consumed each day, and nothing else, we would still surpass all official recommendations for essential fatty acid intake.

This does not mean that we must eat this small amount of nuts or seeds each day. We should always eat only what the body needs or requires and not become involved with calorie counting or food weighing.

All fresh fruits, for example, contain between 0.5% and 1% unsaturated fat. Some fruits are higher in fat (particularly the avocado which may be 15% to 22% fat). If fruits alone were consumed, we would still have no difficulty meeting the government suggestion that we make 1% of our diet unsaturated fats.

5. Harmful Fats

5.1 Free Oils

The term free oils refers to those fats and oils which are separated from the foodstuffs in which they naturally occur. For instance, peanut oil is a free oil and likewise we can say that lard is a free oil (although somewhat solid).

Free oils in the diet are of vegetable, animal or chemical origin. Some of the free oils are definitely poisonous to the body. The others, while less harmful, have no place in the human diet.

5.2 Vegetable

Some examples of free vegetable oils are corn oil, olive oil, safflower oil, almond oil and the generic cooking oils which may be a mixture of vegetable oils and added chemicals. These are the most commonly used oils in the typical vegetarian diet which excludes all animal fats.

The fat content of these extracted oils is 100%. No proteins or carbohydrates are contained in these oils. Actually, very few minerals are present and only vitamins E and F are present in any amount. We see that these extracted oils are very lopsided nutritionally—they supply oil, but little else. They may be likened to white sugar or white flour as refined products.

In addition, these extracted oils are very susceptible to pesticide residues. Many of the free vegetable oils have chemicals added to them to prevent them from becoming cloudy or going rancid. Unfortunately, however, almost all free oil undergoes a certain amount of oxidation and becomes rancid regardless of the preservative methods used.

The great majority of all vegetable oils are heat-extracted. That is, they are raised to high temperatures in their manufacturing process in order to expel the oils from their vegetable sources. This heat causes a breakdown in the oil's original composition which renders it nutritionally unfit.

Even most of the so-called "cold-pressed" oils sold in health food stores have had a certain amount of heat applied. Although the amount of heat used in these "expeller-pressed" oils (which is really what they are instead of "cold-pressed"), is somewhat lower than conventional methods, it is still high enough to destroy the oil's original composition. Usually, only olive oil and avocado oil have any chance of being extracted without heating methods of some kind.

All free vegetable oils, with the exception of olive oil, have been added to the human diet only in the past hundred years. The human constitution is simply not adapted to handle these large quantities of free oils. .

Even olive oil, the traditional favorite of many health enthusiasts, cannot be recommended. Unless obtained from strictly organic sources, most, olive oil is mixed with other oils and petroleum products. These additives are considered normal by the government and no labeling of their presence is required.

No free oil, not even vegetable oils, should be included in a healthy diet.

5.3 Animal

The most common free animal oils are lard and butter. Strictly speaking, these are not pure oils or fats. Butter is about 87% fat, while lard is 94% fat. Because of their high fat content and their use outside of their naturally occuring sources (milk and meat), they will be discussed as examples of free animal oils.

The reasons for abstaining from animal free oils (or any animal fats) are basically the same as those for avoiding all animal products in the diet.

Like human beings, animals tend to store the accumulated pesticides, chemicals and additives from their diet in their fatty tissues. Consequently, lard and all animal fats are a concentrated reservoir of environmental poisons.

The animal fats are usually superheated during their extraction and tend toward rapid rancidity almost immediately.

Butter is usually colored and salted and is suspect to the hormonal and additive contamination from the cow.

Like all animal fats, the animal free oils are high in cholesterol which may eventually result in destruction of the cardiovascular system.

No free oil, and certainly not free animal fats, should be included in a healthy diet.

5.4 Chemical

This is a new one. Thanks to the synthetic food industries and the availability of petroleum by-products, free oils made from chemicals are being introduced into the diet. These chemical oils appear in ice cream, artificial coffee creams, artificial butter, etc.

Strangely enough, the people who consume these chemical oils often do so out of a concern for their health. They seek to avoid cholestrol and instead eat chemicals produced by the petroleum industries.

The plastic margarine and imitation coffee cream and ice cream that people eat may have a worse effect than the animal products they purport to replace. At least butter and cream have been a regular part of some people's diet for hundreds of years. Most of these chemical oils have been on the market for less than ten years. No one has any idea as to the eventual harm they may cause.

The eating of these chemical oils is done to satisfy a purely psychological need. They are devoid of nutrition and undermine the body's health.

No free oil, and absolutely never any chemical oils, should be included in a healthy diet.

5.5 Fats In Cooking

Although a lot of fat is consumed in the typical American diet in the form of free oils, the largest amounts of fat are consumed from eating those foods which have been cooked with fat.

French fries, potato chips, doughnuts, cakes, snack foods—almost all the "convenience" foods and junk foods eaten—contain high percentages of heated fats.

When fats and oils are heated to a high degree as in cooking or frying, they become carcinogenic—capable of causing cancer. Healthy cells may become cancerous, that is, "go wild" if the diet is high in heated oils because heated oils are extremely toxic.

The digestive processes for the assimilation of fats require that the fats be emulsified. Fats that have been heated in cooking cannot be emulsified or digested. Since they cannot be used by the body, these overheated fats must be eliminated. Fats which have been subjected to a high degree of heat are difficult for the body to break down and expel. If the body has no use for a substance and cannot effectively eliminate it from the system, then the body stores the substance where it can do the least harm or walls it off by creating a tumor around it.

Besides the heated fats themselves, the foods that are saturated with these cooked fats are also indigestible and poisonous. Starches such as potatos, pastries, breads, etc. that are soaked in hot fat become impossible for the body to convert to sugar—the essential part of starch digestion. These foods then are worse than nutritionally useless since they also place a strain upon the body to eliminate them.

Any food values associated with oils or fats are lost when they are heated. As fats reach 350 degree temperatures, the standard range for frying and cooking, they begin to decompose totally and lose all their vitamins and minerals. They also prevent the absorption of any other fat-soluble vitamins and so contribute to the nutrient starvation of the body.

6. The Use Of Fats In The Optimum Diet

Now that we have discussed the harmful effects of animal fats, free oils and heated fats, we should examine the wholesome sources of fat in the diet. First, there are no such things as "fat-free foods." All foods that are part of the human dietary contain fat. Every cell of every living plant and animal contains fat.

6.1 Fat Contents of Wholesome Foods

There are, of course, different fat contents in different foods. The following chart shows the fat content of foods natural to the human diet:

Food	**% of Fat (by Calories)**
Fruits (Apple)	3
Vegetables (Spinach)	15
Mother's milk	55
Avocados	77
Seeds (Sesame)	70
Coconut (Mature)	79
Nuts (Hazelnut)	81

data from nutritiondata.com

6.2 Nuts, Seeds and Avocados As High-Fat Sources

Nuts and seeds that are fresh, unroasted and unsalted are acceptable high-fat foods. If digestion permits, these should be eaten fresh in their whole state. If used as a nut butter or dressing, they should be made at home immediately before eating. All manufactured nut and seed butters, even those labeled as "raw," undergo some degree of oxidation and become somewhat rancid.

When eaten, nuts and seeds should be masticated thoroughly. For ease of digestion, only a single variety of a nut or seed should be eaten at one meal. These high-fat foods combine best with leafy green vegetables and other non-starchy vegetables. They should not be eaten with starchy vegetables, fruits or avocados.

Coconuts, although rich in saturated fats, may be added to the diet in small quantities and also combined with leafy green vegetables. Coconuts should not be combined with fruits, as is sometimes done, to avoid fermentation of the fruits.

Avocados are another wholesome high-fat food. They are best eaten with nonstarchy vegetables. The nutritive value of an avocado and nuts is quite similar; the avocado simply has a higher water content.

6.3 Olives as food

Olives are the only other fruit besides avocadoes that have a high fat content. They are a wholesome food only if eaten in their natural dried state. Unfortunately, sundried natural olives are very difficult to locate. Olives that are canned, bottled or pickled are indigestible and should not be eaten. Olive oil, while perhaps the potentially less harmful of all the free oils, has no place in the optimum diet.

6.4 Recommendations

Although no specific amounts of these foods are recommended, it should be noted that many practitioners of Natural Hygiene suggest that no more that three to four ounces of nuts or seeds be eaten daily or no more than one avocado. The body appears to have difficulty in handling much larger amounts. Of course, this also means that one may certainly eat less than these amounts or no amount whatsoever. These are not recommendations for eating these foods daily, but suggestions that these foods should be consumed in limited amounts.

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7. Questions & Answers

Just how necessary is fat? Can we live without it?

> First, we must make an important distinction between fat in the body and fat in the diet. Fat in the body is absolutely necessary for our health. It exists in every cell and performs a vital role in our metabolic functions. We could not live without it. Now fat in the diet is a somewhat different matter. It is also omnipresent. It is in every food we eat. The fat needed in the body can also be formed from the carbohydrates in the diet. Fat in the body does not have to come from high-fat foods.

I like salads, but I couldn't make a meal out of them unless I add salad dressings. Aren't there some acceptable salad oils?

> The only acceptable oil for a salad is the oil as it naturally occurs in the complete wholesome food. When you use extracted vegetable oils, you are coating all your foods with a layer of rancid fat. Free oils are simply too unstable and fragmented to be used safely.
>
> There are, however, some acceptable alternatives. I would first suggest eating a small amount of nuts or seeds or avocado along with your salad. By adding a small amount of these high-fat foods, a salad can give you the "full feeling" which is caused by the slow digestion of the accompanying fats. The second alternative, while not as good, is to blend a few nuts or seeds or avocado with a tomato and/or a small amount of distilled water. This

makes an acceptable salad dressing substitute if used immediately after making.

Nuts and seeds are hard for me to digest. How can I get my fats?

By eating a calorie-sufficient diet of wholesome foods. It is not necessary to eat high-fat foods to obtain fat in your diet, nor should we feel obligated to eat any foods, even wholesome foods, because of some particular nutrient value. Eat only what you can relish and digest. Many Life Scientists go for months without eating high-fat foods, especially during the warmer seasons.

I'm underweight. Shouldn't I eat high-fat foods to gain weight?

Many underweight problems arise from metabolic instead of dietic problems. Fats are difficult to digest. If your powers of digestion and assimilation are somewhat weak, as is often the case with underweight people, fats are not good foods to eat. The best foods for weight gain are not the high-fat foods, but the high-carbohydrate foods. Sweet fruits such as bananas, dates, figs, grapes, raisins, etc. are the best high-carbohydrate foods for weight gain.

Fats play a variety of roles in the health of the body. Most diets today have an excess of fats, which contributes to a number of diseases and problems. The fat intake in a diet should be limited as much as possible.

A deficiency of fats in the diet is a nutritional rarity. Usually this can only occur after a period of nutrient starvation or from a metabolic impairment. Fats are present in every food we eat.

High-fat foods are difficult to digest and should be consumed in small quantities. Only wholesome high-fat foods should be eaten at all. This means that no animal fats, free oils or heated fats should ever be included in the diet.

A diet consisting chiefly of fruits and vegetables eaten in their natural state, possibly supplemented by moderate amounts of seeds and nuts (at separate meals) can supply us with all the fats we need and optimally meet our other nutritive needs as well.

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Article #1: A Natural Diet And Sunlight Could Save Your Life By Dr. Zane R. Kime, M.D.

A leading physician with a degree in nutrition offers some guidelines for the optimal diet—a diet which can actually reverse some of the ailments associated with aging.

Several research centers here in the United States have been developing a diet that can reverse hardening of the arteries (atherosclerosis). Some authorities now believe that this same diet may dramatically aid in prevention and treatment of heart disease, appendicitis, diverticular disease, gallstones, hypertension, varicose veins, deep vein thrombosis, pulmonary embolism, hiatus hernia, hemorrhoids, certain types of cancer, colitis and obesity.

This diet is a very natural diet. It is a vegetarian diet. It is low in fat and protein and high in complex carbohydrates such as potatoes, beans, corn, fresh fruit and most other unprocessed foods. Refined foods should be eliminated.

A natural food is one that comes with all its bulk and all its fiber plus all the vitamins and minerals. The vitamins and minerals are there to help metabolize and digest the natural food. Nature intended that we take in the bulk and the fiber plus the vitamins and the minerals and other nutrients all together to have a harmonious nutritional balance.

Foods that are not natural and not included in the diet include those that have been processed or have passed through a chemical factory. Examples abound. A walk through any supermarket will reveal aisle upon aisle of highly refined, overprocessed foods which, unfortunately, are the mainstay of the American public's diet. The most prevalent, of course, are white sugar and refined (white) flour.

Once part of a natural food, sugar cane or sugar beets, refined sugar is almost universally used in processed foods. The health consequences of sugar consumption are well known. But while less visible, its more subtle effects are equally insidious.

Protein

The Standard American Diet (SAD) also contains too much refined protein. Meat, as a "prime" example, contains lots of protein, but little else. It is a concentrated food, but not a particularly good one in terms of overall balance. Many other products advertised as "high in protein" would also fall into this category of overly refined foods. This includes all protein supplements.

Quite simply, a diet of complex carbohydrates—beans, rains, fruits and vegetables—will provide sufficient protein (and indeed superior nutrition) for an adult. The protein scare is a lot of hype. It is not necessary to supplement a natural foods, vegetarian diet, as it is virtually impossible to get a protein deficiency if one is eating enough calories. It is not necessary to complement amino acids in every meal if one is eating a variety of whole natural foods in a day's time.

Oil is another example of food that is refined no matter what its process of extraction is, since it no longer is a whole food. The oil is an extract of a vegetable or animal product in which all the bulk and fiber are removed, plus many of the vitamins and minerals. All that is left is a pure chemical that is classified as a triglyceride. Numerous diseases now are being recognized as associated with too much oil in the diet, and this includes sesame, safflower, soy, olive and other commonly used oils. It takes many ears of corn to produce one tablespoon of corn oil. Essential fatty acids are needed in the diet but can be adequately supplied by whole grains, nuts, seeds and legumes where they are in a water-soluble form. The oil in a nut, for example, is water-soluble; the extracted oil from a nut, no matter how it is processed, is no longer water-soluble. The body seems better able to utilize properly the oil in its water-soluble form, but seems to have serious complications with the non water-soluble, extracted, refined form. The association of a diet high in oil—whether saturated or polyunsaturated—and disease is actually well documented, though this is not well known to the public.

Heart Disease

The average American has a cholestrol level somewhere between 150 and 300 mgm. percent. The average American also has a very high rate of heart attack, stroke and other chronic degenerative diseases. The World Health Organization, in studying many developing countries, has found that their cholestrol levels are much lower than this American average. Many developing countries have cholesterol in the area of 90 to 120 mgm. percent. It is the feeling of some authorities that cholesterol levels of about 140 can begin to produce hardening of the arteries.

To reverse or prevent hardening of the arteries, a low-fat diet is necessary. A diet low in fat means that it is low in all fats—saturated, unsaturated and polyunsaturated. This would eliminate from the diet many of the products that are highly advertised and can be bought in most any supermarket, such as margarine, mayonnaise, oils, most of the salad dressings, butter fat as found in most of the dairy products, and egg yolks.

Meat is very high in fat, at least 44%. Commercially processed nut butters should be minimized in the diet, as they have been so finely ground that the oil has separated from the original nut and therefore is no longer in its original water-soluble form. It would be acceptable to eat nut butters if one were able to grind them less finely in order that there be no separation of the oil from the nut being used, whether almond, sesame, cashew or peanut (a legume).

Many of the harmful effects of saturated fats also appear when polyunsaturated fats are used. In addition, the polyunsaturated fats have many of their own harmful effects. Some people still believe that polyunsaturated oil is good because it lowers the cholesterol level in the blood. Indeed, many doctors even prescribe tablespoons of corn oil or other types of oil every day to help lower blood cholesterol. Polyunsaturated fats will indeed lower the serum cholesterol. According to research done by Dr. Scoll Grundy, it moves the cholesterol from the bloodstream into the tissues, where it's more harmful.

Dr. R.A. Swank from the University of Oregon has published a number of studies showing the effects of fat in causing the red blood cells to stick together. After feeding some hamsters a meal of cream, he noticed that the little red blood cells started sticking together. They would not pass through the capillaries, but would block them off. Since the red blood cells carry oxygen to the tissues, he also found there to be a great decrease in oxygen in the tissues. Following a high-fat meal, the oxygen content of the tissues of the brain was measured and found to be markedly decreased.

Dr. Meyer Freedman found that both saturated and unsaturated fats caused this sledging or sticking together of red blood cells. His article in the *JAMA* stated that substitution of the unsaturated for the relatively saturated fats did not lessen the interference in capillary blood flow. If such interference in the flow also occurs in the critically important collateral vessels of the coronary circulation in cardiac patients, then the ingestion of unsaturated fats could lead to disaster as readily as ingestion of saturated fats.

In another article in *JAMA*, Dr. Peter Kuo described a study he had conducted on patients who had angina pectoris. This is a pain in the chest that is caused by a lack of blood supply to the heart. He took fourteen patients and fed them a high-fat meal. All of his patients had angina, but it was an intermittent thing and was easily controlled by their heart medications. However, after the high-fat meal, these patients all experienced a tremendous increase in chest pain, and they actually had changes in the electrocardiograms and their ballistocardiograms.

Some have recommended unsaturated oil as a treatment for heart disease. Dr. G.A. Rose of England studied a large group of people in which he added corn oil to their diets to see if this would protect them from developing heart disease. His study concluded that corn oil cannot be recommended as a treatment of ischemic heart disease and that it is possibly harmful.

Supporting this theory was an article in the *American Heart Journal* stating that polyunsaturates have increased in the average American diet almost threefold over the past three decades without the slightest decrease in heart disease mortality.

The National Heart and Lung Institute admits that any difference in the effects of saturated versus polyunsaturated fats in heart disease is strictly intuitive, and based only on personal impressions and fragmentary conclusions with unscientific proof.

The Food and Drug Administration has gone on record saying, "It is a violation of the law to make any claim that polyunsaturates could prevent or treat heart disease." Several researchers have shown that polyunsaturated fat will inhibit the white blood cells.

Other researchers have observed native people who drank lots of milk which contained its own butterfat in the form of cream (although it rises to the top, it still is water-soluble); they nevertheless had low cholesterol counts. Another group of people were subsequently studied substituting a cube of butter each day for its equivalent in milk ' (one cube of butter for two quarts of milk). The result was a rise in cholesterol. The solid form of the butter was no longer water-soluble.

In November 1977 Dr. Howard of the University of Cambridge published his studies on cholesterol and dairy products in *Lancet*. He concluded that of all the dairy products only butter raised the cholesterol levels when ingested.

The theory then might be formulated, based on Dr. Howard's study, that cholesterol in its water-soluble form does not raise cholesterol levels. In order to check this, a series of experiments was performed at a small college. Following are the tests and results:

Eighteen young men on a natural vegetarian diet of vegetables, fruits, legumes, nuts, seeds, avocadoes and whole grain were checked for their cholesterol level which was 120 to 300.

They were then divided into three groups.

- Group I continued their natural vegetarian diet.
- Group II continued their natural vegetarian diet and added two eggs (hard or poached).
- Group III continued their natural vegetarian diet and added two eggs (hard or poached) and margarine.

Five weeks later, the results were:

- Group I cholesterol same.
- Group II lower, but no difference statistically.
- Group III cholesterol rose to 170, with some over 200.

As mentioned before, some authorities feel that cholesterol above 140 can begin to produce hardening of the arteries. The above study may therefore be significant in explaining why lacto-ovo vegetarians may develop hardening of the arteries.

Although lacto-ovo vegetarians have lessened their risks of heart diseases and hardening of the arteries due to omitting meat in their diet, they nevertheless would improve their risks by eliminating or at least minimizing some of the dairy products such as butter, as the fat is no longer in its soluble form.

On the other hand, neither is milk desirable, especially regular commercial milk, because it has been pasteurized and homogenized at high heat and enriched with vitamin D (which is really a hormone, like a steroid). Protein-fortified milk is especially undesirable, as it has been fortified with dry milk, and even nonfat milk contains cholesterol.

Cholesterol oxidizes when dried, and it may actually produce cholesterol. Dried milk or any dried animal product should be omitted from the diet.

Gallstones

Prairie dogs have been used to study the effects of different types of fats and cholesterol in producing gallstones. On a high-fat diet, the prairie dogs seemed to develop gallstones easily. When they were placed on a diet that was low in fat and cholesterol, the gallstones dissolved.

Gallstones in humans do not seem to be limited to high saturated fat content in the diet. Dr. R. A. L. Sturdement reported a significant increase in gallstones in men fed a diet that was rich in safflower oil. Dr. T. Osuga wrote that corn oil alone, without cholesterol in the diet, produced gallstones.

Cancer

According to Dr. R. K. Bout well, the stimulating effect of fat on the rate of formation of certain types of tumors is well established. Dr. Pickney, previously mentioned in regard to polyunsaturates in the diet and its relation to heart disease, also wrote about the epidemiologic association between a diet high in polyunsaturates and the increased incidence of cancer, especially gastric, in humans. He discussed his research in the *American Health Journal* showing that 78% of the people who used more polyunsaturated fat also showed marked clinical signs of premature aging. In addition, they looked much older than their chronological age. In the same group, 60% reported that they had had at least one or more skin lesions removed because of suspected malignancy after having altered their dietary fat.

Dr. Ernest Winder of the American Health Foundation states that both epidemiologic and animal data suggests that colon cancer is due largely to high fat consumption. (Refined foods lacking in bulk and fiber also have been linked to bowel cancer, and studies made in Japan have correlated high fat diets with cancer of the breast in women—Veg. Times Ed.)

Dr. Bauman, in the *American Journal of Cancer*, showed that an increase in the fat content of the d :t accelerated the appearance of tumors caused by ultraviolet radiation. Dr. Bausch repeated the study using corn oil and got the same results. Ultraviolet light is found in sunlight. The current understanding is that excessive exposure to ultraviolet light is responsible for skin cancer, when in fact, as these studies show, the true culprit may be a high-fat diet in combination with ultraviolet light.

Fats turn rancid in the tissue. Fats that are oxidizing damage the tissues, thus stimulating cancer (and aging of the skin). Oxidation is prevented in nature with vitamin E in its natural state: in nuts, whole wheat, seeds, legumes, etc. Vitamin C, carotene and selenium also help.

Unsaturated fats eventually turn rancid due to air, heat and sun. All the elements are present when refined polyunsaturated oils are in the tissues: the heat and oxygen are provided by the body and the sun's ultraviolet rays accelerate the oxidation of the fat in the body. Without the oxidation of rancid fat in the tissues, the sun is beneficial for a healthy body.

Exposure of the body to the sun is vital for optimum health. It is a natural source of vitamin D (which is different form that artificially ingested as an additive in milk). Most times of the year as little as about fifteen minutes exposure on the face will give more than the recommended daily amount. Contrary to popular belief, vitamin D can be stored in the body. Even on cloudy or foggy days, 80% of the ultraviolet rays come through; however, the rays are locked entirely by glass windows. Nevertheless, special glass can be ordered called UV-Passing Plexiglass that is very good.

Obesity

In a natural diet where no sugar or fat of any kind is added, obese people will lose weight even though they are eating all they want. They are allowed to have potatoes, ice, bread, fresh fruit and any other natural food in any quantity that they want. However, they should restrict the amount of avocadoes, olives and nuts that they eat on this diet. There are built-in safety factors in the natural food provided for us that prevent us from becoming obese.

Our bodies are designed to eat a low-fat diet. When we add extra fat to the natural diet, we start to gum up the beautiful machinery we were given. There is an abundance of natural fat in the unrefined grains, legumes and other vegetables that more than meets our need for fat in the diet. It is impossible to get a fatty acid deficiency if whole grains, legumes and other vegetables are included in the diet; it is not necessary to add any extracted oil to provide the fat that is needed in the diet. Because our bodies were designed to eat a low-fat diet, a high-fat diet will cause nothing but trouble, whether the fat is of animal or vegetable origin. Probably the biggest proof we have that a low-fat diet is essential is the miracle that happens in patients lives when they are placed on a diet free from margarine, mayonnaise, grease and oil of all kinds.

Diseases that are caused by artherosclerosis are markedly proved. The world of medical research is only now discovering the tremendous power in a natural vegetarian diet.

Editorial Note: Grains and legumes are not needed in the diet to assure enough fat and essential fatty acids. Fruits, nuts, seeds and avocadoes all contain plenty.

Article #2: Fats In The Diet By Marti Fry

The subject of fats in the diet is one that receives little attention, especially compared to the attention it should receive! Along with refined sugar and flour chemicals, all of which are very antivital and disease-causing, fats should be listed. This is not to say that all fats are very toxic. But it is to say that the only ones that aren't are those contained in raw (uncooked, unheated) natural foods to which humans are biologically adapted to eating—avocadoes, nuts and seeds plus all fruits and vegetables recommended in the Life Science diet.

When considering toxic substances that are eaten, the reason most fats should be included as toxic is because all fats become highly carcinogenic when heated. Even rancid fats, as in stale nuts or seeds, are harmful and should not be eaten. Nuts or seeds should never be eaten roasted, either.

Atherosclerosis, heart disease, cancer, senility and arthritis are just a few of the most serious diseases with which many Americans (and people the world over) are plagued. These diseases would not have become a problem to anyone if our people had not eaten heated fats and oils. Frying is the worst way to cook foods, though all cooked foods are pathogenic. Remember: All foods contain some fat. Therefore, any food that is cooked, even if it's not fried, contains a carcinogen—heated fat. This is one of the most serious of the many problems with cooked foods.

High-Fat Foods In The Diet

A question not raised by most Life Scientists is whether we really need high-fat foods such as nuts, seeds or avocadoes in our diet at all. Our need for fats is so low, and the presence of fats in all foods so ubiquitous, that it is likely that we would fare better if we would not include nuts, seeds or avocadoes in our diet.

Yet, Hygienists recommend up to four ounces of nuts or seeds or one avocado per day in the diet.

Why?

For one thing, they are delicious raw. Secondly, and most important, they are very satisfying, keeping the sensation of hunger away for a longer time than other fruits or vegetables.

Many people, including some Hygienists, have difficulty digesting nuts and seeds. Most have little or no trouble with avocadoes. This could be, as one professional Hygienist has stated, because most of us have weakened digestive capabilities as a result of so many years of wrong eating and living practices. In any event, no conclusive statements can be made at this time. More research would perhaps be in order.

It is certain that humans can fare well without high-fat foods in their diet. But is it practical? Can people feel satisfied without including either oils (fats) or starches in their diet? Can a diet of nonfat and nonstarchy foods satisfy? If it can meet our needs—which there is no doubt it can and does—then it follows that it should satisfy. Perhaps it would take months or years for a person to become accustomed to this type of ideal diet.

This is an area that will warrant further study by professionals in the field. One thing you can be sure of, however, is that the amount of fat needed in the diet is extremely small and should be met only from raw foods. No foods should be eaten that will leave an oily film on a plate or bowl that will not wash off with water and a cloth or sponge—without any kind of soap or detergent. That is to say that only water-soluble oils should be consumed. These are the only oils that will not cause diseases in the human body.

For a long and healthy life, keep your fat consumption to a minimum; consume only water-soluble fats; and stay away from free oils and nut butters except those you make fresh yourself without adding free oils. You'll be many times further ahead healthwise than the lacto or lacto-ovo vegetarians who still consume many foods that are in many ways as harmful or almost as harmful as animal flesh. You will become healthier than you've ever been in your entire life!

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Article #3: Are We Oil And Fat Eaters By T.C. Fry

It is well known that most meat eaters trim the fat off meats because they have an aversion to it. This is not without a sound physiological basis.

However we witness millions eating foods fried in oils and fats. Millions eat foods smothered in oils, butter, margarine and other fats. Oils and fats constitute about 40% of the American caloric intake.

For this heavy indulgence Americans pay dearly. Indigestion is an American institution. Pathogenic effects are rife. It is said that 50% of all American meals result in indigestion. Antacids are a multi-billion dollar business. At the door of oils and fats can be placed much of the blame.

Humans are constitutionally frugivores. All the fats needed in the human system are self-created from the raw materials furnished by carbohydrate foods just as cattle elaborate their fats from a grass diet. It is not necessary that humans eat oils or fats of any kind to have the body oils and fats necessary for great well-being. One of the chief complaints of many who eat sugar and wheat products is that it turns into unwanted fat, thus indicating how efficiently our organisms convert carbohydrates to the oils and fats we need.

Fruits we digest with dispatch, efficiency and comfort. Most are discharged from the stomach in from 10 to 30 minutes, whereas oils and fats lay heavy on the stomach for hours before digestion really begins.

To be sure, our diet can profit from certain foods with an oil content. From nuts and seeds we can obtain the linoleic and linolenic acids that we need. But if nuts, seeds and avocadoes constitute a mere 1 1/2% to 2% of our diet, that is ample.

Professional Hygienists point out that the body's needs for oil are very small. All condemn free oils, that is, oils out of context with the food in which nature developed them.

Most Americans eat oils and fats with foods that are of a differing digestive character than oils. In the combination of bread and butter or bread and margarine or bread and peanut butter—quite common combinations, the bread requires an alkaline medium for its digestion. Within two or three hours starches are usually ready to pass into the intestinal tract for appropriation. Fats and oils usually do not begin to digest until about the fourth hour.

Hence, when oils and fats are eaten with other foods such as starches they coat the food particles such that little or no digestion results, but indigestion does! By the time the oils or fats surrounding the other food particles are digested, the starches and sugars are food for bacteria instead of us. Bacteria convert carbohydrates into poisonous acids (especially acetic) and alcohol. Our stomachs become a fermenting mess. Caustic bicarbonates end the process by killing off the bacteria and neutralizing the acids.

But this is merely a first step in a chain of problems. Indigestion is bad enough, and employing antacids begets yet other problems. Fats degenerate into butyric and other acids. This begins a long train of pathology that can exhibit as inflammations, ulcers and eventually cancer. Rashes, pimples, biliousness, a "tired feeling" and other complaints are often a direct result of a heavy oil or fat meal.

Fats are often in association with cholesterol, another form of alcohol. We create this in our bodies for our own needs, but we cannot handle foreign cholesterols as true meat-eating animals do. To be sure, cholesterols are found only in animal fats such as cheeses, butter, eggs, meat and animal products such as milk, ice cream, etc. When the cells reject alien cholesterol, it combines with blood contents, especially wastes and inorganic minerals, and forms plaque in the circulatory system.

Free oils and fats are a disaster in the human digestive tract no matter how eaten. Oils on salads, popcorn, bread and other foods (most of them unwholesome in themselves) interfere with digestion as heretofore stated.

When we eat fried foods, we are invariably inviting disaster. Even before eating such foods, the heat of cooking has converted some of the fats or oils to acroleic acid (or it has become acrolein) which is deadly poisonous and carcinogenic in humans. Fats in animal foods are always bad for us. Oils in vegetable and fruit foods should be eaten rarely, say not more than once every two or three days. We handle nuts, seeds and avocadoes fairly well, but our need for them is small. Further, great caution must be employed in eating such foods. Always eat them with vegetables, never with foods that contain a carbohydrate complement. Tomatoes, cucumbers, celery, cabbage family members and green leafy foods such as lettuce combine best with these oil-bearing foods.

It is noteworthy that legumes are heavy in oil but, once beans and pulses are sprouted, their fat content is converted into easily digestible vegetable matter.

There is no truth to the widely circulated belief that oils are good for dry skin. In digesting oils and fats, the body converts them to sugars anyway. Then it reconstitutes them to its specific needs in the body's own chemical factories. Thus dry skin is the result of impaired function of the sebaceous glands, not a lack of oil in the diet.

Oily foods should not be used as fuel foods. Carbohydrate foods serve us amply in this regard. Loading up on oily foods will not enhance the performance of athletes or manual workers. Their need for the oils and proteins of concentrated foods such as nuts, seeds and legumes are no greater than for sedentary people. It is well to repeat again that carbohydrate foods supply this best, and fruits are our most wholesome and efficient sources of carbohydrates.

Only one meal in any given day should contain a heavy oil-bearing food. And only one concentrated oil-bearing food should be eaten at a meal. Thus, if you eat an avocado with a salad, your oil license for the day has run out. If you eat two to four ounces of nuts or seeds with a salad, your oil license has expired, not only for the meal, but for the day.

Studies have shown that peanut oil is more "atherogenic" than even cream from cow's milk in inducing arteriosclerosis in monkeys. It has been suggested that free oils actually promote the deposition of cholesterol and other lipids in the arterial walls.

Proceed with caution with oils. Never eat them outside of their natural context and then eat them in restriction as above noted.

Lesson 12 - The Role Of Acid And Alkaline Substances Within The Body

- 1. Acid-Base Balance
- 2. Body Maintenance Of Normal Ph
- 3. Acid And Alkaline In The Diet
- 4. Acute Conditions Involving Acid-Alkaline Imbalances
- 5. Case Histories Of Acid Indigestion Due To Improper Diet
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1. Acid-Base Balance

When we talk about acid-base balance, we are referring to the pH balance (degree of acidity or alkalinity) of substances or of the body. The symbol pH is used after numbers that measure the degree of the acidity or alkalinity of solutions. The acidity or the alkalinity of a solution is determined by the number of *hydrogen ions (H +)* it contains. The smaller the pH value of a solution; that is, the smaller the number preceding the symbol *pH* is, the greater is the acidity of that solution. Likewise, the larger the number in front of the symbol *pH* is, the greater is the alkalinity of the solution.

Any neutral solution, such as water, will have a pH value of 7.0. Solutions which have a pH value below 7.0 are acidic in nature. Solutions which have a pH value above 7.0 are considered to be alkaline, or basic.

The human body must continuously deal with many different substances in the bloodstream. Each substance has a range of concentration which can vary within certain limits without creating an imbalance of normal bodily functions. Certain substances, such as blood glucose, can vary up to 200%, while certain other substances, such as blood calcium, are constricted to a much narrower range of deviation.

The balance in the blood of acidic and alkaline components can be only moderately altered without creating a very serious physiological instability. Therefore, it is crucial that the body, while controlling degrees of pH in organs, glands and other areas of the body, simultaneously maintain this strict range of balance in the pH of the blood. The following chart best illustrates the pH ranges of different areas of the body:

Body Area	pH Value
Gastric Juice	0.9

Gallbladder Bile	5.4-6.9
Urine	6.0
Saliva	6.3-6.8
Feces	7.0-7.5
Intestinal Juices	7.0-8.0
Pancreatic Juices	8.0

The blood is slightly alkaline, with a pH of 7.35 to 7.4. Many of the enzymes that facilitate metabolic reactions operate optimally only in solutions of specific alkalinity. When there is a deviation from this level of alkalinity, whether higher (referred to as alkalosis), or lower (referred to as acidosis), severe malfunctions can occur. These malfunctions are manifested by slower enzymatic reactions, and thus a decrease in synthesis of specialized molecules, such as vitamins, proteins, etc. There is also an impairment of the production of ATP molecules that are needed for energy and are made from glucose.

The major effect of acidosis is disorientation due to the depression of the central nervous system. Inversely, the major effect of alkalosis is extreme nervousness, eventually leading to convulsive reactions, namely tonic spasm. This spasm is referred to as *tetany*, and usually develops primarily in the musculature of the forearm and face, then spreads over the muscular system of the entire body. Tetany results from over-excitability of the central and peripheral nervous systems due to alkalosis.

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2. Body Maintenance Of Normal pH

In order to maintain a proper pH in the bodily fluids, and so that acidosis or alkalosis will not manifest, three major physiological control systems exist within the body. The first mechanism involves a buffer system for the hydrogen ion fluctuations. All bodily fluids are supplied with acid-base buffers which combine with any acid or alkaline substance and prevent excessive change in the hydrogen ion concentration.

Another mechanism the body uses to maintain normal pH is within the respiratory system. When the hydrogen ion concentration (H +) changes measurably, the respiratory system is immediately stimulated to alter the rate of pulminary ventilation. This brings about a change in the quantity of carbon dioxide (CO2) within the system. High levels of carbon dioxide in the system, as created when holding the breath or due to physiological impairments of respiration, increase the acidity of the bloodstream. Any disease that interferes with normal breathing, such as emphysema or asthma, will impede the release of CO2 from the lungs and, subsequently, this CO2 will combine with water to form carbonic acid. This increases the concentration of hydrogen ions, and thus the acidity of the blood is simultaneously increased.

The last of the three major physiological control systems of the body to maintain normal pH involves the kidneys. When the (H +) (hydrogen concentration) deviates from a normal value, the kidneys excrete either an acid or alkaline urine. This serves to help readjust the (H +) of the bodily fluids back toward the normal value.

The key point to keep in mind when you are trying to understand the terms acidosis and alkalosis is that, as was previously mentioned, when the hydrogen ion concentration (H +) is above normal, there is a state of acidosis and when the (H +) falls below normal, we have alkalosis. If either acidosis or alkalosis occur within the bodily fluids, the buffer systems; namely, the lungs and kidneys, the organs that influence the acceptance or excretion of hydrogen ions, will attempt to regulate the imbalance. In a normal, healthy individual, any increase or decrease in (H +) will be modified so that the pH of the blood does not fluctuate from its normal range of 7.35 to 7.45. If, however, either the lungs or kidneys fail to function properly, the end result is often acidosis or alkalosis.

Acidosis and alkalosis both have numerous causes. As mentioned above, one or more of the body's buffer systems may be impaired in some way. Thus, acidosis or alkalosis may occur. Also, acidosis or alkalosis may result because of improper respiration (breathing), improper diet or both.

An example of respiratory alkalosis is when a person ascends to a very high altitude and proceeds to overbreathe because he is aware of the low oxygen content in the air. This overbreathing results in an excessive loss of CO2, referred to as a mild state of respiratory alkalosis. If such a situation persists and the individual fails to acclimate, eventually the balance of acid and alkalinity in the blood may be altered.

Both diarrhea and vomiting are considered to be some common causes of metabolic acidosis. During diarrhea, large amounts of sodium bicarbonate, an alkaline substance, are secreted from the gastrointestinal tract; and during vomiting, there is a loss of alkaline substances deep within the gastrointestinal tract.

However, diarrhea and vomiting are processes the body uses to speedily eliminate highly toxic materials from the body so these toxins cannot harm the tissues. Diarrhea and vomiting are not themselves causes of acidosis. Rather, they result from the same offending substance(s) that the acidosis results from.

It is important that you understand that body actions to expel toxic materials (acute illnesses, so-called "infections," fevers, etc.) are not harmful processes. What is harmful is what occasioned the body to perform in such an expedient manner.

As students of Natural Hygiene, you must realize that the pH balance within the body is a result of the entire physiology of the body working in harmony. So, while this lesson will deal primarily with dietary influences on pH, be aware that you must utilize all areas of Natural Hygiene. This includes not only diet, but also pure water, fasting, exercise, fresh air, sunshine and mental poise. All of these must be integrated to form a lifestyle which can allow the body to carry out its physiological duties as effectively and efficiently as possible.

To sum up what we have discussed in this section, the pH in the blood and tissues is directly related to the concentration of (H +) within the body. This range and balance of pH in the bodily fluids is quite narrow and delicate. Even slight deviations from these values can lead to major physiological complications. Several mechanisms, as expressed by *McNutt's Nutrition and Food Choices*, regulate this intricate balance.

1. Excretion or retention of ions by the kidneys.
2. Exhalation or retention of CO2 by the lungs.
3. Metabolic production of acids by the tissues.
4. Concentration of proteins in the blood.

We have already discussed briefly these first two mechanisms. In order to understand the latter two, we must begin our study of dietary influences upon the body's acidity and alkalinity.

3. Acid And Alkaline In The Diet

When nutritionists talk about acid- or alkaline-forming foods, they are referring to the condition of the food after ingestion. There are many food substances which are acidic in their natural form that become alkaline when broken down within the body.

A physical description of an acidic substance would be "sour or sharp to the taste buds." Litmus paper is a simple means to determine whether a substance is acidic. Acidic substances such as vinegar, lemon juice, grapefruit juice, tomato juice, tea, coffee or sour milk will all turn blue litmus paper red. The red coloration is an indication of the substances acidic characteristics. Alkaline substances, on the other hand, will cause red litmus paper to turn blue. However, when acid and alkaline substances are mixed together, they neutralize each other, forming water and salt.

Generally speaking, the metabolic processes of the breakdown of foods from the vegetable kingdom change in character from acidic to alkaline, while the foods from the animal world change from alkaline to acid during metabolism.

All foods contain within them a combination of both acid-forming and alkaline-forming elements. The particular influence a food will have on pH will be determined simply by which elements are dominant, the acid elements or the alkaline elements. These elements, when broken down, will either release (H+) ions, and thus create an acidic medium, or they will accept and combine with (H+) ions, creating an alkaline medium.

Keep in mind the following basic concepts:

1. Organic matter is taken into the body in the form of food.
2. This organic matter is broken down into simple compounds (monosaccharides, amino acids, lipids etc).
3. After metabolism, these compounds leave an acidic or alkaline residue in the body.
4. The simple compounds contain elements such as sulphur, potassium, sodium, magnesium and calcium. These minerals determine the H+ concentration and thus the acidity or alkalinity of the body.

These elements are either acid-forming elements or alkaline-forming elements. The acid-forming substances are sulphur, phosphorus and chlorine, while the alkaline formers are sodium, potassium, calcium, magnesium and iron.

Most proteins contain sulphur, as well as phosphorus, within their chemical structures. When metabolized, these substances are broken down into phosphoric acid and sulphuric acid, which must then be neutralized through various chemical reactions. Another by-product of protein metabolism is uric acid. (Uric acid has been found to have a major influence on the development of arthritis; in particular, gouty arthritis.) Uric acid must be neutralized and excreted from the kidneys. Because of these toxic by-products of protein metabolism (phosphoric, sulphuric and uric acids), and for many other reasons not mentioned here, protein foods, and especially animal products, are acid-forming. Most grains and dairy products, also high in protein, are, like meats acid-forming.

Within the plant kingdom, the organic acids found in fruits and vegetables are metabolized and eventually become carbon dioxide and water. The alkaline elements such as potassium, calcium, sodium and magnesium remain. Although many fruits are acidic in nature, when broken down into their constituent elements, the acids are rendered neutral and the alkaline elements are dominant. Therefore, the end result of the organic breakdown and digestion of fruits and vegetables is alkaline in nature.

Since we are constantly supplying acids and alkalies to our bodies through the various foods we eat, it is very important that we consider the balance between these two extremes. If we consume excessive amounts of acid-forming foods, such as animal and dairy products, the body must tap its alkaline reserves (buffer salts) in order to maintain the proper pH. The kidneys, lungs and entire physiology is overworked in the process of excreting the neutralized acids from the body. This strain eventually leads to a depletion of buffer salts and the breakdown in the physiological functions of various organs, including the kidneys. Many different organ malfunctions are referred to as "disease," while the underlying cause, acidosis (due largely to faulty diet), has been overlooked. The point to keep in mind is that any food, drug or condiment that is extremely acidic in nature utilizes alkaline reserves and overworks the various organs. This type of dietary abuse may be tolerated for a period of time, but eventually the body will no longer be capable of handling this overload and will slowly begin to break down.

Following is a reference list categorizing some common foods as being either acidic or alkaline within the body.

ACID FORMERS

Most Grains	Fish*
Beef*	Cheese*
Poultry*	Eggs*
Most nuts (walnuts, pecans, brazils)	
Most legumes (peanuts, lentils)	

(* Not wholesome foods)

ALKALINE FORMERS

Vegetables	Fruits
Greens (lettuce, spinach, etc.)	Citrus fruits
Carrots	Bananas
Tomatoes	Melons
Potatoes	Strawberries
Celery	Apples
Cabbage	Apricots

Broccoli	Figs
Beets	Dates
Sprouts	Plums
Peaches	Pears

Foods that are beneficial in maintaining body pH are fruits and vegetables (preferably in their raw form), plus unprocessed nuts and seeds.

I have refrained from giving you a complete list of all the specific acid and alkaline-forming foods, because this author feels that it is most important for you, as a student of Natural Hygiene, to grasp the major concepts and apply them to your life. Please refer to *Composition and Facts About Foods* by Ford Heritage for more specific details.

The following rules will supply a conceptual basis from which to apply the dietary philosophy of Natural Hygiene.

FOODS TO AVOID

a. All animal foods.
b. Dairy products, including milk, yogurt and cheese.
c. Vinegar and various condiments.
d. Drugs (acidic and alkaline).
e. Refined and processed foods. (Many alkaline elements have been removed.)
f. Fats. (found in both meat and dairy products.)
g. Teas, coffee, cocoa and chocolate.

FOODS TO EAT

These should be fresh and unprocessed.

a. Uncooked vegetables.
b. Fresh fruits.
c. Unroasted nuts and seeds.

If you simply follow these rules, your body will benefit from a diet rich in all the essential proteins, fats, carbohydrates, vitamins and minerals. It will do this without having to deal with foods that deplete alkaline reserves and simultaneously overwork the buffer systems and organs of the body. These simple rules, combined with all the other areas of Natural Hygiene, will insure a condition in which your body can maintain a balanced state of health and well-being.

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4. Acute Conditions Involving Acid Alkaline Imbalances

Every year the number of prescriptions written for acid-alkaline imbalances continues to increase. Antiacids, alkalizers, specific digestive enzymes, etc. remain popular as household "remedies" for many acute digestive disorders. The temporary relief experienced by these so-called remedies is interpreted by the majority of sufferers as being a cure for the problem. Nothing could be further from the truth. These drugs work in much the same way as a lazy housecleaner sweeps the dust under the rug; that is, covering up the symptom, but not eliminating the cause.

Our bodies are like the rug in that they will only allow the drugs to cover up the problem for so long. Eventually, these acute digestive disorders will become chronic, resulting in a more difficult condition for the body to deal with. So, what was once simply a minor case of acid indigestion or heartburn becomes a major digestive ailment. The stomach, liver, small and large intestines, kidneys and pancreas can all be seriously impaired, both from consumption of an improper diet and from the use of drugs that cover up an overly-acidic diet and the, consequent indigestion.

Almost anyone who has been eating the standard diet of meat, dairy foods and refined and processed foods will suffer in varying degrees from an acid-alkaline imbalance. Add to this fare: alcohol, cigarettes, drugs and condiments, and the percentages will rise even higher. As a Hygienic practitioner, you will begin to witness miraculous results when working with people suffering from these acute imbalances.

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5. Case Histories Of Acid Indigestion Due To Improper Diet

5.1 Case #1

A young female, age 26, came to my office complaining of a dull, aching stomach pain. This pain seemed to manifest whenever she ate a large meal. At times this pain would work its way up the esophagus, causing discomfort under the ribs and around the heart.

These symptoms, along with lack of vitality, occasional constipation and mood fluctuations, had been plaguing the patient for about eight months. Investigation into her diet indicated that she was consuming a great deal of dairy products and sweets. After placing the client on a short fast, her diet was changed to include mostly fruits, vegetables, nuts and seeds. I also put her on an exercise program. After three weeks, the client's pain had completely subsided and her vitality, mood swings and constipation had improved dramatically.

5.2 Case #2

A male client, age 31, entered my office complaining of severe gas whenever he ate. He was also passing pieces of food in his stools, indicating an imbalance in the digestive juices. This condition has been going on for about three years and was gradually becoming worse. A case history showed that the client was consuming dairy products, refined sugar and some meats in excess, as well as combining his foods improperly.

The client was placed on a fast and then placed on a Hygienic diet with proper food combining. Gradually, over the next month-and-a-half, the client's condition improved to the point where his stools were normal and he was no longer experiencing his gas problem.

5.3 Case #3

A 32-year-old female came to me complaining of multiple problems. She had been suffering from bladder infections for over eight years. Along with this, she was taking allergy shots twice weekly and digestive enzymes to aid in her sluggish digestion. The client was unable to eat food without experiencing an "allergic" reaction and a flair-up in her bladder region. Her mood swings were radical, depending upon what she ate, and she periodically lost her ability to concentrate.

Her case history showed that she was eating a very inconsistent diet, rotating her foods to reduce allergic sensitivity to them. After a five-day fast the client was placed on a Hygienic diet and on an exercise program, and she began fasting one day a week. Within a month she was off her allergy shots and digestive enzymes. Her bladder was feeling much better, and within two months her symptoms had completely disappeared.

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6. The Acid-Alkaline Ratio In The Diet

The body will maintain a proper pH balance at all times because it must do so for proper functioning. The organism is designed that way. In order to make the body's job easy—and so expend less energy and have more energy for other activities, the diet should consist of foods that have an appropriate acid-alkaline ratio, at least 80% alkali and not more than 20% acid.

This balance is maintained by the lungs, kidneys and buffer salts. However, to limit the wear and tear on the lungs and kidneys, and so as not to deplete the body's buffer salts, our diet should consist of foods that best match our organism's acid-alkaline ratio. A diet of fresh ripe fruits, along with raw vegetables and nuts and seeds, is optimum. The amount of nuts and seeds in the diet should, of course, be rather small relative to the less concentrated foods—fruits and vegetables. Also, the amount of vegetables should be smaller than the amount of fruits because fruits provide the calories we need, whereas vegetables do not.

Fruits should be eaten alone or with each other at a meal, and vegetables can be eaten at a meal with either nuts, seeds or avocados. An example of a menu that insures a good acid-alkaline balance is as follows:

Breakfast: Melon

Lunch: Grapes, bananas and dates

Dinner: Large vegetable salad of lettuce, tomatoes, avocados, broccoli and sprouts

The important point to keep in mind is that the alkaline-forming foods are the most natural and beneficial foods for humans. As a Hygienic practitioner, it is important to understand that even if some people will not completely adhere to a totally Hygienic regime, any improvement in the acid-alkaline ratio will be an improvement of their well-being.

7. Considerations When Working With pH Imbalances

When a client comes to you complaining of fatigue, nervousness, insomnia, hyperactivity, emotional swings, lethargy, frequent colds, abdominal discomfort, etc., it's fairly certain that part of their problem is an acid-alkaline imbalance. If this is the case, you, the Hygienic practitioner, must educate your client and help him to eliminate the causes of his problem. You should start out by explaining that the two major reasons for their particular problem are:

1. Too many concentrated proteins in the diet; that is, meat, eggs, milk, fish and cheese;
2. Overconsumption of foods that have been processed and refined and are thus deficient in alkaline elements.

It is important to explain the benefits of a more alkaline diet and how it is truly the only way to eliminate the cause of their problems.

The Hygienic practitioner should also take into consideration the client's overall vitality. If their digestive systems are in a weakened state, a fast may be in order. This will allow the organism to rest, get rid of toxins that interfere with normal functioning and to regain normal functioning abilities.

If a client complains that he or she suffers indigestion when he or she eats acid fruits such as oranges, grapefruits, pineapples, etc., he or she will benefit by fasting. People who have this difficulty have impaired digestive abilities due to past practices and diet. Again, a fast will enable the organism to regain normal functioning abilities.

Even if a client is unable or unwilling to fast for any reasons, he will still improve by staying on a healthful diet of fruits, vegetables, nuts and seeds. However, improvement will occur more slowly than if the client fasts. Nonetheless, as the client's condition improves, he will find it easier and easier to eat and enjoy these wholesome and delicious fruits.

If your clients will adhere to the basic Hygienic format, they will experience major transformations in their health and well-being. Not only will the major symptoms clear, but your clients will become increasingly disease-free and will find that the quality of their lives will dramatically improve. It is necessary that we preserve our pH at a level of maximum physiological efficiency, and this can be achieved easily through the Hygienic program.

The following is a sample of a basic three-day plan:

DAY ONE

Breakfast Oranges
Lunch A fresh green salad with romaine lettuce, broccoli, cabbage and tomatoes Dressing: either lemon juice or an avocado mixed with lemon

Dinner Fresh fruit salad of bananas, apples, nears and chopped pitted dates

DAY 2

Breakfast Citrus fruit(s) or pineapple

Lunch Assorted sliced fresh fruits: bananas, peaches, apples, pears

Dinner 3-4 oz. Pecans Vegetable salad with tomatoes sprouts, celery, and lettuce

DAY 3

Breakfast Grapes

Lunch Green salad with vegetables: romaine lettuce, cauliflower, broccoli, cucumbers and avocado with lemon juice

Dinner Assorted sliced fruits: Apples bananas, cherries, mangos, nectarines, etc.

Eating raw foods can be fun! People forget what an assortment of delicious raw foods there are.

Keep in mind that you should always eat melons alone. There are so many different kinds of delicious melons: honeydew, cantaloupe, crenshaw, sharlyn, cassaba, watermelon. The body digests melons very rapidly, and thus many people find them to be the ideal breakfast food.

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8. Questions & Answers

I got the impression that the "acid-forming elements" and the "alkaline-forming elements" you refer to are particular minerals, the acid-forming ones being sulphur, phosphorus and chlorine and the alkaline-forming ones being potassium, sodium, calcium, magnesium and iron. Why is the study of acid and alkaline separate from the study of minerals?

> Your impression is correct. Also, your question is a good one. It is important to remember that the human organism is a whole entity, even though it is composed of various glands, systems, etc. Also, foods are whole, even though they are composed of carbohydrates, fats, proteins, vitamins and minerals. Yet, it is customary and convenient to study the various parts of the whole, always keeping in mind that the whole is greater than the total of all its parts.
>
> The subject of acid and alkaline should have been at least briefly discussed in the lesson on minerals. But is an important and large subject that also warranted a lesson in itself. Hence, this lesson!

You said to avoid refined and processed foods because these foods are lacking in alkaline minerals. Does this mean that refined and processed foods are acid-forming?

> No. Refined and processed foods are usually devoid of both the alkaline minerals and the acid minerals. This means they are more likely to be neutral than acid-forming in the diet. However, like the acid-forming foods, foods devoid of most minerals upset the acid-alkaline ratio of the body, but in a different way: Vitamins and minerals are needed for the metabolism and consequent efficient use of foods eaten. When carbohydrates are eaten, but the nutrients needed in their metabolism and utilization are not supplied in the way that nature intended, the body must draw upon its reserve supplies and then on the minerals in the bones and teeth. Since the body's reserve supplies are quite limited, consumption of refined and processed foods results in minerals being drawn from bones and teeth and in a myriad of health problems, from hypoglycemia and diabetes, to dental caries, osteoporosis, nervousness and depression.
>
> The reason why the body does not keep a larger reserve of vitamins, minerals, etc. for metabolism of refined and processed foods is obvious: We are not naturally designed for eating fragmented foods; that is, foods that have had some components removed in processing or refining.

People who advocate a macrobiotic diet claim that rice is the perfect food in that it best harmonizes with the body's needs as regards acid and alkaline. Yet the macrobiotic diet is entirely different from the Hygienic diet—and you do not advocate the use of rice in the diet at all! Please explain.

In a diet based on grains, rice is one of best of the grains as regards the acid-alkaline Indeed, it is far less harmful in the diet than is wheat, the Western world's staple grain. In that regard, the macrobiotic diet is less harmful than the conventional American diet. In fact, the macrobiotic even has a few things in common with the Life Science (natural) diet: For one, neither dietary regime, in its pure interpretation, advocates sweeteners of any kind. Nor does either dietary school advocate dairy foods, eggs or meats (except fish, in the case of macrobiotics).

However, it must be understood that macrobiotics is based on tradition, economic lack and many false premises, whereas the Life Science regime is based on science and nature and not upon economic considerations or tradition. Sea salt is advocated by the macrobiotic school. However, scientific fact is that all salt in inorganic form, which sea salt and rock salt both are, is poisonous and is responsible for many diseases and health problems. This is why soy sauces and miso, both containing salt, are very harmful foods. Rice is rather bland without soy sauce or other flavorings. Also, it has to be cooked, a distinct health disadvantage. Rice is deficient in water and in the wide variety of vitamins and minerals that can be found in fresh raw fruits and vegetables. Rice also lacks the flavor and the attractiveness of fresh fruits and vegetables. Just looking at a few of the facts, you can readily see which foods nature intended for humans and which came to be used by humans as a result of lack, ignorance and tradition.

Macrobiotic cooking also uses oils for sauteeing foods and for making tempuras.

That's correct. As you have learned in previous lessons, heated oils are very toxic within the human organism and lead to many serious diseases, including cancer.

Will including grains in the diet disturb the body's acid-alkaline balance?

First, we should repeat that the body has built-in buffer systems for maintaining its normal pH balance. Most foods will stimulate these systems to maintain normal pH. However, some foods cause the body's buffer systems to work extra hard because certain foods (those not normal and correct to the human dietary) render too many acids upon metabolism, most notably, meats, dairy products, eggs, etc.

Grains are also acid-forming, as a rule. Therefore, if you eat them, eat them in extreme moderation (nor more than once every two or three days). We recommend that you have your grain portion in place of a portion of nuts, seeds or avocados, since grains are very poor combinations with these foods. Grains, if eaten, should be consumed with raw nonstarchy vegetables and not with fruits or sweeteners. Nor should they be salted because, as stated earlier, salt is poisonous in the human organism and leads to health problems.

Isn't it okay to use a little baking soda (sodium bicarbonate) mixed with distilled water in case of indigestion that may occur even if foods are correctly combined or in cases where incorrect combinations cannot be avoided, like when you're a guest at someone else's house?

Absolutely not! Baking soda and all commercially-sold antacid preparations are very harmful when taken often, for they cause alkalosis by depleting the body's acid-forming minerals. Remedies of any kind should never be used! The law of dual effects says that a secondary effect follows on the heels of the primary effect of any drug (baking soda is one).

What this means in this case is that a worse case of indigestion will occur in the next meal after the baking soda was used.

You should always avoid incorrect combinations, even when you are a guest at someone else's house. Correct combinations are usually possible or can be politely requested. You may have to pass up certain dishes or pass up invitations if you really want to become and/or remain healthy.

If you get indigestion despite correct food combining, you would benefit by a fast. A fast will give your digestive system a chance to rest and heal so that it can better do its job. It is also advisable to eat smaller meals, to chew your food well, to eat easy-to-digest foods such as raw fruits and vegetables and to be sure you are relaxed during mealtime. Your food will digest best if you do not exercise very vigorously immediately before or after a meal and if you are not overly stressed or anxious before, during or after your meal.

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Article #1: Alkalinity And Acidity Of Foods In Metabolic Reaction

When foods are eaten, they are oxidized in the body resulting in the formation of residue or ash. In this residue if the minerals sodium, potassium, calcium and magnesium predominate over sulfur, phosphorus, chlorine and uncombusted organic acid radicals, they are designated as alkaline ash foods. The converse of this is true for foods designated as acid ash.

Numerical values of alkalinity or acidity are determined in long, painstaking analytical laboratory work. The concentrations of the various elements are determined separately and then computed in terms of equivalents. The excess of one group of minerals over the other is expressed as cubic centimeters of normal acid or base (alkaline) per 100 grams edible food. The values obtained are called degrees of acidity or alkalinity.

(most alkaline reaction)	
43.7	Fig, dried
41.6	Lima bean, dried
36.6	Apricot, dried
25.3	Raisin
20.4	Swiss chard
20.3	Prune, dried

17.5	Dandelion greens
16.4	Soybean sprouts
15.8	Spinach
15.0	Taro corms & tubers
14.2	Cucumber
14.0	Lima bean, fresh
13.5	Almond
12.1	Peach, dried
11.1	Beet
10.7	Avocado
10.5	Kale
10.4	Chive
10.2	Carrot
10.2	Rhubarb
9.9	Endive, (escarole)
9.6	Date
9.1	Chestnut
8.6	Parsnip
8.5	Granadilla
8.5	Lemon with peel
8.5	Coconut meat, dry

8.5	Rutabaga
8.4	Onion, mature dry
8.3	Tomato, ripe
8.2	Peach, fresh
8.2	Plum
8.1	Celery
8.1	Watercress
7.7	Blackberry
7.7	Guava
7.7	Lemon
7.7	Bamboo shoots
7.7	Iceberg lettuce
7.5	Cantaloupe
7.5	Coconut milk
7.4	Loganberry
7.4	Pea, dried
7.3	Sweet cherry
7.3	Leek
7.2	Potato
7.1	Orange
7.0	Lettuce: Cos, Losseleaf

6.7	Pricklypear
6.7	Sweet potato
6.6	Apricot, fresh
6.5	Turnip
6.4	Grapefruit
6.2	Nectarine
6.2	Common cabbage
6.0	Banana
6.0	Coconut meat, fresh
6.0	Kohlrabi
5.8	Pineapple
5.7	Raspberry
5.7	Tangerine
5.5	Gooseberry
5.0	Mango
4.9	Quince
4.9	Mushroom
4.8	Sapodilla
4.0	Sour red cherry
4.0	Lemon juice
3.9	Red cabbage

3.5	Pomegranate
3.4	Pear, fresh
3.2	Cauliflower
3.2	Chicory
3.2	Pumpkin
2.8	Winter squash .
2.7	Grapes
2.7	Savoy cabbage
2.6	Strawberry
2.2	Apple
2.2	Watermelon
1.8	Sweet corn
1.3	Pea, fresh green
.1	Olive oil
	(neutral reaction)
.1	Asparagus
.2	Chinese waterchestnut
.8	Sorghum grain
1.4	Blueberry
2.1	Filbert
2.3	Cress

4.8	Snap bean
4.8	Radish
4.5	Orange juice
4.5	Eggplant
4.5	Okra
4.3	Brussels sprouts
4.2	Broccoli
4.2	Horseradish, raw
3.2	Brazilnut
3.8	Oliver, green pickled
4.3	Artichoke globe
4.3	White bean, dried
7.8	White rice
8.5	English walnut
10.3	Jerusalem artichoke
10.5	Lentil
10.6	Peanut
10.9	Wheat grain
11.3	Rye grain
	(most acid reaction)

From Composition and Facts About Foods

Article #2: Acid/Alkaline: Clearing Up The Confusion By Marti Fry

The purpose of this article is to clearly and simply explain the meaning of *acid* and *alkaline* and to explain why a study of the acid-alkaline balance, or pH balance, is important in the study of health and healthful living.

Acid and alkaline are words used to differentiate two classes of minerals with differing chemical compositions. One class of minerals contains a relatively large number of hydrogen ions. These minerals are the acid-forming minerals. They include sulphur, phosphorus and chlorine. The other of these two classifications of minerals contains a relatively small number of hydrogen ions. These minerals are the alkaline-forming minerals. They include potassium, sodium, calcium, magnesium and iron.

Substances contain both acid-forming and alkaline-forming minerals. Whether a substance is classed as acid or alkaline depends upon which type of minerals predominate in the substance. Substances that have approximately equal amounts of acid and alkaline (base) minerals are neutral. Water is neutral.

Foods may be acid before ingestion but alkaline after metabolism, or they may be alkaline before ingestion but acid after metabolism. The former is generally true for fruits and vegetables, while the latter is generally true for animal foods.

The human body is maintained slightly alkaline, and alkaline foods are our normal diet and therefore a healthful diet. When we refer to alkaline foods, we mean foods that leave an alkaline "ash" after metabolism—fresh fruits and vegetables, primarily, as well as some nuts and seeds. Ingestion of animal foods results in many acids, most notably uric acid, sulphuric acid and phosphoric acid. The presence of these acids causes the body's buffer systems (those organs that maintain normal body pH) to work extra hard, whereas the consumption of fresh fruits, vegetables, nuts and seeds does not overwork the body.

The body's major buffer organs are the kidneys and the lungs. If either of these organs is impaired for any reason, or if a diet containing an excess of acid-forming foods is consumed, acidosis may occur. Acidosis is by far more common than alkalosis. An excess of acid-forming foods does not directly result in acidosis, however. Rather, this practice results in overworking the kidneys and lungs and depleting the body's supply of buffer salts. Then the body's ability to neutralize excess acids from acid-forming foods becomes impaired.

Alkalosis may result from lung or kidney impairment or from overbreathing, but it does not result from consumption of too many alkaline-forming foods, as there is no such thing as too many alkaline-forming foods. These foods are our normal dietary and they always contain a proper balance of base (alkaline) and acid minerals. Alkalosis may occur, however, if antacid preparations are frequently taken.

Acidosis and alkalosis are both pathological conditions that need never occur. However, acidosis is rather common because so many people consume a diet heavy in acid-forming foods such as meats, milk, cheese, eggs, etc. and because so many refined foods are consumed (sugar, flour, rice, wheat, etc.).

Acidosis is the predecessor to almost all, if not all, diseases. This is not because acidosis causes diseases, but the same unhealthful practices that result in acidosis also are the causes of diseases. Illnesses are body processes to set a wrong internal situation right. They are carried on by the body in order to eliminate harmful toxins and to correct imbalances, including over-acidity in the body. Therefore, no "cures" should be sought. The body should be left alone to carry out the cleansing process without interference from drugs, foods, etc.

If you suspect that your body is overly acidic, all you need do is fast one to five, days and/or consume only fresh fruits and vegetables, uncooked and without seasonings of any kind. The body is fully capable of correcting all internal imbalances and will automatically do so as soon as the cases of the problem are removed (and, in some cases, before the causes of the problem are removed, as a matter of life or death).

From a practical standpoint, you need not concern yourself with the degree of acidity or alkalinity of the foods you eat. Just eat a wholesome diet of uncooked fruits, vegetables, nuts and seeds, and you will be providing your body with exactly the kind of nourishment it needs and was designed to handle.

Lesson 13 - Air, Sunshine, And Natural Light Essential To Health

- 1. Sunshine And Its Role In Human Health
- 2. Natural Light Versus Artificial Light
- 3. Air And Breathing
- 4. Questions & Answers
- Article #1: Sunlight And Air By Otto Carque

1. Sunshine And Its Role In Human Health

1.1 History of Sunbathing

Throughout recorded and unrecorded time (history and prehistory), humans have made use of the beneficial effects of the sun. Playing and/or relaxing in its illuminating rays have been as much a part of natural living as the procuring of food and water or any other necessity of human life. Indeed, humans originally existed without clothing on any part of their body and were sun-kissed throughout the years of their lifespan.

Positive evidence of the use of the sunbath is offered to us by many of the ancient civilizations. It is known that the Babylonians, Egyptians, Assyrians, Greeks and Romans all were aware of the hygienic use of the sun and equipped their cities with sun gardens for this purpose. Akhenaton of Egypt, Zoraster of Persia and Hippocrates of Greece all looked upon the sun as a great force and worshipped it as a god. An example of this worship is given to us by the Egyptians, whose first temple was erected in honor of their sun god. It was located in a city called On, east of the Nile, and its name was later changed to Heliopolis—City of the Sun.

The ancients knew of the effects the sun had on strengthening the body, including the muscles and nerves, and extensive instructions were given in this regard by Herodotus. The Romans applied this knowledge in the training of their gladiators, giving them regular sunbaths. It is also known from the writing of Philostratus that the Olympian athletes were required to take sunbaths.

In the old German epic poem, the Edda, we learn of the hygienic use the Germans made of the sunshine, carrying their sick to the sunny mountain slopes for exposure to its rays. An account has also been recorded regarding the Incas of Peru using the sunbath in the treatment of syphilis.

In the third century, A.D., Mithraism, or sun worship, came very close to being accepted as the universal religion. It was very similar to Christianity in many essential respects. The final triumph of Christianity practically ended the sunbath, even though it was so widely employed by the peoples of that time. The sunbath was viewed by Christians as a "pagan" ritual. This condemnation of the sunbath could be considered the beginning of an era known as the Middle Ages, or the Dark Ages, where and when many of the desirable features of ancient civilization were destroyed and replaced by an antinatural philosophy and culture. During this thousand-year reign, only the Jewish and Arabian physicians preserved the sunbath in their care of the sick.

Regarding the modern phase of sunbathing, there was a dual origin—one of these in Europe, the Other in the United States. First we shall discuss the European phase: Waldvogel, of Bohemia, advocated sunbathing as far back as 1755, but he had few, if any, followers. Madame Duhamel, in 1857, believed in the use of the sunbath to aid children in their recovery from tuberculosis. Dr. Lahmann of Germany employed the "Sun and Air Cure" in his institution, as did Bilz in his world-famous sanitarium, as early as 1872-73. But the person who is given credit as the originator of the modern practice of sunbathing is Arnold Rikli, who prescribed sunbaths to his patients at his institution, established at Weldes Krai on the Adriatic Sea in 1855. He wrote seven books describing his methods, the principal ones being translated into the Spanish, French and Italian languages.

The first series of observations relating to the effects of sunlight on disease were made by Dr. Loncet of Lyons, France, about 1890-1900. In 1911, Dr. Rollier, a Swiss physician, also did some work in this area. Both of these people enjoyed favorable results, and, as a result, sunbathing has continued to grow in popularity in all parts of Europe.

One last name should be mentioned, that of Dr. Finsen of Denmark, whose comparative experiments with the rays of both sunlight and artificial light became largely responsible for the vast array of artificial lighting apparatus used in the treatment of disease.

In the United States, the first advocate of sunbathing was Sylvester Graham, a pioneer hygienist, who not only discussed the importance of sunshine, but also the detrimental effects of clothing. He presented his ideas in his masterful work, "Lectures on the Science of Human Life," first published in 1843, stressing the benefits of sunshine on bone growth and development.

Another hygienist, Dr. Russell Trall, placed great emphasis upon the power of sunlight in both health and disease. His writings, published around the mid-nineteenth century, clearly show a deep awareness and understanding of the need for sunlight and its value in cases of rickets, scrofula and anemia.

Although credit is generally given to Huldschinsky, who in 1919 proved the definite value of sunshine in overcoming rickets, Dr. Trail was actually about seventy years ahead of him in making this discovery. Additionally, Dr. James C. Jackson and Dr. Dio Lewis both used the sunbath in caring for their patients at around the same time as Dr. Trail. These facts point out that these individuals were using the sunbath previous to Dr. Loncet's observations as to the effects of sunlight in disease between 1890-1900. Actually, the sunbath has been employed in this country for over a hundred years, especially among the pioneer hygienists who have not received their due recognition.

1.2 The Use Of Sunshine

Both plants and animals make use of the catalytic powers of sunlight, attaining the highest form of their development in the neighborhood of the equator, where the sun's rays are most abundant. At the equator, life exists in greatest profusion, but as we approach the higher latitudes, where nights are longest throughout the many winter months, we notice life consists of poorly-developed forms or is absent altogether.

Sunlight is an essential nutritive factor to both plant and animal life. Under its influence, plants both excrete and absorb oxygen. Their leaves are able to absorb *carbon dioxide* from the air and convert it into plant substances by transforming the carbon dioxide into formaldehyde. This in turn is polymerized to sugar, thus forming a carbohydrate. This is the process of *photosynthesis*, and both chlorophyll and xanthophyll are associated with this process, making the green color of plant life.

Additionally, the conversion of starch into sugar during the ripening process of fruits requires the action of both the heat and light of the sun for perfection. The beautiful coloring of the flowers, stems, leaves and fruits of plants are all dependent oh sunlight for their production. When deprived of it, the result is an inferior plant, pale or colorless, that is said to be *etiolated*.

The colors of butterflies, birds and animals are also determined by light, as is their complete development. An example of this was given by Dr. Trail. He pointed out that in the tadpole the process of *metamorphosis* is arrested if it is deprived of sunlight. It is unable to develop into a frog; rather, it continues to grow as a tadpole. Complete absence of light results in blindness and even eyelessness.

Sunlight also enables the animal body to assimilate calcium, and it is because of this that it is of great value in the prevention of *rickets* and tuberculosis. A lack of calcium is associated with both of these conditions. This assimilation of calcium may be observed by comparing chicken eggs of various birds. Those raised in the sunlight produce harder and thicker shells than those not so exposed.

The influence of sunlight is also intimately related to the number of red cells and hemoglobin in the blood. An insufficiency of light will cause an increase in the serum or watery portion of the blood and a corresponding decrease in the quantity of blood fibrin and red Corpuscles, resulting in anemia. But with sufficient sunlight, the oxygen-carrying power of the blood is increased, the circulation of the blood is improved, and consequently the, blood's power to repair and build tissue is increased. Sunlight's influence on the muscles is to add to their size and quality and to enhance their contractile powers by improving the condition of the entire body, including the nerves that control the muscles. In addition, by improving the overall health and vitality of the body, sunshine is the finest cosmetic, helping the body to smooth away wrinkles, to strengthen and tone the skin, and, at the same time, to insure a soft, delicate texture and overall beauty. It may also be said that, in general, the pigmented skin is stronger, contributes to the health of the entire organism and, therefore, is subject to fewer diseases, and is less sensitive to heat and cold.

Regarding the pregnant mother and her unborn child, it must be noted that the benefits to be derived from sunlight are greatest during periods of development and rapid gains in flesh. Sunshine, again, by improving overall health and vitality, aids in, the skeletal development of the baby and helps preserve the normal alkalinity of his/her blood. Additionally, its influence on the unborn will aid in promoting sounder sleep; deeper, slower breathing; diminished blood pressure; and an increase in urinary excretion. Sunbaths before and after childbirth will increase the mother's ability to nurse her child, with an improvement in the quality of the milk. It will produce better general health in the mother and prevent the loss of blood, making for a more painless delivery. Another benefit is that pregnant mothers who get sunlight will not experience tiredness, backaches and loss of appetite.

1.3 Sunshine in Sickness

It has been shown that after a fast or a wasting illness, obtaining sufficient sunshine will enable the body to build higher quality flesh. It will also enable the body to most efficiently digest and assimilate food. This is not to imply that we should wait to become sick to make use of the sun's rays. The sun is not a therapeutic agent; it is an essential of good health and nutrition. Sunlight is of value in all states and conditions of the body and in all stages of development. Its importance must be relegated to that of hygiene, and it should not be thought of as a specific "cure" for a disease condition.

We spoke earlier of the great importance sunlight plays in proper bone development. This is due to the fact that only through the aid of sunlight, particularly the ultraviolet rays, may the laying down and fixation of the calcium and phosphorus salts be accomplished in an ideal fashion as to make for the transformation of cartilage into bone. On the other hand, when insufficient sunlight is obtained, the result is defective, misshapen, brittle and easily broken bones, a condition known as rickets.

Sunlight also proves invaluable in cases of glandular inactivity, favorably affecting irregularities of ovulation, pubertal difficulties and impotency. Acne, a condition representing a glandular disturbance of the skin, is also noticeably aided by sunlight, as is the condition of psoriasis. Also, as sunshine aids in increasing the coagulating power of the blood, it is of inestimable value to sufferers from uterine hemorrhage. Additionally, if cautiously applied, the sunbath can be very valuable in some nervous affections.

1.4 Suntan and Sunburn

Suntanning is the bronzing or browning of the skin due to a deposit of pigment or melanin granules around the nuclei of the epidermal and basal cells. This process of pigmentation is the most important protecting mechanism against sunburn because it prevents the overabsorption of ultraviolet rays.

Just as chlorophyll is formed as a light screen in plants, humans deposit a brown pigment, called melanin, when in the presence of sunlight. This pigment deposit absorbs the visible and ultraviolet rays, converts them into rays of less energy and lower vibration, and then passes them onto the deeper cells of the epidermis. A combination of the infrared and ultraviolet rays will result in the deepest pigmentation.

It must be understood in this context that the sun's rays do not produce pigment; rather, they occasion its formation. Pigmentation is a physiological process, pigment being manufactured within the body from the elements of food and deposited in the skin by the processes of life. The tanning process is totally dependent upon the body's ability to make use of the sun. A lack of response may commonly be seen in cases of leukoderma, where the white patches of skin fail to produce pigment.

The second protective mechanism the body uses against too much sunshine is a thickening of the corneum, the uppermost layer of skin. This process is undesirable, as it results in harsh, dry, coarse skin. It is largely to avoid this dryness that olive oil and other commercial preparations are used on the skin, but it is)far wiser to avoid excessive exposure by retreating to the shade.

We must distinguish between suntan and sunburn. This latter is a true burn and injures the skin just as if it was fire or scalding water. An inflammatory process results and may be accompanied by severe blisters, general discomfort, and later a peeling of the dead tissue. As in other burns, there are three degrees of sunburn. A first degree burn produces redness due to an excess of blood in the skin, causing much or little discomfort, depending upon the severity of the burn. In second-degree burns, the skin becomes intensely red and painful to the touch and may be accompanied by diarrhea, fever and/or vomiting. Blisters may develop and then burst, discharging their fluid contents over the body. There is also much itching and finally peeling of the skin. A third-degree burn results in a sloughing dermatitis and may end in death. Complications may develop, such as inflammation of the brain, stomach and intestines; blood poisoning; and hemorrhages.

1.5 The Sunbath

Sunbaths play a vital role in the life processes of human nutrition, the tanning process being coincident with them. There is a tendency to overexpose the skin to acquire a "good tan," and this should be avoided, as it will enervate the body, lessening the value of the sunbath.

The untanned body should begin with exposure to the solar rays of about ten minutes a day and increase gradually until an hour or more may be taken without harm. Too much sun will result in restlessness and decreased nerve tone. Additional precaution must be taken by blond and red-haired people, as they do not pigment as readily as dark-haired people. Heliophobes, those individuals who redden and blister and are cautioned to stay out of the sun, should still take sunbaths but do so for short periods during the early morning or late afternoon hours to avoid large amounts of ultraviolet rays.

The sunbath should be taken in an entirely nude state or with scanty attire, preferably without glasses or hats, as the eyes and hair also benefit. Sunglasses render the eyes more sensitive to the sunlight and ultimately impair the vision, whereas it has been found that gazing directly into the sun greatly benefits weak eyesight. It is also known that sunlight accelerates the growth of hair.

Suntan lotion or olive oil on the skin is unnecessary and should not be used. These will prevent all the ultraviolet rays from being absorbed and will inhibit the oil-secreting glands of the body from working properly. They will not prevent the injurious effects of excessive sunbathing, nor will they provide for a uniform tan. Remember, it is not mere tanning that we seek, but a general revitalizing of the entire organism, not confined to the skin alone.

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If the sunbath is taken at the beach, additional caution must be exercised, as the reflection from the sand and water cause more sun rays to strike the body. Thus, burning will result more quickly. Neither a thin haze over the sun nor a cool breeze will prevent the ultraviolet rays from reaching us. It is important to understand in this context that it is not the sun's heat from which we benefit (except secondarily on a cold day), but rather its light. The hot sun is very exhausting and should be avoided, and like other animals we should instinctively seek the shade at these times.

Those people living in colder climates must take advantage of the warmer months to secure an ample supply of sun-made reserves to carry them through sunless periods. This is not to say that the body stores up sunshine, but rather it stores up substances produced with the aid of sunshine to be used in times of stringency. Along with vitamin D, other materials are synthesized in the body with the aid of the sun's rays. These body reserves will be adequate as long as the general mode of living throughout the year is not enervating. All forms of excesses, dissipation of the emotions, lack of rest and sleep, sexual excesses, overwork and/or an improper diet will waste these reserves.

Some additional precautions should be noted in the case of invalids or generally weak individuals. If the sunbath leaves the person feeling weak or depressed or with an increase in any of his/her symptoms, then it has been overdone. Fever, headache, weariness, loss of appetite and sleeplessness may all be considered signs of excess. In those individuals suffering from asthma or tuberculosis, a difficulty in breathing may be experienced. Nervous patients may not be able to sleep due to a stimulating effect caused by too much sun. The end result for securing the sunbath should be to produce a better feeling in the individual, not worse. A person's need for sunlight is dependent upon their ability to make use of these light rays. Overindulgence of the sunbath will lend to additional enervation and serves no useful purpose.

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2. Natural Light Versus Artificial Light

Sunlight, when broken up by means of a prism, is found to be con posed of the color bands of the spectrum—red, orange, yellow, green, blue, indigo and violet. These different colors represent different rates of vibration, increasing as we go from red to violet, while their wavelengths decrease. These visible rays give us sensations of light, color and heat. In addition to these color rays, sunlight also contains other rays not perceptible to our ocular sense and therefore invisible. The wavelengths immediately shorter than visible violet and those immediately longer than visible red are both invisible to humans and are called ultraviolet and infrared, respectively.

Regarding the heating power of sunlight, it is found to be greatest at the red end of the spectrum where it blends with the infrared rays, while the greatest chemical activity takes place at the violet end, blending with the ultraviolet rays. These invisible rays of the sun are the most beneficial ones. However, the complete color spectrum, blended in perfect proportion so as to produce white light, is needed for ideal growth and development of both plants and animals.

Artificial light does not radiate a complete spectrum but instead produces a light with an excess of one or more of the color rays. In the case of incandescent lighting, most of its light is yellow, orange and red, whereas the standard "cool white" fluorescent light emits mostly yellow-green light. The various so-called "sunlamps" produce either too much ultraviolet or too much infrared radiation and are definitely harmful. They may cause headaches, third-degree burns and severe conjunctivitis.

The effects of artificial lighting have been noticed in both plants and animals. John Ott, of the Time Lapse Research Laboratory, discovered that the apples on a branch of a tree under artificial light grew larger than those growing under natural light, but they did not mature or ripen. Despite the addition of many chemical products to produce more color in the fruit, the fruit never acquired color until exposed to ultraviolet rays from the sun.

Further observations made by Ott revealed that the ratio of the sexes of plants was affected by different wavelengths of the spectrum. Experimenting on a pumpkin vine raised in a basement under a skylight and a cool, pinkish, white fluorescent light, it was noticed that the female pumpkin-producing flower turned yellow, then black and finally dried up and dropped off the vine. Consequently, the vine did not produce fruit. When these lights were replaced with tubes containing more blue in them, the female buds developed bountifully, while the male buds dried up, turned black and dropped off the vine at an early stage. The usual ratio of male to female buds on a pumpkin vine is seven to one respectively; however, in these artificially-lighted plants, normal reproduction could not take place.

In general, it has been observed that plants grown in artificial light lack the rugged constitution of plants grown under natural lighting conditions. Their growth may be stimulated by subjecting them to longer hours of light, as compared to the natural light cycle of the revolving earth. But this forced growth produces plants bearing flowers and fruit of lesser quality and color appeal than those grown in sunlight.

The animal world is also adversely affected by variance of light wavelengths. In an experiement conducted to determine the effects of different light on animals, 1000 mice were used and divided among three different light environments: Those receiving natural daylight produced an equal amount of male and female offspring; those under white fluorescent bulbs produced 70% females and 30% males; and those under pink fluorescent bulbs produced 30% females and 70% males. This latter group did not thrive as well as either of the two other groups. All those exposed to the pink light quit breeding two months earlier and died one month earlier than those exposed to the white light.

As these experiments were made with a strain of mice in which malignancy develops in 98% of them, almost all the mice did succumb to cancer. However, those mice under natural daylight developed cancer two months later than those under the white fluorescent bulbs, and three months later than those under the pink fluorescent bulbs. An additional effect was noticed: Those mice receiving the pink light gave birth to young which were smaller in number and size than those mice receiving natural light.

Other investigations have shown that light definitely affects the pituitary gland, as well as other areas in the midbrain and hypothalamic regions. In the early 1920's, William Rowan demonstrated that the varying seasonal lengths of the daylight was responsible for the migration of birds. In other studies conducted by Bochenek, Marburg and Gudden, it was shown that light may occasion reaction on the entire endocrine system of an animal via nerve impulses originating in the retina and reaching other areas of the brain by way of accessory optic pathways. Thus, artificial light, not being of the same quality as natural light, can play havoc with the endocrine system via the nerves.

A study was conducted involving some elderly men at a nursing home who spent most of their time indoors under the influence of unnatural lighting. They found that these men suffered a severely diminished ability to absorb calcium; yet when the lights were replaced with special bulbs designed to simulate sunlight, their calcium absorption was increased by 15% within a month. Even more disturbing research conducted by scientists has indicated that fluorescent lighting can cause genetic mutations, cancer and death in the cells of many life forms, including humans.

Aside from the facts concerning the direct negative effects of unnatural lighting; we must also consider their more indirect effect on our body rhythms. Their presence, by turning night into day, tend to imbalance the circadian rhythms—the regular cycles of rising and falling body temperature, variations in body chemicals, etc., that naturally occur approximately once every 24 hours. The result may be what three West German photobiologists have called "light stress."

All plants and animals require alternating periods of light and dark so that some vital processes may rest while others become activated. The anabolic activities during the night can take place efficiently only when not interfered with by lighting, which will continue to occasion activity in the living cells. The result is that the processes of growth and repair are interrupted, resulting in the necessity for disease, and the body is robbed of a certain degree of life force.

Experiments testing the influence of artificial light on fish revealed that, when exposed to too many hours of light, the fish ceased to reproduce. When time exposed to light was cut down gradually over a period of weeks, the fish resumed reproduction if exposed to pink light, but not under the slightly bluish white light. Also, under the pink light, the ratio of female to male offspring was 80 to 20 respectively and the development of the secondary sex characteristics of the male offspring was retarded.

Regarding humans, some scientists suspect that the age at which girls reach sexual maturity might be influenced by the artificial illumination of nighttime. It has been noticed that in countries experiencing long winter nights, girls are now reaching sexual maturity months or years younger than their grandmothers did. Apparently, their normal maturation cycle is being interfered with by the introduction of artificial lighting into their lives, thereby increasing the rate at which they mature.

From this information, we may understand the importance lighting plays in our daily lives and we may also suspect that all the effects of artificial lighting have yet to be uncovered. A true science of health must endeavor to ascertain all aspects of life and living and their ultimate effects on human health.

3. Air And Breathing

Air is the gaseous substance that makes up the atmosphere of the earth and provides every living thing with its breath of life. Plants receive oxygen through their leaves; insects breathe through tiny openings in their bodies; frogs breathe partly through their skin; fish absorb oxygen out of the water as it passes over their gills; and humans receive their supply of oxygen partly through the skin, but largely through the lungs. The independent life of a body does not begin until it takes its first breath and this function of breathing continues until the end of life. This is the process of respiration, and it must be considered the primary function of the living organism. We can live many weeks without food and some days without water, but if the function of breathing is interfered with for only a few minutes, our life quickly ends.

Respiration is an automatic, involuntary process, being regulated according to the body's internal needs. With healthy lungs, we breathe normally and rhythmically, yet unconsciously, as the process is beyond our conscious control. At rest we breathe slowly and less deeply. As activity is increased, breathing becomes more rapid, with greater excursions of the diaphragm and chest to allow for increased oxygen intake.

But the respiratory movements are not confined to the chest alone; they are systemic motions pervading the whole trunk. It is known that the rhythmic pulsations of the heart synchronize with the movements of the chest in respiration. These breathing movements also constitute an important factor in the circulation of the blood, as we may experience in the case of a drowned person being resusitated by artificial respiration, by which circulation and heart action are restored.

By far, the largest organs in the body are the lungs, designed and adapted to their work of receiving air and nothing else. They fill the thorax from the collarbone to the lowermost ribs and from the sternum in front to the spine in back. When the chest wall is raised through the action of the muscles of the chest, and when the diaphragm is depressed, the chest cavity expands, this forms a vacuum, and the air rushes into it. Conversely, when the chest wall contracts and the diaphragm is raised, the air is forced out of the lungs. Coincidentally with this process, the blood flows through the lungs, picking up oxygen, carrying it to the ceils and giving off carbon dioxide that it has brought from the cells. This whole process is automatic and is regulated by the body's need for oxygen.

A normal pair of lungs contain approximately a billion tiny air cells. If these cells were all spread out on a flat surface, they would cover an area 40 x 50 feet. The average man inhales daily approximately 777,000 cubic inches of air, and in this same time 125 barrels of blood are purified in the lungs. Here the poisons and impurities of the body are brought by the blood and cast off. Also, the blood absorbs a fresh supply of oxygen, nitrogen, hydrogen and the essence of sunlight to be conveyed to all parts of the body to furnish the trillions of cells with the normal stimulation to activate its various functions. This is a continuous process, and if it is interfered with, the result could be fatal. When respiration is obstructed, the lips quickly turn bluish-purple due to the rapid collection of carbon dioxide gas in the blood. In only a few seconds, if respiration is impeded the blood will turn almost black in color, signifying a great increase in poisons.

Carbon dioxide is composed of one part carbon and two parts oxygen and is not easily detected, as it is colorless, odorless and tasteless. For every 2,500 parts of atmospheric air, there is one part of carbon dioxide. When the air we breathe contains 3% carbon dioxide, a drowsy feeling occurs, and when it is present in larger quantities, death quickly results. If the organism does not promptly eliminate carbon dioxide, every cell becomes weakened and the entire body suffers. Carbon dioxide gas is present in all charged drinks, in beer and fermented liquids, in baking powder cookery, in self-rising flour products, in yeast bread and in all fermenting products.

At each exhalation the lungs discard enough gases, consisting of carbonic, lactic, hydrochloric, phosphoric and other acids, to poison a barrelful of air. In every 24-hour period, the amount of carbon dioxide eliminated by the lungs is equal to a lump of charcoal weighing eight ounces.

With this in mind, consider also that every person in a room needs 3,000 cubic feet of fresh air an hour to insure purity. In the case where several occupy a room not adequately ventilated, we inhale the exhalations of others and ourselves, and the amount of carbon dioxide contained in the air increases, making it more dangerous to breathe. This is the principal reason why patients in hospitals develop diseases of the lungs such as influenza and pneumonia. The early symptoms of mild carbon dioxide poisoning are sensations of uneasiness and oppression, drowsiness, sneezing, headache and coughing.

Under the laws of accommodation, our bodies are equipped with powers to enable it to tolerate for a time an atmosphere so poisonous that it could cause a vital person to pass out if it were suddenly entered into. This principal was illustrated by an experiment by Claude Bernard in which he used a bird placed under a bell-glass, providing it with enough oxygen nor three hours, but then removing it at the end of the second hour and replacing this bird with a fresh, healthy one. It was shown that the latter died instantly, as it did riot have sufficient time to accommodate itself to the vitiated environment of the bell-glass.

In addition to carbon dioxide, our bodies also must deal with the poisonous fumes of modern industrial cities. City air contains such chemicals as carbon monoxide, sulphuric acid, hydrochloric acid, nitric acid, hydrocyanic acid, benzene, methane, etc. The *Cincinnati Post* of April 1946 stated that in the month of March the amount of soot and ash that fell on that city was equal to 2725 tons or 227 railway carloads. It amounted to enough to cover a 40 x 150 foot, 75 foot deep lot.

Another interesting fact: A professor H. H. Sheldon of New York University once erected an apparatus in the Times Square theatrical district that drew in air at roof level. In one week, the apparatus cleaned 341,250,000 cubic feet of air, removing from it 12 cubic feet of solid matter composed of dust, soot and tar and weighing 37 pounds.

All the protection one has against polluted air is to exhale it through deeper breaths, but this should be done actively through movement. Ernest T. Seaton, in his story of the coyote, tells of this animal's protective instincts after ingesting some poisonous bait. It instinctively knows there is but one way it can overcome the poison, and that is by vigorous exhalation. If it can run long enough and fast enough before the poison does its deadly work, the lungs will eliminate the poison and the animal will survive.

H. B. Meller of the Mellon Institute of Industrial Research said: "When it is known that one takes about 30 cubic inches of air into one's lungs in each inhalation, or about seven times the weight of food and water consumed, it can be understood why more people are weakened, devitalized and poisoned by the pollution in the air they suck into their lungs than by all the ingredients in the food they eat and the water they drink." When the air we breathe is fresh and pure, it brings life into the body, but when it is filled with poisonous gases from industrial waste, etc., it leads us to ill-health and premature death.

The press of August 19, 1939, stated that these poisonous gases and acids in the air of the city of Paris were "eating away and disintegrating the historic monuments of that city. The rapid decay of \ these stone monuments dates from about 1900. Since that time, the smoke and fumes from factories, river tugs, motor cars and trucks and heating plants have steadily increased. The smoke, mixed with the exhaust of motor cars, trucks and buses, produces a compound of sulphuric acid gas that chemically attacks everything that it strikes."

Until about seventy five years ago, fresh air was considered by physicians as being dangerous to the sick, especially during the night, and all windows were kept closed and all air holes were plugged up to prevent any air from entering. Thanks to the work of the early pioneers of hygiene such as Graham, Trall, Densmore, Page, Oswald and others, most people of today are aware of the importance of adequate ventilation at all times.

Although the Greeks and Romans were able to manufacture glass, they did not use it to obstruct their windows. Instead, they allowed the free passage of light and fresh air to enter their dwelling houses. It was not until later periods, called the Middle Ages, that the fear of night air and of other natural instincts including a fear of eating uncooked foods became predominant, and habitual indoor life between closed walls became customary. This grew out of the philosophies and religions of the day that preached anti-natural doctrines.

Oxygen is essential to the highest physical and mental development of humans. This may be provided through free ventilation and exercise in the open air. Although there seems to be more need for fresh air during the daytime while we are active than during the night when we are inactive, this is hardly an argument for sleeping in unventilated rooms. In sleep, nature seeks complete rest and reduced oxygenation. This is provided for by decreased breathing, and should not be accomplished by the breathing of foul air.

Regular and continuous breathing is essential to meet the needs of life, and it is for this reason that we should live, dress and carry ourselves in ways that do not interfere with the process of breathing. Five minutes of deep breathing twice a day will not compensate for inadequate breathing the rest of the day. It is what we habitually do all day that counts in the long run, rather than any five-minute breathing sessions. Proper and sufficient breathing depends upon a number of factors, including health of nose, throat, chest, lungs and abdomen; proper body posture; freedom of movement of the chest and abdomen (lack of restrictive clothing); well-ventilated homes, bedrooms, etc. and ample exercise in the out-of-doors.

In this light, mention should be made that exercises to develop the chest and to increase its capacity for oxygen are well advised. Modern life generally does not adequately develop the musculature and framework of the chest, and it is for this reason that the modern man or woman's breathing reserve is small compared to that of wild animals and those people of more primitive societies. Regarding our breathing apparatus, the normal nose permits adequate amounts of air to enter the lungs through but one nostril under ordinary conditions. When under great stress, as when running, the additional nostril should provide for the ingress of sufficient air, providing both nostrils are normal. Generally, mouth breathing is a symptom of disease, as in adenoids, polyps, nasal catarrh, a cold, etc. Every day we should take advantage of the cleanest air available in the particular vicinity in which we live. It is important that we do some exercises that will promote greater oxygen intake. This will also enable us to throw out additional poisons from our lungs and help to keep our breathing functions in a healthier condition.

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4. Questions & Answers

Are specific deep breathing exercises recommended for greater intake of oxygen?

> If you are referring to a passive form of deep breathing not associated with total bodily movement, then the answer is no, they are not recommended. We must understand that the rate of breath is automatically controlled through the respiratory center in the medulla of the brain. The more carbon dioxide that is contained in the blood, the more this center is stimulated, with a corresponding increase in the rate of breathing. Conversely, oxygen inhibits this center so that the more oxygen the blood possesses, the slower we breathe. Thus the breath rate and the volume of oxygen are always automatically adjusted to the body's true needs. Deep breathing "exercises" that do not involve great muscular exertion will not provide for any more air into the body than the blood can take up according to its needs. Passive deep breathing "exercises" do not force anything out of the body, nor do they "feed" the nerves or regenerate the body in any way. Such activities may result in mental confusion and various other symptoms and are best discarded. Active deep breathing, that which is coincident with various bodily movements such as hiking, running, swimming, etc., occasion a greater need for oxygen and are beneficial. The body's normal response to this need is met through an increase of breath rate and volume of oxygen intake.

Do all forms of artificial lighting produce detrimental effects upon our health and, if so, what can we do to minimize these effects?

> Yes, all forms of artificial lighting negatively affect our health, but most of us must spend some time under their influence in order to live in this society. A few things may be done with regard to fluorescent light bulbs that will lessen the potential hazards associated with their use. First, we may use solid plastic covers over the lighting fixtures to help filter out excessive ultraviolet light rays. Secondly, and more importantly, we may use and encourage others to use some of the more recently developed broad-spectrum fluorescent lamps instead of the more commonly used "cool white" fluorescent bulbs. The former more closely simulate the full spectrum that is offered us by sunlight, and they should prove to be less harmful.

How may one obtain sufficient sunlight during the cold winter months of the temperate zones?

> Humans originally came into existence when the conditions of the environment harmoniously agreed with their constitution. This was in such a climate as to allow for living without clothing, so as to be sun-kissed throughout the years of their existence. Nowadays, many of us inhabit less comfortable areas of the world and may only experience these life-giving rays part of the year. A possible solution during the winter is to construct a solarium or close off an area in such a way as to keep the wind out but the solar rays in. Through the use of reflecting the rays, we may additionally produce more heat in this specialized area, thereby making it more comfortable for the sunbath. We may also secure some sunlight

through an open window if conditions permit. But probably the most important consideration is that we live healthfully throughout the months so as to secure adequate nutritive reserves, and not dissipate our nerve energy through food and/or sexual indulgences or lack of adequate rest and sleep. This will prove to be of paramount importance for maintaining good health during those months not as suitable to humans.

Lesson 13 has discussed many reasons why humans need sunshine on a regular basis. Sunshine has been described as one of the basic essentials of life and a valuable factor-influence in all states and conditions of the human body. It is needed for assimilation of calcium and phosphorus salts and for the production of vitamin D in the skin.

While sunshine and other nutritive factors obtained on a regular basis result in fewer diseases, especially rickets, tuberculosis, anemia, insomnia, acne, psoriasis, leukemia, high blood pressure and reproductive disorders (irregular ovulation, pubertal difficulties, impotency, uterine hemorrhage, etc.), it cannot be considered a specific "cure" for any disease condition, and it will not protect us from other destructive habits we may indulge.

Excessive sunshine, especially under the sun's most intense rays, is not healthful and should be avoided. It may result in sunburn, dry, coarse skin and nervousness. In short, too much heat and sunlight is enervating. Tanning should not be considered the primary objective of sunbathing, and suntan lotions or oils should not be used because they will clog the body's skin pores and inhibit the oil-secreting glands of the body from working properly.

Lesson 13 also gave a history of sunbathing and the use of sunshine for improved health, nerves and muscles. The practice of sunbathing was just about lost during the Middle Ages, however, and its revival was brought about in large part as a result of the efforts of Hygienic pioneers, including Graham and Trail.

Lesson 13 explained that artificial lights do not produce a complete spectrum of light, and they upset natural body rhythms that are tuned to the light of nature. Artificial lights produce an excess of one or more of the color rays, and they interfere with normal reproduction in plants and animals...

The anabolic activities that take place efficiently only at night when riot interfered with by artificial lighting are disturbed by the use of artificial lights. Therefore, the processes of growth and repair of cells and tissues are hindered and the body is robbed of some of its life force. Additionally, Lesson 13 stated that sunlamps are harmful and should not be used.

Air as a primary, and the most immediate, need of life, was discussed in this lesson. It must be obtained in ample amounts and it must be free from pollutants, including the exhalations of ourselves and others. This means that good ventilation is necessary inside buildings, and we should refrain from using polluting substances in our homes and offices. The fact that we consume more weight in air than in food and water combined makes it evident why people are so devitalized by air pollutants.

Lesson 13 described the lungs and how they work to take in oxygen and eliminate' carbon dioxide and other toxins. It was explained that the heart works in harmony with the lungs. The symptoms of carbon dioxide poisoning were described, and the body's process of accommodation was explained and illustrated. Also, some of the major air pollutants in cities were listed and their damages described.

The need for adequate ventilation during sleep was discussed, and the need for outdoor exercise was highlighted. Lesson 13 also explained why passive deep breathing "exercises" should not be indulged but vigorous exercise should be obtained. Suggestions were made on how to avoid the harmful effects of artificial lighting and on how to obtain adequate sunlight during the cold winter months of the temperate zones.

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Article #1: Sunlight And Air By Otto Carque

Most important for the preservation of health and vitality are sunlight and air. They are just as necessary for growth and perpetuation of life as are liquid and solid food. "When the sun does not enter, thy physician enters," says an old proverb. It has been found that the greatest mortality occurs in the narrow streets of cities and in houses having northern exposure. The inhabitants of southern mountain slopes are stronger and healthier than those living on the northern sides. Inhabitants of secluded valleys where the sun rises late and sets early are generally afflicted with peculiar diseases, chiefly due to a lack of direct sunlight and its salutary power to dissipate and decompose noxious vapors that accumulate in dark and low places.

The sun indeed is the great and ultimate source of all power that manifests itself in the inorganic as well as in the organic formations of matter. Plants require sunlight above all for the completion of their complicated organic combinations. While the lowest species of organic life, such as fungi, are capable of developing darkness, the higher plants, which principally support animal life always depend upon the rays of the sun for the processes of assimilating the elements of soil and atmosphere. They require especially the non-illuminating ultraviolet rays, which we know to be most active in the production of electrochemical effects.

Likewise, the animal body is to a large extent directly dependent upon sunlight for its growth and healthy development. It is a well-established fact that, as the result of an insufficiency of light, the fibrine and red blood corpuscles become diminished in quantity, while the serum or watery portion of the blood is increased, inducing leukemia, a sickness characterized by a great increase in the number of white blood corpuscles. A total exclusion of the sunlight induces the severer forms of anemic diseases, originating from an impoverished and disordered state of the blood.

Of the many experiments that have been made so far to demonstrate the beneficial effects of sunlight, the one conducted by John Blaytonis is the most remarkable and significant. In order to determine whether the indirect or diffused daylight, perhaps during a longer period of time, has the same effect as the direct sunlight, he selected twelve bean plants of the same variety and in the same stage of development. Then he planted them near one another in such a way that six always had full direct sunlight, while the others received only the diffused daylight. In October, the pods were harvested, and the weight of those grown in the shade or diffused light compared with that of those exposed to the sun rays was found to be in the proportion of 29:99; that of the dried beans 1:3.

This result was expected, but in the following year, when all the plants grown from the same seed received the full amount of the direct sunlight, the surprising fact was ascertained that those which had been raised in the shade yielded only half the amount of the previous year's harvest, while in the fourth year they blossomed but did not mature. The deprivation of direct sunlight during *one* summer weakened the stock to such a degree that the species became extinct after four years.

The lesson of this experiment may be applied with great benefit to humans and their daily habits. The highly beneficial effect of sunbaths, if judiciously taken, is demonstrated by the above example in the best possible manner. A dwelling place that admits the sunlight during all hours of the day is, therefore, one of the first conditions for the preservation of health.

Statistics show that the tenament house districts of the large cities to which sunlight has very slight access have the greatest infant mortality and have many cases of rickets and tuberculosis. If it were not for the constant renewal of the population from the rural districts, the city dwellers, especially the poorer classes, would die out in the course of a few generations. All mothers should realize the importance and benefits of sunlight and use every opportunity to admit the direct rays of sun to their living and sleeping rooms whenever and wherever this is possible. Sunlight and fresh air are primal factors on which the normal development and health of the child depend.

Frequent exposures of the naked body to the sunlight will greatly assist the system in the performance of all physiological functions. It will especially insure an even distribution of the blood. Such an adjustment of the circulation is necessary for the normal functioning of all organs. People should make it a practice to expose their nude bodies frequently to sunlight and fresh air in order to keep in the best possible physical condition. Public parks should have enclosures where sunbaths and airbaths can be taken, and these should become an adjunct of every modern progressive city.

Sunlight can kill cells in our bodies if the cells are exposed too much to the very intense rays of the sun. Moderation and discrimination should always be exercised. Sunbaths are best taken in the morning, and an eastern exposure should be selected for the purpose.

Equal attention should be paid to a continuous supply of fresh air during day and night. Not many persons seem to realise the absolute necessity of the electrifying, life-giving oxygen for the maintenance of vitality and health It has been only a century and a half ago (1774) since the English scientist, Priestly, and the French scientist, Lavoisier, discovered that we live by means of a chemical process of combustion in which the blood unites with the inhaled air, yielding the products of combustion that we exhale as aqueous vapor and carbonic acid gas. This chemical action corresponds to that which we find in the case of a burning candle or a lamp fed with oil. If the supply of air is cut off, we will be suffocated, just as the flame of a lamp is extinguished if the air is prevented from passing to it. A person may live more than sixty days without food and a few days without water, but when deprived of air or oxygen, they die within a few minutes. This proves that pure air is the most necessary of all the essentials of life.

Atmospheric air consists of two gases, viz.: nitrogen and oxygen; the former serves only to dilute the oxygen. Besides these two elements, the air always contains some aqueous vapor, carbon dioxide and ammonia. On an average, 100 volumes of air contain: 78.35 vol. of nitrogen (N); 20.77 vol. of oxygen (O); 0.84 vol. of water vapor (h3O); 0.04 vol. of carbon dioxide (CO2); 0.0001 vol. of ammonia (NH3); and traces of other gases (ozone, etc.).

There are also various kinds of microbes in the air, according to moisture and temperature, causing fermentation and chemical disintegration of organic substances. The composition of air, i.e., its proportions of nitrogen and oxygen, is the same all over the surface of the earth. The degree of moisture or humidity in the air varies according to location and temperature. Carbon dioxide is always present, even in mid-ocean and forests, but its quantity is very small, ranging from three to four parts per ten thousand by volume.

In closed rooms, however, where numbers of persons are present and at the same time gas and coal are burned, the percentage of carbon dioxide rapidly increases. At the same time, the air is filled with other more poisonous gases, such as ammonia and albuminoid ammonia, while the amount of oxygen is gradually lowered. All these facts should be seriously considered in the proper ventilation of living rooms, schoolrooms, etc. The following table gives the average amount of carbon dioxide in 10,000 parts found in the air of different localities:

Ocean and forests	0.3
Cities, open streets	0.4 to 0.5
Bedroom during night, Window partly open	0.8
Bedroom during night, Window closed	1.2
School-rooms	1.5 to 3.0
Hospitals	2.8
School-room, 70 occupants at close of school hrs.	7.2
Churches, during services	3.5 to 7.0
Churches, if heated by furnaces	20.0 to 30.0
Theatres, crowded meeting rooms	25.0
Workshops, ill-ventilated	30.0

These figures show how little attention is paid to proper ventilation, and they explain the constant increase of pneumonia and similar diseases. The importance of pure air becomes still more obvious if we consider the wonderful anatomical structure of the respiratory organs. The lungs, into which the air is drawn, consist of two rounded, oblong, somewhat flattened masses of cellular substance. They are situated in the cavity of the chest, which communicates with the atmosphere through the windpipe (trachea). The trachea, as it descends from the throat, branches off into large tubes, and these branch again and again into smaller and still smaller ones and finally into hairlike vessels.

Through these the air penetrates into the remotest parts of the cellular substance. Around each visible extremity nearly 18,000 cells are clustered, each of which is connected through these minute tubes with the external air. The cells vary in size. They have an average diameter of about one one-hundredth inch. Their total number has been estimated at about six hundred million. The wall of these cells is very thin; they are mere air vesicles.

The internal surfaces of all these cells together form an area of about one hundred sixty square yards of thin cell-wall. Over the whole of this surface, minute blood vessels branch out, almost entirely covering it. Along these tiny vessels the blood continually flows and, in its course, absorbs through their walls the oxygen of the inhaled air.

It is in the delicate membrane of these blood vessels that the change from venous into arterial blood is effected. The venous blood must be changed continually because it is an impure fluid containing matter that has already served for the support of life in the various parts of the body. Carbon dioxide and other gases are given off, and the oxygen of the air enters, the cells of the lungs and is absorbed by the minute vessels that spread over the cell walls. Within these vessels the oxygen combines directly with the hemoglobin of the blood, and by means of the action of the heart, proceeds with it in ceaseless currents through the arteries and veins.

To a certain extent the skin also absorbs oxygen and exhales carbon dioxide, the amount being about one-thirtieth of that excreted by the lungs. Besides, the skin gives off other gases, water and solid matter, amounting to from one to two pounds during the day. In summer people perspire more than in winter. During exercise or exertion more water is lost than at rest. All parts of the skin should be brought frequently in immediate contact with the external air. There are several million pores in the skin acting as little sewers through which various waste products of the system are constantly excreted. The clothing and particularly the underwear should be porous to permit free circulation of the air. Closely woven linen or cotton shirts, if covered with heavy woolen clothes, cause the retention of waste matter that is partly reabsorbed by the system and thrown back on the lungs and kidneys, overworking and weakening these organs.

As has been shown that in ill-ventilated and often tobacco-laden public halls, churches, schoolrooms, theatres and workshops, the air thrown off from the lungs is rendered still more noxious by the emanations of the skin. People, on leaving such places, feel the contrast between the inside and outside air and erroneously blame the fresh air as being responsible for their "colds," which are but the result of the inhaled poisonous gases and their unsanitary methods of living in general.

Many persons sleep with closed windows because they cherish the old delusion that "night air is dangerous." After a few hours they begin to breathe the exhaled air over again. In the morning they get up with a "tired feeling" and have to resort to "eye-openers" which make their condition still worse. It is during the night when we are at rest that the lungs redouble their efforts to inhale the life-giving oxygen to recharge the human dynamo. It is therefore even more essential to insure an adequate supply of pure air during the night than in the daytime. There is absolutely no danger of "catching cold" from cold, fresh air. On the contrary, the bodily heat, which results from combustion, is increased by an abundant supply of oxygen. A "cold" is really but an effort of the system to cast out impurities, chiefly through the mucous membranes of the throat and nose. Few persons realize that the amount of air taken up by the system daily outweighs that of the solid food.

The changes that have taken place in the composition of the exhaled air are indicated by the following table:

Constituent	**Inhaled Air**	**Exhaled Air**
	Volumes percent	
Nitrogen	78.35	78.85
Oxygen	20.77	16.00
Carbon dioxide	00.04	04.35

Exhaled air is also saturated with water vapor and contains traces of ammonia and organic matter varying with the diet, climate and occupation of the individual. Under normal conditions, if the blood is rich in the essential organic salts, the lungs absorb through the medium of the red blood corpuscles twenty-four and one-half ounces of oxygen during twenty-four hours, while they give off twenty-eight ounces of carbon dioxide retained in the lungs. Children need relatively more oxygen than adults, as the tissue changes are more active during the growth of the organism.

The adult man of average weight at each inhalation draws in about one pint of air, and during twenty-four hours he averages fifteen respirations a minute. Thus he takes in two gallons of air a minute or 120 gallons an hour, amounting to about 2,880 gallons or 384 cubic feet a day. This volume of air would fill a room measuring a little over seven square feet. The weight of this volume is about thirty pounds and contains about seven pounds of oxygen, as the latter forms 23.2 percent of weight of the atmosphere. Of the total amount of inhaled air, the human body takes up oxygen at the rate of 4.78% by volume or 5.25% by weight, while exhaled air contains 4.34% of carbon dioxide by volume or 6.5%, by weight.

Of the total amount of oxygen inhaled, the body generally absorbs from eight to ten ounces (one-third) during the activities of daytime, while during sleep in the open air or in well-ventilated rooms, the quantity may be doubled to sixteen ounces. It may be noted here, incidentally, that the absorption of oxygen depends largely upon the number of red blood corpuscles in a given quantity of blood. During severe muscular exertion, respiration is also increased in frequency and in depth, and the volume of air exchanged may be from five to seven times greater than during a period of rest.

Experiments have been made by German scientists showing the effect on oxygen consumption of walking on a level and climbing. The following figures give the quantities of oxygen consumed during one minute, the subject being a man of 125 pounds weight:

Form of Exercise	**Oxygen Consumption**
Standing at rest	16 cubic inches
Walking on a level	48 cubic inches
Climbing	78 cubic inches

It appears that walking increases the consumption of oxygen threefold and climbing nearly fivefold over that consumed at rest. These facts illustrate the influence of muscular activity upon the bodily metabolism and the incidental purification of the system from waste matter. Regular exercise in the open air during all seasons of the year is one of the most important factors for the preservation of health and the prolongation of life.

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Lesson 14 - Water Transports Nutrients To All The Body Cells

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1. Water Is The Essence Of Life

Water is the prime essence of life! The functioning of our planet is dependent upon its massive reservoirs of water and its complex system of atmospheric water dispensation. In our oceans, rivers, underground aquifiers, and streams, water prevails and abounds. No one would argue with the statement that without water, life as we know it would be impossible. Even if life were possible without water, most of the beauty of life would be lost in its absence. Dull, barren rocky landscapes devoid of vegetation would be prevalent everywhere. The clouds that color rosy and multi-hued in our sunrises and sunsets would be nonexistent.

The fact is that water is a major need of all forms of life. Fortunately for us, in most places on Earth, water is abundant. There's water in all of the foods we eat. Even dry foods like nuts and seeds have water content. Fruits possess plenty of pure water which is ideal for human functioning.

How does our body use water? What is the best kind of water for its functioning? These are questions this lesson addresses.

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2. Water's Role In The Body

2.1 How Body Water Is Obtained

The average adult is composed of almost 60% fluid. That's more water than the total of all other substances in the body! Our body's water is obtained from the fluids we drink and from the water content of the foods we eat. It is also obtained from the body's internal oxidation reactions. The oxidation process occurs in the combining of hydrogen in the food we eat with the oxygen we breathe. Some animals are dependent on the oxidative water they produce for their very existence.

2.2 Minerals In the Body Fluids

The water within our body contains many materials in solution; that is, it contains many substances dissolved in it. The complement of minerals dissolved in the body fluid are referred to as salts. These salts include sodium, calcium, magnesium, potassium, chlorine, phosphorus and other elements. They possess electric charges and are thereby referred to as *electrolytes*.

Some salts possess positive electrical charges and others possess negative charges. These charges, inherent in the salts, are part of the regulatory process in the movement of fluids within the body. The positively and negatively charged particles exist1 in equally balanced amounts in the body. The resultant charge between the particles is therefore neutral.

It is true that the balance of salts is crucial to the proper functioning of the human organism. It is, however, not necessary that we udd substances such as table salt, baking soda, mineral supplements or mineralized waters to our diet in order to assure ourselves of the proper complement of salts. Our bodies, as you will remember from Lesson 10 on minerals, can assimilate and utilize only organic minerals as are found in foods. Adding table salt to the diet is literally adding a poison I We'll discuss this in more detail later in the lesson.

2.3 Cellular Fluids

About three-fourths of the body's fluid is stored within the cells and is known as *cellular fluid*. The extracellular fluid is composed of *plasma and interstitial fluid*.

Blood plasma, a clear, yellow-colored fluid, is approximately 92% water. The plasma carries within it a huge volume of substances. It transports mineral salts and carries carbohydrates, proteins, gases, enzymes, fats and hormones. There are certain plasma proteins that are always present in the plasma. Other materials are in a constant state of change. The amounts of food materials (such as glucose), carbon dioxide and nitrogen wastes are constantly changing in the plasma.

Interstitial fluid is similar to plasma except it does not contain the plasma's complement of proteins. However, interstitial fluid does contain glucose, minerals and urea and it continually bathes the cells. Through this bathing, the cell is supplied with all its needs for existence.

In addition to the circulatory system formed by the blood, yet another system exists and flows through the lymph vessels. The lymph circulation, along with the blood, is responsible for the flow and mixing of the extracellular fluid. One of the major functions of the lymph vessels is the return of the proteins to the circulation after they leave the bloodstream. The lymph provides the only routing whereby these "plasma proteins" can be restored to the circulation. Another part of the lymphatic system consists of small filtering organs called lymph nodes, which filter the lymph fluid as it passes through.

2.4 The Inner Sea and Its Movements

The fluids in our body are true life-keepers and can be likened unto an ocean in which literally trillions of cells, themselves largely water, are immersed. Within this "ocean" the materials we need for our survival are carried. In addition, the same system is responsible for carrying away our wastes, such as nitrogen, unusable minerals and other toxic substances.

The nutrients our body needs are broken down from foodstuffs in the digestive system. After they are broken down they are water-soluble. This means they can be mixed with water and dissolved in it. When the nutrients are, put into solution, the pass through the capillaries (small tubes) within the intestinal wall. The blood flowing in these walls picks up the tiny particles of nutrients. Through the circulatory system, the nutrients are finally distributed by the extracellular fluid bathing the cells.

When the nutrients are finally distributed by the circulatory system to the cells, how do they make themselves available for use by the cells themselves?

It is the responsibility of the circulatory system to distribute the nutrients and bathe the cells with them. The process by which needed materials are absorbed (and also by which wastes leave the cell) are known by the names *diffusion*, *osmosis* and *active transport*.

Diffusion is merely the arbitrary movement of particles through the cell walls. The movement of the particles is limited by the size of the pores of the cell wall (cellular membrane). The cellular membrane is a semipermeable membrane—it allows only certain substances in particular forms to pass through it. This factor is very crucial to the cell's existence. If the cellular membrane did not have the capacity to keep some substances outside of the cell and others permanently inside, the cell would be no different in composition from the fluid surrounding it, and it would not be able to maintain its distinct life.

Osmosis refers to the particular process in which the balance of salts takes place. Water tends to go where the greater concentration of salt lies; in other words, water will pass through the semipermeable membrane from a lesser concentrated salt solution to a greater concentrated solution. The result is that the proportion of positive and negative electrolytes is balanced. An easy way to remember the term osmosis is that it's a fancy way of saying that in cellular metabolism, water goes where the salt is.

At this point, mention should be made that this action of water is not an intelligent one done by the water. Water is utilized by the body; it is itself an inert substance and does not act upon the body.

In addition to osmosis and diffusion, a process called *active transport* occurs, in which electrolytes move across the cellular membrane from an area of lesser salt concentration to an area of great salt concentration.

Fluids constantly flow through the cellular membranes in both directions—both into and out of the cell—through these processes of diffusion, osmosis and active transport. However, the total amount of cellular fluid and the total amount of extracellular fluid remain at a constant balance during this interchange. There is a real need for this precisely balanced flow of fluids between the cellular fluid and the extracellular fluid, so that the cells within the body do not continually shrink and expand.

An example illustrates the importance of this balance of fluids. If the cells were immersed in distilled water, they would grow to the point of bursting because distilled water is so much less dense than the fluid in the cells! Conversely, if the cells were surrounded by e strong salt solution, the cells would lose their water and shrivel up. These examples are an impossibility in the functioning of our organism, but they do point to the need for the proper balancing of both the amounts and types of fluids to which our cells are exposed.

Now let's see what happens when the processes of diffusion, osmosis and active transport occur within the body. Glucose, or blood sugar, is a primary nutritive factor derived from foods. It is the immediate fuel of the cells of the body and is distributed by the extracellular fluids. The liver is responsible, among other things, for regulating the amount of blood sugar that reaches the cells. It also forms proteins from amino acids, which are then dissolved in the plasma. These plasma proteins float in the watery part of the blood and are easily absorbed by the individual cells, which break it down again into its component amino acids.

Minerals can be directly absorbed from the small intestine and put into the bloodstream without undergoing chemical change.

2.3 Waste Removal

Thus far we have been discussing water's role in delivering nutrients to the body's cells. Water plays an equally significant role in removing the wastes of the body.

One of the more persistently produced wastes by humans and animals alike is carbon dioxide. The body has uses for a small amount of carbon dioxide, but would expire could it not expel its excesses! In the process of carbon dioxide expulsion, the cells firstly allow their excess carbon dioxide to diffuse into the extracellular fluid. Later the lungs exhale the unneeded carbon dioxide. Blood is able to carry carbon dioxide because carbon dioxide is easily dissolved in the blood's water.

Another waste that the body continually produces is nitrogen. Nitrogen is basically a by-product of protein metabolism. The elimination of nitrogen is not as simple as that of carbon dioxide; it cannot merely be discharged as nitrogen gas. Our organism has not developed the capacity to discharge nitrogen. If nitrogen were combined with hydrogen in the bloodstream, it would form the extremely toxic substance ammonia. The ammonia would then itself poison the body. Therefore, nitrogen must be expelled in a form that is not itself toxic to the human body. Ammonia combines with carbon dioxide, itself a waste product of humans, to form *urea*. Urea itself is a solid, but it is easily dissolved in the water within the bloodstream.

Urea would quickly reach a toxic level within the body were it not for the functioning of the kidneys. It is the job of the kidneys to filter the blood. They also return to the bloodstream the substances in blood that the body needs. The waste products, including urea, are not reabsorbed but are mixed with water to form urine, which is afterwards expelled through the bladder.

As stated earlier, nitrogen is a by-product of protein metabolism. It costs the body energy to expel this substance in the form of urea. A person following the Life Science regime and eating a diet of raw fruits, vegetables, nuts and seeds will not have as many proteinacious wastes as someone eating a conventional diet of processed foods, meats and dairy products and thereby will expend less energy in expelling these wastes. The urine of a person who is eating a conventional diet high in protein is apt to be darker and thicker than the urine of a person who eats Hygienically.

2.4 Water Cools the Body

One of the major reasons the water balance in the body is so crucial to our health is water's direct relationship to the temperature regulation of the body. Some. animals, such as the camel, actually undergo large differences in body temperature dependent on the air. temperature around them. Yet an internal temperature change of even a very few degrees can mean death to a human being.

A "normal" human adult gains about two and one-half quarts of water daily. To maintain bodily balance, one also loses approximately the same amount. This water is gained from food and liquid sources, and also, from oxidative sources. Oxidative water is merely water that is formed by the chemical reaction of hydrogen combining with oxygen within the body.

The body loses water through the kidneys and bowels. It also loses water through the lungs, and through the skin as perspiration. Perspiration cools the skin when it evaporates, which helps to maintain body temperature, but it can be dangerous or even fatal if the body loses too much water. On an extremely hot day we may lose as much as a quart of water per hour through perspiration. Losing eight quarts by this method would mean death.

When water is lost by the blood, the blood becomes denser. When this happens, water is drawn into the capillaries from the intercellular fluid so that the blood can maintain its flow and carry away unneeded heat in the body.

The skin stops the evaporation of the water in the body. It is the structure from which 85% of the body's heat is lost. Sweat is a clear fluid, mostly water, and it may contain toxins. Sweat is excreted through the pores of the skin. Heat is lost by radiation and the evaporation of sweat from the skin. Typically we may lose a pint of water daily due to sweat.

3. Other Body Uses Of Water

The body needs water for the proper functioning of its glandular systems. The salivary glands in the mouth and the glands in the tongue help prepare food for digestion and keep the mouth moist.

The hypothalamus, located within the brain, regulates the conservation, replenishment, and elimination of water. It can be affected by the type of water you drink, since inorganic mineral deposits can impair its functioning. Also easily damaged by impure water are the thyroid, the adrenals and the pituitary glands.

The pancreas has as its function the manufacture of digestive juices and insulin, and it utilizes water in their manufacturing.

The uses of water in the body are so multifarious that we can't begin to list them all here!

4. Water In Our Diet

Since water is so important to the proper functioning of our organism, it's crucial that we come to an understanding of when to drink, how much to drink and what kind of water is best fit to drink.

4.1 Natural Diet Is Water Sufficient

Firstly, we should stress that there are no hard and fast rules as to how much water a person needs. Those people eating of man's natural dietary—raw fruits, vegetables, nuts and seeds—will certainly need less water than a person eating a conventional diet of meats, breads, cooked foods, etc. A person accustomed to the Hygienic diet partakes of a diet that is basically water-sufficient. Under most circumstances, the foods themselves contain enough water for optimum functioning. The naturally ripened fruits that we eat typically contain upwards of 80% of the purest distilled water. Such water is ideal for human consumption.

4.2 How Much Water Should Be Drunk

There are instances, nevertheless, in which a person subsisting on the Hygienic dietary might need additional water. Such times would include days of heavy toxin elimination and during a fast. We also may need additional water when exerting ourselves in the hot sun. The body will determine its particular water needs and manifest this need as thirst. We should readily accommodate our thirst with water of the purest kind.

A person who eats a typical American diet containing processed junk foods, salt and seasonings, cooked foods, etc., must drink a great deal more water than someone partaking of a Hygienic diet. This is true because the typical American diet is far from being water-sufficient. The high salt content in most of these "foods" requires the body to demand a large amount of additional water to hold the salt in solution so that it won't harm body tissues. The same is true of many of the condiments and spices such as pepper and garlic, commonplace in processed foods.

More insidious food additives such as monosodium glutamate must also be kept away from the cells in a highly diluted form so that they are not immediately toxic. Even a moment's thought will reveal that the body considers such substances as toxic; or else why keep them in diluted solution? Even in such a diluted solution, some of the toxic materials may cause damage. It would seem sensible to avoid such toxic material, thereby saving the energy needed for their elimination.

Some health advocates prescribe that we drink anywhere from three to eight, or even more, glasses of water daily. My suggestion is: Listen to your body! Partake of a diet that is basically water-sufficient in itself. If you find that you need water in addition to the water you get from foods, let your thirst guide you as to how much you should drink.

4.3 When We Should Drink Water

Now we must consider when to drink. Drink only when really thirsty, and never drink during a meal or directly afterwards. If you must drink near mealtime, it is suggested that you drink at least thirty minutes before eating or two hours after eating. When drinking with meals, we often have the tendency to swallow food that is only partially masticated. In addition, the water will hinder the process of digestion by diluting the digestive juices. Of course undigested or partially digested food is toxic and cannot be assimilated.

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5. Water: Is It Fit To Drink?

The importance of water in our diet has been well established. Although it is best for us to obtain our water from food sources, sometimes we need additional water.

For example, when a person works in the sun for several hours on a hot day, his need for water will be proportionately greater than the water content of most foods. When the need for additional water exists, what kind of water should be taken?

5.1 Tap Water and Its Processing

Most folks in this country drink the water that is easily available to them. Commercial "purified" tap water is easily available and is used for drinking water by the majority of people. Nevertheless, few of those drinking such water are aware of exactly, what constitutes the water they are drinking. At least in the United States, most people drink their tap water without giving it a second thought.

Any person who carefully considers the nature of tap water and its constituents will be unlikely to continue to drink it. Besides the barrage of chemicals added to the water at the "purification plant" (which we'll go into later), in most cases the water must travel through an intricate web of pipelines before reaching its destination. These pipes pose the additional danger of adding even more unneeded materials to the water.

Through man's continual disregard for the purity of his environment, almost all of the natural waters of the earth are contaminated by chemical pollutants. For instance DDT has been found in the far reaches of the North Pole area. Among the pollutants of our natural water are: soap, wood pulp, oil, sulfuric acid, copper, arsenic, paint, pesticides and even radioactive wastes! Among the most prevalent inorganic minerals in our waters, which are unusable by and toxic to the body, are calcium, magnesium, sodium, chlorine and sulfur.

It is unfortunate that so many pollutants are in our natural waters. What is even more unfortunate for the tap water drinker is that still more chemical pollutants are added to the commercially available water supplies. These chemicals are added supposedly in a effort to purify the water and kill its "disease-producing bacteria." The chemicals are more harmful, though, than the bacteria they're supposed to rid the water of!

Let's take a closer look at the major methods commonly used in water treatment.

1. *Sedimentation*: When water is allowed to stand still, its heaviest particles will naturally settle to the bottom. This principle can be easily illustrated by stirring some standing water. If you stir up the bottom and watch for awhile, its murkiness will dissipate and it will become relatively clear again in time. Particles that tend to sediment include sand, rocks and heavy particles that are not chemically bonded with the water itself.
2. *Filtration*: Filtration is a process that strains out particles in the water that do not settle. Commonly, the water is allowed to pass through some kind of porous material, such as sand or diatomaceous earth. The porous material acts like a net and captures the particles in the water mixture. Water is sometimes put under pressure in the filtration process.
3. *Coagulation*: Coagulation is a process that involves the use of jelly-like binding materials. These materials can include aluminium hydroxide, aluminium sulfate and activated silica. The theory goes that these chemicals will bind with impurities and cause them to settle out. However, there's a great likelihood that at least trace amounts of these toxins remain in the water after this process.
4. *"Softening"*: Many of the waters used for commercial water supplies in this country are originally "hard," mineral-laden waters. In water treatment facilities, chemicals such as calcium hydroxide and sodium carbonate are added to the water. These substances form chemical bonds with the "hardening" minerals, particularly calcium and magnesium. The resultant chemicals from the reaction are then filtered as much as possible.
   Sometimes this filtering is done by a process called reverse osmosis, whereby the purer water is transported towards the area of least salt (mineral) concentration. This process is literally the reverse of normal osmosis and is done by artificial means of transport such as water pumps.

   The idea of removing hardening minerals from the water we drink is in accordance with Hygiene. But we just can't agree with this methodology. Anytime unnatural substances are added to the water, our chances of ingesting these chemicals substances are increased. Since it is true that our body can use only the water content of the water we drink, it is best to avoid water that has been chemically softened.

5. *Chlorination*: With few exceptions, chlorine is added to the water supply of every large city in the United States. It is added at the rate of approximately one-half to one part per million. Theoretically, chlorine is added to the water in order to poison and kill the germs contained therein. However, we must only remember World War I to imagine the deadly effects chlorine produces in the body. Chlorine has, for instance, been found to be a contributing factor in atherosclerosis. From my own childhood experience, I can remember swimming in a large chlorinated pool, and to my chagrin, a bucketfull of chlorine was added to the water in which I was swimming! Fortunately, I was not seriously injured— it probably was not a strong chlorine solution. However, I can still remember the stinging of my skin and the feelings of nausea and disorientation I experienced from even such a short exposure. From this experience, I must question the advisability of taking any amount of a deadly toxin such as chlorine into the body! Even such a small amount as one part per million, which is considered "safe" by the scientific community, is actually harmful.
6. *Bromine and iodine addition*: In lieu of chlorine, which is by far the most widely used germ killer added to commercial water supplies, bromine and iodine are sometimes added. Both of these substances are deadly poisons to humans and are best avoided.
7. *Fluoridation*: Probably there is no more controversial additive to water than fluorine. These major reason usually cited in favor of fluoridation is its supposed value in the protection of teeth. Some studies have shown that, at best, fluoridation only delays decay. Others have shown no improvement at all in "dental health" from the use of this poison.

> Reasons aplenty exist, however, for the avoidance of fluoride. If excessive fluoride consumption persists, teeth stains and mottling of the teeth, eventually resulting in brittleness, can ensue. The Mayo Clinic department of Orthopaedics wrote that, although fluoride administration has been shown to stimulate new bone formation, the bone formed thereby is poorly mineralized.
>
> Fluoride is mainly stored in bones, and it increases skeletal mineralization. In tests with animals, it has been found that abnormal amounts of bone formation occurred in those animals to which fluorine was administered. Fluoride can contribute to the calcification of ligaments and tendons—even eventually contributing to the spine become a solid column of bone.
>
> In addition to bone storage, fluorine can be stored virtually anywhere in the body, including the aorta, the main bloodflow artery of the heart. There is considerable evidence that fluorine impairs kidney function. In some studies, fluorine has been linked to genetic damage, birth defects and cancer. Fluorine can even react with the hydrochloric acid in the stomach and turn to highly corrosive hydrofluoric acid. This acid can lead to hemmorhaging in the upper gastrointestinal tract!
> Clearly, the harmfulness of fluorine in our waters is abundant! Surely the dubious benefit of "protection of the teeth" cannot compare to the known health detriments of fluoridation.
>
> Fluoride, as it is added to water, is in an inorganic, unassimilable form. Although fluoride can be found in the bodies of people with healthy teeth, it is also sometimes found to be absent. What has been stated above is ample cause for the avoidance of fluoride and its concurrent pathological effects.
>
> We've not even discussed all the possible problems to be found in tap water. Its toxins include lime, soda ash, fluorine, chlorine and sulfur. Some city water supplies have been found to contain many other substances thought to be carcinogenic. Perhaps the most important thing to remember about tap water is this: It's more than just water! The chemicals added to the water are unusable poisons; the inorganic minerals in that water are little better! Let's relegate our tap water to uses other than for drinking, and our health will benefit immeasureably.

It is our hope that this discussion of tap water has convinced you of the merits of its avoidance! Let's continue our discussion of other types of water you might consider drinking.

5.2 Salt Water

Lots of folks are proclaiming the health benefits of sea water and sea salt. They say the complement of minerals in sea water is similar to our blood. Yet sea water is not a food; its drinking occasions vomiting and can produce death. Sailors will die of thirst before drinking it. All its elements are in an inorganic form (see the next section on mineral waters) and are unusable by and toxic to the body. Its salt content requires extra pure water to keep the salt in solution away from body tissues. We're best off avoiding sea water as well!

5.3 Mineral Water

A huge controversy exists concerning the beneficence of mineralized water in the diet. This subject is fully discussed in the book *The Great Water Controversy* by T.C. Fry, Herbert M. Shelton and others. Some of the most important things to remember about mineralized waters are:

1. As was discussed in Lesson 10, minerals cannot be used by the body unless they are in their organic unfragmented form. The body must expend considerable energy to expel these unneeded materials from the body before the water itself can be cured.
   Let's go into this subject a bit more fully. Minerals are only usable to the body as they are found in organic forms of life such as plants. Only plants form the link between the earth-minerals and animal life! We cannot digest rocks. Although inorganic minerals may have the same chemical

composition as the organic minerals, they differ in structure and in the relative position of the component molecules. This difference is crucial, for it determines the usability of the substance by the body.

How does a plant transform earth's inorganic minerals into usable forms? First, the plant takes in sunlight, carbon dioxide, water and elements from the earth. By the process of photosynthesis, the plant's chlorophyll captures the sunlight and forms carbohydrates from water and carbon dioxide. In the process of the growth of the plant, the minerals from the earth become organically part of the plant itself. Then, and only then, can the minerals be considered assimilable by the body.

2. The inorganic minerals found in mineral water are deposited by the body in tissue structures and bones. Mineral deposits can lead to kidney stone and gallstone formation, hardening of the arteries, ossification of the brain, arthritis and heart disease. Inorganic minerals excreted through the skin can cause tissue degeneration.
3. When harmful substances enter the body, they are encountered by the white blood cells, which are a part of the body's inherent defense mechanism. Continued ingestion of harmful substances, including inorganic minerals, can result in an over-proliferation of the white blood cells. This condition is called leukocytosis.
4. It has been suggested that the different stages of life—from infancy to old age—are just differences in the state of ossification of the body parts. The major difference in body tissues between youth and old age is the greater rigidity and toughness of tissues in advanced age.

5.4 Rainwater

What can be more refreshing than a soothing summer shower? Rainwater was once a prime choice for drinking. However, we must begrudgingly recognize that the "waste products" of all the technological boons of mankind have befuddled our waters. Our atmosphere is polluted badly, and rainwater tends to absorb and wash these toxins out of the air.. Although that's great for the air, it makes rainwater drinking unfeasible in most circumstances. If you have a heavy rainstorm and begin collecting water several hours into it, chances are the water will be good (unless you live in an area where the. air is severely polluted). Otherwise, rainwater is, best avoided for drinking.

5.5 Wellwater

Most well waters are heavily laden with inorganic minerals. When this is the case, well water is best left in the ground or used only for cleaning, swimming and bathing.

5.6 Spring Water

Some spring waters are heavily mineralized; others are fresh and soft. When you buy spring water from the store, there's little way of knowing just what you're getting. Soft pure spring water can be good to drink—but unless you know it's soft and pure, pass it up!

5.7 Distilled Water

Distilled water is the purest water available. Nothing but water is in it. When the need for additional water other than what we get from our diet exists, distilled water is unequivocally the best choice for drinking.

Perhaps the most prominent objection to the use of distilled water, is that distillers are not to be found anywhere in nature, although the process is a natural one. For great health, it is necessary that we partake of foods, air and sunshine as they are found in nature. To the great discredit of exploitative humankind, our natural waters have been fouled to the point of toxicity with the waste matter of our so-called "advanced" civilization. It is for this reason that it's dangerous to drink even rainwater! Distilling water is perhaps our only real choice in insuring the purity of our drinking water. Nevertheless, it is a shame that we must use unnatural mechanical procedures to make pure water available to our bodies once more.

The proponents of hard water drinking have claimed that distilled water is dangerous to drink because it leeches out minerals from the body. There is some truth in this statement, but not the way they mean it. Distilled water does aid the body in removing harmful, disease-producing inorganic minerals from the tissues and bones where those not eliminated are stored. However, distilled water does not leech out the organic minerals that have become part of our cellular structures. We must remember that the body chooses what it does with the water that is ingested. The water does not act upon the body. It is the body that acts upon the water! The body will relegate the proper usage of the pure distilled water it receives.

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6. Sources Of Pure Water

Fresh raw fruits are our best source of pure water. The plant itself has already done the distilling! There are no intermediate steps needed.

Our body is about 60-70% water; fruits are typically 80-90% water! Vegetables are high in water content, too. If we eat an abundance of fresh raw fruits, including melons in the hot seasons, little or no water for drinking will be needed!

There are no "dry" foods. Sunflower seeds are approximately 5% water. At the other end of the scale, watermelon is around 92% water. It's sweet and delicious, too!

Here are some typical water contents of easily available fruits and vegetables:

Food	**Percentage Water Content**
Avocados	73%
Grapes	81%
Bananas	75%
Oranges, Peeled	86%
Peaches	89%
Strawberries	90%
Celery	94%

Broccoli	89%
Lettuce	95%
Tomatoes	93%
Cucumbers	95%
Carrots	88%

Even "dry" vegetables have high water content. Potatoes are almost 80% water.

If nuts and seeds are eaten, the possibility of need for additional water increases. Pecans are about 3% water, cashews 5%, almonds about 5%, and brazil nuts are about 4% water.

The water in raw fruits is preferable to that found in vegetables. The water in vegetables, especially the water in the leaves, has not been distilled by the plant to as great an extent as in the case of fruits.

When you need water, such as when you're fasting, working in the sun, or if you've deviated from a water-sufficient diet (heaven forbid!) then you need pure distilled water. Distilled water may be purchased commercially. However you should be careful in its purchase and usage. If it has any odor, color or taste, it should not be used.

The best way to ensure your pure distilled water is truly pure and distilled is to do your own distillation. However, you should take care to purchase the proper noncontaminating distilling equipment.

Distilled water is obtained by a mechanical method in which water is first heated to boiling. Then the resulting vapor, which has separated from the boiling water, is collected. In the process, the chemicals and sediments in the water are removed, leaving only the water.

Since distilled water has a fantastic ability to dissolve metals and minerals, it should only be stored in glass or stainless steel. We suggest you store it in a narrow-necked container so it will have as little contact with the air as possible; also, keep distilled water from air contact by keeping the container closed.

High-quality steam distillers, using stainless steel and glass components, should be used in distilling water.

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7. The Choice Is Yours

Now you have done a good deal of thinking about what type of water is best fit to drink. As a less burdensome (and hopefully more fun) way of reviewing some of these ideas, let's now listen to a group of drinkers and see what they have to say about the virtues and vices of drinking their respective beverages.

The setting for the following conversation is in the living room of a home shared by three young men. It's Friday evening, and some friends and neighbors have come by to celebrate the beginning of the weekend.

Frank: Ahhhh! There's nothing like a refreshing cold beer to start the weekend right! *Ted*: I don't believe it. *(disgusted voice)* No matter how much I tell you that beer is bad for you, you still guzzle the stuff. Man, that alcohol goes right into your stomach lining! Not to mention it'll raise havoc in your whole digestive tract.

Frank: Aw, I've been drinking beer for years and I'm never sick.

Julie: C'mon Frank, I'll go to the sink and get you some water. Maybe that'll please your worried friend.

Ted: With, all the chemicals in that stuff, you might be better off with the beer! *(At this point John and Amy enter the room.)*

John: I couldn't help overhearing your little discussion. I started drinking spring water a couple of years ago. It's full of minerals which I'm sure we need. You want some, Frank?

Frank: Nope. You just don't get that good feeling from water that you get from beer. Besides, this beer is made from spring water. Does that make you feel better, Ted?

Ted: No way. Mineralized waters, including spring water, are full of inorganic minerals. Those minerals are poison to your body. And, oh yes, Frank, just because you're never showing the symptoms of illness doesn't prove you're not sick. Maybe your beer drinking proves that you are sick though *(laughs)*.

Julie: Ted, you're just never satisfied. I went to the faucet to get a drink. I suppose I'm going to die because of that?

Ted: Well, you might. All the toxic chemicals in tap water are best avoided. How many miles of pipeline did that have to go through?

Ann: Well, I'm drinking some distilled water.

Julie: Let me have a taste (Sips the water) It tastes like nothing!

Ann: That's right! Pure water has no odor or taste. And it doesn't have any inorganic minerals to clog up your system or be deposited in your body.

Ted: Well, Ann, you've got the right idea in my opinion. As long as you're going to drink at all, you're best off drinking distilled water.

Frank: What do you mean, "as long as you're going to drink?" You'd die if you didn't! *Ted*: Not necessarily. If you eat mostly raw fruits and vegetables, which is man's natural diet, you will need little or no more water than is found in the foods you eat. *Frank*: Yeah, right. Anybody wanna go for a burger?

We can't hope to legislate the behavior of everyone around us. Ultimately the choice for what we put into our body is individually ours alone. "What'll it be, Mac?"

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8. Questions & Answers

If fluorides in the water are supposed to help fight cavities, why does an excess of them result in brittling of the teeth (and bones)?

> In truth, adding fluorides to water is an economic measure, not a health measure. Fluorides are industrial waste products for which a market was created for the economic advantage of the people in industry. It's not that it's wrong to seek profit or economic advantage; however, it is when it's at the expense of people's health.

The fact is that fluorides in water do not help fight cavities. The tests that supposedly proved that were no doubt done by researchers who had a vested interest in the results or who were paid off by those with a vested interest. It is sad but true that this kind of thing goes on.

While "excess" fluorides will result in brittle teeth and bones, smaller amounts cause problems of all kinds, too. As stated in the lesson, fluorides are toxic. All toxins are carcinogenic and interfere with normal body functioning. Anyone seeking health should stay completely clear of known toxins, including fluorides.

You spoke of water containing impurities, and you mentioned inorganic minerals, chemical additives and softening agents. Are there other impurities in water? If so, what are they?

Anything and everything in water is an impurity. The main reason why waters usually contain so many impurities is because water easily dissolves many substances. That is to say, many substances are water-soluble.

The most salient impurities in water include both living and dead organic matter, including bacteria; corrosion products from pipelines, including lead, zinc, copper and iron; carbon dioxide, which enables water to take calcium, magnesium and lead into solution; iron and manganese, which are taken into solution in the absence of dissolved oxygen; and algae.

Some of the impurities in water make it taste very bad or give it an unappetizing color. Organic matter may decompose and make water smell unappealing. Inorganic minerals in water make it hard, and hard water, because it's already holding so much in solution, is not as good for washing and cleaning as is soft water. For the purposes of this course, keep in mind that impurities in water are toxic in the body and contribute to the need for diseases.

You spoke of hard water and soft water. What do you mean by those terms?

Soft water is water that is deficient in or free from inorganic mineral substances, such as calcium and magnesium salts, that prevent lathering of soap. Hard water is water that contains enough calcium, magnesium and other mineral salts to prevent the lathering of soap.

As you can see, water does not have to be devoid of minerals to be labeled "soft." It only has to be "deficient in" minerals, to the extent that soap will lather, to be labeled "soft." Needless to say, distilled water is the softest water there is, since it is devoid of inorganic minerals. However, not all soft water is distilled or good for drinking. Many spring waters are softer than most well waters. Sea water is hard water, as are mineral waters, by definition. In fact, hard water is just another word for mineral water—or vice versa.

As a final note, I might mention that water that is softened by addition of chemicals is more harmful than waters that are naturally soft or are distilled. Naturally soft waters are harmful to whatever extent they contain any impurities. As stated in the lesson, distilled water is the only water fit for drinking.

What kind of water should be used for bathing?

The water used for bathing is not so crucial as is the water used for drinking. Soft water is preferred over hard water because its greater solubility means that more dirt, oil, etc., from the body can be taken into solution in the water. Hence, you can get cleaner more easily when you bathe with soft water.

You presented an entire lesson on water without mentioning the use of water in enemas, colonics, etc.! Please speak on these subjects.

> The only place where water should enter the body is through the mouth. The body does its own cleaning of its internal parts. Putting water in parts of the body where it doesn't belong constitutes interference with normal body processes. It is enervating to take enemas or colonics, and enervation leads to toxemia and disease.
>
> The symptoms of enervation that people experience after an enema or colonic are usually mistaken for symptoms of well-being. This is a common error, but one that needs to be corrected if health is to be obtained. An analogy can be made between enemas and drugs. Amphetamines, also know as "uppers," definitely give a feeling of well-being. Yet, they do not bring health and, in fact, are extremely detrimental to the health. Just because something makes you feel good (at first) does not mean it is good for you. It could be that it's stimulating and enervating you and setting the stage for disease.

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Article #1: The Fountain Of Life by Herbert M. Shelton

Water, from the dew that distills on the rose leaf to the ocean that heaves its vast tide around the world, is one of the many wonders of existence. It makes the beauty of our silvery clouds and golden sunsets; it spans the heavens with the hues of the rainbow; it dances to earth in April showers; it murmurs in brooks and thunders in cataracts; it waters the earth, bids plants to grow and carries our commerce over vast seas. Without it the earth would have forever remained one vast, barren rock—a lifeless desert upon which the winds would sweep up the dust.

Water has given the earth its covering of soil and carpeted this soil with verdure. Deprived of water, plants droop and wither; without water, animals thirst and die. No wonder an early writer has left us the thought that at the dawn of creation the spirit of God moved upon the face of the waters. There is no life without water.

The foregoing eulogy of water is paraphrased from Dr. Thomas Low Nichols. We need only add that, without water, no seed could germinate, no plant could grow. What wonder, then, that water has so often been worshipped as the source of life. The Egyptians worshiped the Nile, the river that made possible their yearly crops, their life and civilization. The Hindus worship the Ganges. Are these people doing other than paying tribute to one of the basic elements of living structures and functions?

Water is a primal need of all forms of life. We have previously emphasized the fact that the cells require a liquid home and that dehydrated protoplasm is as lifeless as dust. It is only in a liquid environment that sperm and ovum can meet and mingle; it is only in a fluid medium that cellular reproduction can take place in the complex body; it is in a liquid medium that the embryo evolves towards maturity. It is only by being dissolved in water that the elements of vegetable matter take on their beautiful forms and colors.

The mystic motto of Thales, "Ariston men hydor" (the best of all things is water) might, perhaps, be explained by the fact that dehydrated cells are as lifeless as dust. In a similar vein, Goethe said of the elements of liquids: "They come from heaven and rise to heaven, returning again to earth." Water is so essential to life that none of its functions can be carried on without it.

Deprive man of water and he is soon reduced to a few pounds of dust. His body is about 70% water, his blood 90%. Water forms the greater part of his brain and nerves. The eyes are composed of little sacs of transparent water. Water not only enters the composition of all his tissues, but those tissues that have least water also possess little vital endowment.

Bone, which is the most passive tissue of the body, has much less water than muscle, which is very active. Water is the grand agent of all man's vital functions. It is essential to the process of assimilation and disassimilation. A lack of water soon manifests itself in failure of function. Not a particle of nutriment can enter one's blood and from there is taken to the cells until it is first dissolved in water. It is water that carries nutriment to the cells; by water, also, the body carries its waste from cells to be excreted. Those who have worshipped oceans and rivers have not been so far wrong in regarding water as a sacred element.

The fountains of Greece were chosen as sites for her temples. Water was the symbol of purification among the Jews; in baptism it became a similar symbol among the Christians. How appropriate was the symbol! It is not only the best medium with which to cleanse the surface of the body, but it is the only medium by which internal waste can be carried to the organs of excretion. It is the only medium capable of circulating in all of the tissues of the body and penetrating their finest vessels without irritation or injury.

Without water, the blood, lymph and tissues could not be kept sweet and clean. It might almost be said that water literally cleanses the tissues.

As water is being constantly lost from the body in its excretions—sweat, breath, urine, feces, mucus—there is need to frequently replenish the supply. Water is the only drink, although we do not take as drink all the water we use. All other fluids we take are either foods (fruit and vegetable juices, milk, soup, etc.) or poisons (beer, wine, whiskey and other alcoholics, tea, coffee and poisoned soft drinks).

There is water in everything we eat, so that under many circumstances of life, it is possible to get all the water the body requires in foods without the necessity of taking other water. While fountains bubble and rivers run, water will not be abandoned by those who love the welfare of their body.

Man's lifelong water requirement is associated with his continuous secretion and excretion. He expels water through the lungs each time he exhales; he loses water through his skin continuously; he loses water through the kidneys just as continuously; he loses water through the bowels and mouth at all times. Because of this continuous loss of water, he must replenish his supply at intervals, the frequency of replenishment depending on the rate of loss. Water evaporation through the skin is hardly noticeable when he is resting; if it is warm or if he is very active, he sweats more; hence there is greater water loss.

The evaporation of water from the skin is a most important arrangement for control of body temperature. Man's normal body temperature is supposed to be 98.6°F., although there is reason to think that this, like all the other "norms" of life that have been accepted, may be slightly high. Heat regulation is of great importance to the body. But sweating serves another important function; namely, that of maintaining normal water balance of the body. Too much or too little water in the fluids of life means trouble. If there is too much water, increased sweating helps to reduce this; if there is too little water, reduced sweating helps to conserve the water supply.

It is said that water is the life-supporter and that more should be taken than thirst demands. But no good reason has yet been offered for the implied principle that thirst is an unreliable guide as to how much water is needed. Dr. Trall stated: "Only a very small quantity of water is necessary as a drink, provided our dietetic and other voluntary habits are physiologically correct. The vast quantity usually taken to the stomach is called for by the feverish and inflammatory state of the system produced by concentrated food, flesh, salt, spices, etc." There is no fixed quantity of water that one must drink during the day. The amount needed is determined by a variety of factors. Age, sex, temperature, activity and the character of food eaten are the chief factors that determine the amount of drink required. It is, therefore, stupid to lay down any hard and fast rule (such as one must drink six glasses of water a day) about the amount of water needed. When it is hot and we sweat more, we drink more; when it is cold and we sweat less, we drink less. If we are active and thus sweating more, we need more water than when we are inactive and sweating less. Thirst guides us in drinking as hunger guides us (or should) in eating.

That drink which has no fumes is good for us. It leaves us to sing over our daily labors with ruddier cheeks, purer feelings and brighter eyes than alcohol can bestow. When water is neglected for Old Port, and sleep is traded for *stimulants* and *narcotics*, when the beauties of nature and the virtues of walks in the country are exchanged for the "thrills" of intoxicants, not only are the real pleasures of life greatly reduced, but the powers of life are also lessened. Water is the great cleanser and purifier. This has received recognition in religion as in daily life; it is the great thirst quencher and menstruum of vital activities.

Water serves its various functions in. the body in proportion to its purity, and not in ratio with which it is laden with minerals and organic substances. Mineral waters and waters that carry quantities of organic impurities are, to the extent that they are thus laden, unfit for use. The old medical notion that water so foul the cows won't drink it is good *medicine*, is but another of the false notions that have been fostered by this profession. The present-day notion that only drugged water (water that has had iodine, lime, chlorine and fluorides added) is fit for human use, is a damaging fallacy.

Not many years ago, mineral springs, sulphur springs and hot springs were special resorts of invalids. When, in some out-of-the-way spot, a farmer found a spring with water so strongly impregnated with "bad smells" and "foul taste" that thirsty cattle would not drink it, he imagined himself possessed of a prospective fortune. Here is a pool, he would say to himself, with water possessed of *curative properties*. A hotel would be erected near the pool or spring, physicians would send patients there to drink the water and bathe in it, and many remarkable *cures* would be reported.

The faith in the *curative* or *medicinal* virtues of mineral waters simply means that the fundamental principle of drugging—that poisons are *medicinal*—has been applied to drink and that impurities have been mistaken for wholesome properties.

Animals, like man, if forced to drink offensive water from springs, learn, as man does, to *relish* it. It is just possible that they learn, also like man, thereafter to find the pure, soft water they once relished to be flat, insipid, unendurable. We know that animal tastes are susceptible to perverse cultivation as much as are man's.

We pollute our water supply as persistently as we do our air supply. Our cities drain their sewage into the rivers and lakes and into the waters along the beaches of the country. Many beaches have had to be abandoned, so great has been the pollution. Some of our lakes smell to high heaven with the odor of sewage. Commercial concerns, manufacturers, etc., drain the refuse of the factories into the streams. Poison sprays poured over the vegetation of the country are washed down to the streams and lakes. With one stroke we poison the soil and the water. Spraying kills plants, birds, bees and many forms of animal life.

It has been found that many of the detergents, germ killers, insecticides, herbicides, various solvents and other synthetic chemicals now so freely employed in our determination to solve all our problems by poisoning the whole world, pass unchanged through (sewage) treatment plants to water courses and unchanged through water treatment plants to consumers.

Some of the detergents seep through the soil into wells, enough sometimes to cause the water to foam when shaken. Even more ominous than these sources of water pollution are the radioactive substances in fallout and from plants engaged in industrial production of fission products. Modern industrialism is rapidly destroying all of our natural resources in the name of "progress," "development," etc., but actually, for the profits it derives from exploitation of the workers and natural resources of the nation.

Rainwater, soft water from an uncontaminated spring (many springs do not provide soft water) or distilled water are the only waters fit to drink. Filtration removes all impurities suspended in water, but it does not remove those held in solution. We are told that distilled water is dead. There is no such thing as live water. We are told that distilled water, being free of minerals (dirt), leeches the salts from the tissues of the body. Were this true, the only water that is fit to drink would be that which is fully saturated with minerals.

Short of complete saturation, the water would still have a tendency to rob the tissues of their minerals. Ordinary drinking water, containing some mineral matter, would merely rob the tissues of fewer minerals than does distilled water. Water serves, in the blood, to carry minerals to all the cells of the body. Not the crude mineral matters of the soil, but organic salts of foods are the substances it should carry to the cells. There is no evidence that distilled water does not yield up these salts to the cells as readily as does mineral-laden water.

William Lamb, M.D., of England took the position that man is not normally a drinking animal, but that sufficient water for all his purposes is contained in fruits and vegetables and that these should constitute his diet. More than 50% of our food is pure water. Why, then, do we have frequently to take in water other than that contained in our foods? Because we are constantly giving off water in the form of sweat, urine, vapor in our breath and water in our stools, and we give off more than the food supplies.

This is not always true. Many factors determine the amount of water the body loses, and in many instances the food supplies all the water needed. In other instances, it does not. A man working in the fields in the heat will pour out such quantities of water that he will need extra supplies. A stenographer working in an air-conditioned room and taking a diet containing much water may not need any extra water. Our diet, in fact, is often much too dry and may be improved without resort to beer, coffee or tea; but there remain many conditions in which life is glorified with a glass of cool, clear, soft water.

It is advocated in some quarters that fruit and vegetable juices be taken instead of water. This is an irrational program. There seems to be some thought associated with this practice that water is, somehow, an evil. The relations of water to the living, healthy organism and the purposes it serves in the various functions of the body are proof that water is both safe to use and essential to life. As it constitutes the greater portion of the body, there is no reason to fear it. The hydrophobic individual who drinks fruit and vegetable juices instead of water is certainly eating between meals. He is certain to overeat and unbalance his metabolism. Substituting fruit juices for water is not altogether unlike the effort to substitute the oxygen in foods for the oxygen of the air.

It should be understood that milk is not a drink, but a food. We get milk from animals who have prepared it for the nourishment of their young. Fruit and vegetable juices are also foods, not drinks. Liquid foods should be understood as such, and should be thought of as drinks. Soups are also liquid foods. Coffee, tea, cocoa, chocolate beverages, soft-drinks and similar beverages should be understood to be, not drink, but poison.

It is possible to drink too much water and it is possible to take too little. Both extremes are hurtful.

We come to the habit, a cultivated one, of drinking with meals. Our rule should be *never to drink with meals*.

Water, fruit juices, vegetable juices, soups and other fluids taken with a meal inevitably dilute the digestive juices and alter their pH. This retards the processes of digestion. Coffee, tea, cocoa, chocolate drinks and all drinks that contain toxic substances and not only dilute the digestive juices, but also add the inhibiting effects of tannic acid, caffeine, theine, theobromine, etc., to the retarding effects of liquids in general. Such substances with meals cannot be too strongly condemned.

In some quarters, drinking immediately before meals is condemned. If this condemnation is applied to all liquids except water, *Hygienists* can endorse it. But water remains in the stomach such a short time after ingestion that it may be taken five to ten to fifteen minutes before a meal without interfering with the digestive process. The other liquids (which are either foods or poisons) are not so quickly expelled from the stomach. The current practice of drinking vegetable juices and fruit juices shortly before meals is ruinous to starch and protein digestion.

It is generally safe to drink an hour to an hour-and-a-half after a fruit meal. (We formerly said drink could be taken half-an-hour after a fruit meal, but in many cases fruit remains in the stomach longer than this.) Starches require a maximum of two hours to digest in the stomach, so it is usually safe to drink that long after a starch meal. Proteins require about four hours for gastric digestion. It is wisest to wait that long after a protein meal before drinking.

Lesson 15 - The Roles Of Rest And Sleep In Supplying Body Needs

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1. Introduction

Rest and sleep are two essentials of life that have an importance unrecognized by most people. Sleep and rest are indulged because the need for them overtakes rather than because of an enlightened awareness of their role in well-being.

This lesson endeavors to teach the physiological bases for rest and sleep. Their significance can then be better appreciated.

Sleep is an infant science in that it has not been long studied. The 50 to 100 sleep researchers in this country think of themselves as pioneers, and in a sense they truly are. Also, they are medically oriented, as are most people, unfortunately. Now, about 30 years after sleep research began, sleep researchers have uncovered relatively little knowledge of what sleep is about. However, they do occasionally unearth a gem or two of useful knowledge.

The restorative roles of rest and sleep are everywhere admitted, but the physiological mechanisms are not clearly understood by researchers. Hopefully this lesson can prove not only enlightening but also furnish you guidance you can turn to benefit for yourself and your clients.

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2. What Is Rest?

Rest is a period of inactivity during which the faculties can restore expended nerve energy. When we create wastes faster than our body can eliminate them and deplete our energies faster than our faculties can restore them, a period of inactivity enables the body to catch up on its homework. Physical and mental inactivity can be called rest.

There are many different kinds of rest. Some are:

1. *Physiological rest*, during which the body and most of its faculties are inactive, as in sleep and in fasting.
2. *Sensory rest*, during which time the nervous system and brain are relaxed or not normally exerted, as in fasting, sleep and meditation. The eyes are closed in sleep and meditation, which curtails a great drain of energy.
3. *Emotional rest*, as in withdrawal from the affairs and excitants of daily life that draw upon our nerve energies.
4. *Mental rest*, as in eschewing those affairs that demand our attention and thoughts.

   Essentially, rest is the curtailment of energy expenditure and waste generation. This permits the body to redirect energies to cleansing and restoration.

2.1 Relaxation as Rest

To relax means to cease or decrease exertion. The word has broad connotations, and recreation or play might be called relaxation. Generally, relaxation means to let go of that which stresses the body and to undertake a course that does not tense or stress. Relaxation is a variant form of rest.

2.2 Only the Body Needs Rest

The cells of the body require rest but not necessarily sleep, but the brain and nervous system sleep. Cells require periodic rest so that they may cope with their eliminative and restorative functions.

2.3 Rest is Incidental to Sleep for the Most Part

Many people are apt to confuse the words rest and sleep as being synonymous. Rest, as we have seen; means cessation of activity. Sleep necessarily implies rest due to the immobilization of the body, but the condition of sleep exists only when consciousness has ceased. However, we should note that not all forms of unconsciousness are sleep. Coma, catalepsy and stupor must not be confused with sleep.

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3. What Is Sleep?

Our foremost sleep scientists have not settled upon an answer to this question. Obviously sleep is loss of consciousness. But what more is there to it? Why should awareness cease? Does not the brain conduct millions of processes continuously even though it has lapsed into unconsciousness?

Sleep scientists have several theories about what sleep is: One is that the neurons become fatigued and simply lower their activities below the level required for consciousness. Another is that the brain inhibits the reticular activating system.

Another theory is that the brain and nervous system operate on nerve energy, a form of electricity. The body, like an electric car, needs to be recharged at night. Sleep is a partial shutdown for recharging.

3.1 Why Should We Sleep At All?

Dr. Nathaniel L. Kleitman of the University of Chicago has concluded that the body generates nerve energy during sleep and that we sleep for this purpose. All other writers and researchers observe and attest to the restorative powers of sleep but do not suggest the physiological basis for these powers.

Among the texts you have is *Better Sleep for a Better Life*. This book details man particulars on the whyfore and conditions of sleep. We shall not repeat them here. We sleep because the brain requires, we may presume, a state of unconsciousness for the regeneration of nervous energy.

3.2 The Purpose of Sleep

Experiments with electrosleep indicate that the body generates low-level electricity during sleep. So far, researchers have not discovered where the body stores its electricity.

The primary purpose of sleep seems to be the generation of nerve energy. That seems to be the only reasonable explanation, for most researchers agree that sleep is a restorative. The vitality of the organism is restored under the condition of sleep.

Guyton's *Textbook of Medical Physiology* takes the position that sleep occurs because of neuronal fatigue. He says that, when one of the millions of parallel neurons in the feedback circuits falls out of activity, the lowered level of excitability of other neurons starts a chain of depressed activity that results in sleep. More particularly, wakefulness is attributed to the excitability of the reticular activating system, which is, a network of neurons, and sleep is attributed to lack of excitability.

Perhaps this does chronicle the mechanism of sleep, but other passages in the same physiology text appear to negate this position. Nerves or neurons perform twenty-four hours daily, just as the heart muscles. They need no rest or sleep. Only a certain part of the brain needs sleep, for the brain and nervous system continue to conduct millions of processes under the condition of sleep.

It appears that the faculty of wakefulness must cease in sleep and that neurons are only partially inactivated. Moreover, it is known that the brain is active during sleep except for those areas of the brain involved with consciousness. Some body processes are conducted more vigorously in sleep than in wakefulness.

Guyton is unable to explain what causes fatigue in neurons since, in theory, they are not subject to fatigue. He says: "We still need to explain the cause of fatigue of neurons after 16 hours of wakefulness and their recovery of excitability after 8 hours of sleep." Perhaps the depletion of nerve energy causes fatigue in neurons.

Sleep is primarily for the purpose of generating nerve energy or low-level electricity. Many other beneficial purposes are also served during sleep. The physiological rest obtained during sleep is extraordinarily valuable. During the prolonged rest of sleep, the body restocks its cells and organs with fuel, replaces cells that have lost their vitality and rids itself of extraordinary toxins that may have been uneliminated the previous day. Thus, the value of sleep is manifold.

The benefits of sleep may be chronicled as follows:

1. The regeneration of nerve energy;
2. Refueling the liver and cells with glycogen;
3. Destruction of old cells and replacement with new cells (Multiplication of cells occurs during sleep at a rate of more than twice that during waking hours); and
4. The body expels more debris and wastes during sleep and rest than when active.

Undoubtedly there are other benefits of sleep, but these ire the salient ones. For instance, the body uses less nerve 'energy and generates less waste when asleep.

3.3 Sleep As an Essential of Life

We can accept sleep as being absolutely necessary without question. But, as well, getting enough sleep is an essential of life. It is impossible for a healthy person to oversleep but undersleeping is an evil of our, times—a transgression most of us commit against ourselves.

When we undersleep, not enough nerve energy is generated to meet needs. We use more nerve energy when we are awake longer and generate less with less sleep, other conditions being equal. When our nerve energy is squandered to meet excessive consciously-directed activities, then nerve energy for unconscious body activities is not available. This may mean poorer digestion, impaired elimination and so on—the body must suffer generally.

With adequate sleep enough nerve energy is generated to meet our normal needs. The question of what constitutes adequate sleep and how to best obtain it is very important. The book, *Better Sleep for a Better Life* treats this subject in depth. In this lesson we'll endeavor to explore other materials to reinforce the wealth of observations in that book.

3.4 Some Current Views of Sleep

To be sure, the views offered on sleep in texts and books are few and mostly noncommittal to any stance or position. What scientists really know about sleep amounts to very little, and their views or theories are rather timid.

A view of sleep that is interesting is expressed in *The Complete Book of Sleep* by Diane Hales, a sleep researcher who has haunted many sleep laboratories looking for revelations on the subject. Her observation about sleep is instructive: "We think of sleep as being passive and uniform, but it actually consists of cycles of complex activity. We think our bodies and brains rest during sleep, but in fact our muscles tense, our pulse, temperature and blood pressure rise and fall; we are sexually aroused; our senses evoke a world of sights and sounds. We think that in sleep we shed our fears and feelings, but our personalities set our sleep patterns, and our sleep shapes how we feel and act. We accept sleep as commonplace, yet when we cannot sleep, we yearn for it more fiercely than for the rarest treasure. We are able to go without food or water or companionship more easily than without sleep."

On the all-important question of what sleep is or why we sleep, Ms. Hales is silent, though the book asks these very questions. One speculation ventured is that nature instituted sleep to keep animals quiescent during darkness so as not to injure themselves; so as to survive the perils of darkness. But a most compelling observation is made by Dr. Allen Rechtschaffen of the University of Chicago. He poses the question: "If sleep doesn't serve an absolutely vital function, then it's the biggest mistake the evolutionary process ever made. How could sleep have remained virtually unchanged as a monstrously useless, maladaptive vestige throughout the whole of mammalian evolution while selection has, during the same period of time, been able to achieve all kinds of delicate finely tuned adjustments in the shape of fingers and toes?"

What a good question! To ask the question is to acknowledge that nature does not err and has definite purposes in developing our faculties.

Other observations made by Ms. Hales are worth noting: "But if there is a timeless need for sleep, what is it?

This question remains one of the most perplexing biological riddles. Aristotle thought that we sleep because of cooling of the vapors of the head. Freud thought sleep was a symbolic journey back to the security of the womb. Pavlov thought of it as a conditioned response. Others have argued that we sleep to repair the ravages of the day, or the purge our brains of extraneous information, or to conserve our energy. Sleep may be maintenance time for our bodies or a sort of dress rehearsal for our brains.

"Perhaps none of these explanations is correct. Perhaps they all are, for it may well be that sleep—like waking—has many functions. We may be making an enormous and costly mistake by assuming that our nights are any less significant or complex than our days," says Ms. Hales.

I have previously cited Dr. Arthur C. Guyton's text on sleep. Two theories he presents about the mechanism of sleep are worth reviewing. These theories relate to the physiology of going to sleep.

"The first belief is that sleep is a passive process, occurring when the neuronal mechanisms that cause wakefulness become fatigued and therefore succeed to a lower level of activity. The second theory is that active centers in the brain transmit signals into the reticular activating system to inhibit it and thereby produce sleep."

The primary difference between the two theories is that one assumes that the usual slow wave sleep (delta sleep) results from decreased excitability of the reticular activating system due to fatigue, while the other holds that sleep results from active inhibition.

While Dr. Guyton favors the first of these theories, your instructor favors the second. The brain actively seeks sleep when its nerve energy falls below a certain level.

Another theory of sleep holds that we sleep in order to have dreams, so that our "mental mix" may be sorted out. Cited in support of this theory is the gravely ill effects resulting from denial of REM (rapid eye movement) sleep, that stage of sleep during which dreams are conducted. After a few days without REM sleep, test subjects were depressed, less alert, garrulous and unable to concentrate. In short, they suffered many of the same effects as if they had suffered a big deficit in their "sleep account."

Simply stated, the brain sleeps in order to regenerate a fund of nerve energy. Nerve energy is the "money of account" for human vitality.

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4. What Determines The Quality And Quantity Of Sleep We Need?

The amount of sleep that a person needs varies according to the individual's body and his or her sleeping conditions. Some people fare nicely on five or six hours of sleep daily, while others require eight or nine hours daily. Why the difference? Sleep needs vary with every individual and every circumstance. People sleep more in winter than in summer! Why should that be so? Mental workers sleep more than physical workers! What causes that? People who work and sleep outdoors get by with one to two hours sleep less than those who work equally arduously indoors and sleep indoors. Why? To answer the above questions, one must understand the intricacies of nerve energy expenditure and the conditions that enable the body to most efficiently regenerate it.

4.1 Conditions That Promote Efficient Sleep

The most efficient sleep is termed sound sleep, slow-wave sleep; delta sleep, stage four sleep or deep sleep. Deep sleep produces about twice the amount of recuperation as does lighter stages of sleep.

Since most Americans are toxic, it is doubtful that sleep researchers have examined the sleep of very many truly healthy people. The data the researchers have charted as normal really reflects the average of unhealthy people.

Truly healthy people sleeping under ideal conditions require less sleep than less healthy individuals. This is due to several factors. Firstly, a healthy person needs less recuperation due to less energy expenditure. Secondly, a healthy person is capable of a greater proportion of very sound sleep because of less internal body disturbance. Thirdly, a healthy individual can regenerate nerve energy faster due to the increased efficiency of the person's faculties.

The ideal conditions of sleep are determined by both internal and external circumstances. The more comfortable the sleeper, the sounder their sleep will be. Pure air occasions less sleep and quiet surroundings promote deeper sleep. Also, the less light in the sleeping area, the less disturbed will be the sleep.

4.2 Conditions That Interfere With Sleep

Certain internal conditions favor or disfavor sleep. A person with a toxin-free body sleeps more readily and more soundly than a toxin-laden individual. For example, insomnia will often result from drinking coffee. The distress and stimulation from the caffeine may inhibit sleep, especially sound sleep. The body must expend energy in expelling the caffeine. At the same time, it generates less nerve energy because of lack of sound sleep.

Another condition that interferes with sleep is eating at bedtime. The primary reason for sleep is to regenerate nerve energy. However, if a person eats before sleeping, his/her body will direct much of its energies towards the digestion of the food. Since the brain is involved in digestion, less sound sleep will result. Additionally, the body will suffer a deficit of nerve energy because less was regenerated during the digestive process than would have been if the food had not been eaten.

Anything that is in the sleeper's environment or body that disturbs the senses or uses more nerve energy than normal interferes with sleep, thus making it less efficient and effective.

The book *Better Sleep for a Better Life* details specific conditions that interfere with sleep.

4.3 Fresh Air and Sleep

Those who sleep in fresh air invariably report better sleep and a lesser need for sleep than those who sleep inside their homes. Why should this be so? Stated very simply, any improvement in sleeping conditions improves sleep. When a person sleeps in fresh air, the body receives its oxygen needs in a relatively pure state. Air inside homes is likely to have less oxygen and more pollution than fresh air. Impure air furnishes less of our needs and gives the body more problems than does fresh air.

It is very beneficial to sleep by open windows in a quiet environment so that fresh air flows freely during sleep. If the environment is noisy, it is wise to have the house ventilated so that fresh air is continuously funneled to and through the bedroom. Even polluted air from the outside is better than stale air trapped indoors. Sleeping is also improved by working in a fresh air environment during the day.

4.4 Exercise and Sleep

Exercise is a blessing that we should indulge regularly. Optimally, we should exercise daily, but certainly not less than four times weekly. Performed as much as possible within our limitations, exercise confers only benefits and no liabilities. Exercise in the form of jogging, calisthenics, gardening, bicycling, swimming, brisk walking, etc., up to about half an hour daily, takes no time from our waking moments! Sleep needs are reduced by about that amount!

Exercise "fine-tunes" the organism. Elimination is so accelerated by exercise that extraordinary body cleansing occurs. The body not only eliminates extra carbon dioxide generated during vigorous exercise, but it also occasions the removal of accumulated toxins ingested from nonfoods and drugs and toxins created as a result of overeating, eating wrong combinations, eating under stress, etc.

A pure, less toxic body needs less nerve energy. Less expenditure of nerve energy means less nerve energy need be generated, hence less sleep is required by a person who exercises regularly.

4.5 Eating Practices and Sleep

Foods that require less digestive and assimilative energy use less nerve energy. Foods that are associated with toxic materials, such as cooked foods, condiments, additives, etc., give the body eliminative problems. Eliminative problems require a great deal of nerve energy to be properly dealt with. For example, a single bout with alcohol can exhaust the body for a day or two. The need for sleep is greatly increased so that the body may recuperate its energy.

Here are some salient principles you should keep in mind relative to diet and sleep requirements:

1. The more wholesome the food, the less nerve energy is required to digest and use it. Wholesome food lessens sleep needs and increases sleep efficiency.
2. The more unfit the foods eaten, the more nerve energy is expended and the more sleep is required. Moreover, sleep will be less efficient when unwholesome foods are consumed.

Fasting individuals require only three to five hours of sleep daily after fasting for a short time. People who eat meat, condiments and cooked foods and who overeat require inordinare amounts of sleep. Despite the extra sleep, they are usually not well rested because they have a perpetual deficit of nerve energy due to their unwholesome practices.

You should not eat for at least two hours prior to bedtime. Though meals do sometimes occasion drowsiness and sluggishness, due to the redirection of blood supply to the digestive organs, we should not expect to sleep well while the body is conducting digestive and assimilative tasks.

Eating beyond the body's need imposes an enervating task upon the body. Processing and disposing of food requires a great deal of energy. Improper combinations or unwholesome foods usually end up in a pathogenic mess that drains the body's resources in eliminative efforts. This drain of energy results in poor sleep and in a correspondingly greater need for sleep. An enervated individual who sleeps 12 hours daily may be less rested than a healthy person who gets only six hours!

4.6 Relaxation and Sleep

Relaxation is a great prelude to sleep. In a relaxed state, we drop the cares of the world and let go. Also, muscular tensions are released. When we take it easy and let go of tension, the body redirects its energies to its most needed tasks.

The cares of the world may be difficult to drop. I personally find it easy to let go of them by doing a few words on a crossword puzzle, solving a few chess problems or by pursuing some other consuming interest. Then I lay down, close my eyes and let myself go limp as if I were a bag of sand.

Somnolence comes quickly when the need for sleep exists and the demands upon the brain have been lowered as much as possible. Tensions, worries and stresses increase the need for sleep while simultaneously making it more difficult to fall asleep.

Many excellent relaxation methods can be practiced with benefit. One method that does not help you fall asleep so much as it helps you perform everyday activities in a relaxed and efficient manner is the Alexander Technique. There are instructors in many major cities.

People who are tense and who have trouble falling asleep or staying asleep, besides improving their diet and getting more exercise and fresh air, should search for and find a relaxation method that will help them.

4.7 Bedding and Sleep

In America, bedding usually consists of an innerspring mattress over box springs, sheets, a pillow with pillow case and blankets and/or quilts.

For body comfort, the softer the mattress, the better. Of equal benefit is airiness. A soft innerspring mattress meets these conditions ideally. A thin cotton mattress on top of a foam, air or waterbed mattress works well too. The body is disturbed by pressure points, hot spots, cold areas and areas deprived of air. The body, like the lungs, will suffocate without fresh air. While the skin requires only a fraction of the air required by the lungs, it requires it nevertheless. Plastic materials deny the body air.

Body exudates then collect and irritate the skin, thus causing a lighter stage of sleep and frequent body shifting to overcome the discomfort.

Fabrics that breathe, such as cotton, solve this problem. Sleep should be conducted on cotton surfaces with lots of circulation underneath. Cotton sheets, blankets or materials should be used for cover.

Sleep is more efficiently conducted when the body is comfortable in temperature and when it is physically at ease. If the air temperature is warm, nude sleeping is ideal. Indoors, a fan may prove valuable if the air is very warm. If the temperature is in the sixty- to seventy-degree range, light-weight cotton pajamas or nightgowns will permit the warmer air radiating from your body to rise through the coverings into the cooler air outside the covers. Thus circulation is assured.

Perhaps you know that sleeping on concrete would provide very few contact points between the body and the concrete. The body's weight would rest on these points, thus creating pressure points that interfere with blood circulation and skin respiration. Distress of the areas in contact would soon occur and thus rouse the brain into a lighter stage of sleep in order to conduct a body movement.

On the other hand, a very soft bed permits the underside of the body to make rather even contact with the sleeping surface. Optimal air circulation can occur on the underside if cotton is underneath, and body weight is evenly distributed so as to cause no uncomfortable pressure points.

In nursing homes and hospitals, very hard beds are used. This is in keeping with the current medical philosophy. Bed sores frequently occur, with resulting "infection." Rather than "infection," what really happens is that oxygen-starved cells and tissues that are under constant pressure die and suppurate due to decomposition. No one should be confined to bed all the time. Daily fresh air and sunshine on the body is of inestimable importance. Neither should the body lay on hard or overly firm surfaces.

To sum up, bedding should permit optimal air flow and maintain an even, comfortable body temperature and even distribution of body weight over the underside.

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5. The Value Of Napping

For many reasons, our night's sleep may be inadequate. Our daily activities may involve an extraordinary amount of stress that squanders nerve energy. Heavy body toxicity may unduly drain the body of nerve energy. When any of these conditions render us drowsy, sleepy, listless or "down," we need a nap. Many people resort to stimulating drinks (coffee, tea, colas) or foods (nonfoods such as chocolate, toxic foods such as meat, etc.) to "perk" them up. Stimulants of these kinds only exacerbate the problem rather than solving it. They further drain nerve energy even though the drain may not be evident at the time.

A nap of from a few minutes to an hour not only rests the body, but it also permits the brain to substantially renew its fund of nerve energy. In many countries around the world, the siesta is a normal practice. A one- or two-hour nap after midday refreshes people in many parts of the world. This napping practice contributes to their health and well-being.

It is said that a half-hour nap during the day is worth a whole hour of sleep at night. There is truth in this. Further, it is better to take an hour for a nap and perform efficiently in the afternoon and evening hours rather than forego a needed nap and drag through the whole afternoon. The added efficiency more than offsets the extra time applied when one is not alert or is not feeling good.

The noon nap originated in prehistoric antiquity. Among the ancient Greeks, the first meal of the day was ordinarily of fruits. This meal was followed by a period of sleep—a nap. When rest and sleep are taken during the heat of the day, the meal is better utilized and the body is renewed. Animals in nature also observe "siesta" during the heat of the day.

The healthful custom of taking a nap after noontide has been largely destroyed by the needs of industrial society. This loss has, to a great extent, contributed to our ill health and stimulative habits that make industrial nations so highly stressed and diseased.

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6. Dreams And Their Role In Sleep

Why do we dream? What physiological purposes are served by dreams?

Many students of the subject have ventured explanations. Sigmund Freud has, in the last century, described dreams as "the. guardians of sleep." This author favors that view.

6.1 Dreams As Guardians of Sleep

The dream stage is called REM sleep. This denotes a period of time during which there are rapid eye movements. These periods always occur after a period of deeper sleep. They last from a few brief moments up to half an hour. Dreams usually occur in 90-minute cycles throughout the night. However, some cycles are devoid of dreams, especially at the beginning of the night if the sleeper is very exhausted. Later, 90-minute cycles usually have the REM stage or a stage of dreaming.

Cited in the book *Better Sleep for a Better Life* are cases of only delta wave sleep on a fluidized air bed. Dreams did not occur and sleeping time was cut in half. This is very instructive in view of the many theories afloat about the purposes of sleep and the necessity of REM sleep or dreaming to insure our well-being.

Dreams are said to be necessary for "sorting out and classifying" the previous day's impressions or data input. They are said to be analogous to the rezeroing of an analog computer in preparation for new problems and input.

Study and reflection upon the whyfore of dreams have led me to believe that they serve a valid physiological role. We note that, under ordinary sleeping conditions, the body has a 90-minute sleeping cycle. However, this cycle is nonexistent when sleep is most efficiently conducted, and extraordinarily tired people may fuse the cycles at the beginning of the night. This would seem to indicate the nonnecessity of dreams where sleep conditions favor the objectives of sleep. Dreams seem to be a tool the body uses when sleep is still needed but is threatened.

For example, when we have a full bladder during the night, we may, prior to wakening, have a dream during which, vicariously, we urinate. The dream has supplied ersatz satisfaction to the urge and thus preserved sleep. However, this may only delay the inevitable. But the purpose o prolonging sleep has been served. Dreams of eating, drinking, defecating and discharging other body urges are commonplace. Especially common are dreams of sexual fulfillment.

It is reasonable to conjecture that parts of the brain that are aroused by stimuli are quieted by vicarious fulfillment through dreaming.

6.2 Dreams as Tranquilizers of the Mind

In guarding against premature wakefulness, dreams also often tranquilize or becalm the mind. Consider the following, example: Dave had been trying to solve a problem during the day, and he was rather intense and involved with it. His brain had become very involved with the problem, and the impulses to solve it arose again and again, even during his sleep. When these impulses become strong enough to interfere with sleep, his mind "artificially" supplied an answer to allay the impulses and thus preserve sleep.

I have solved problems during sleep too often to recount. However, most of the solutions have proven impractical! It is the rare dream that supplies an answer that is applicable to the problem that besets us. Nevertheless, even a wrong solution is sometimes helpful in giving insights and setting the stage for a solution.

To conduct the processes of sleep for most efficient regeneration of nerve energy, dreams appear to be mechanisms the body uses for calming the mind when problems and other stimuli would otherwise disturb sleep.

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7. Establishing Conditions Most Favorable For Sleep

So far we have been discussing the various conditions favorable to sleep, as well as those that interfere with sleep. One of the foremost prerequisites for sleep is that we be sleepy. As obvious as this is, many people try to sleep when they are not sleepy! We should drink when thirsty, eat when hungry, defecate and urinate upon urge and, likewise, sleep when sleepy.

In a nutshell, we should have our "nest" so prepared that it optimally furnishes the conditions for the soundest sleep. Among other conditions, this means:

1. Sleeping quarters should be noise-free! Noise disturbs sleep. If noises cannot be eliminated, the steady hum or drone of a fan or other machine may mask them.
2. Sleeping quarters should be as dark as possible. Light stimulates the eyes and disturbs sleep. Light of any intensity at all makes sleep less efficient.
3. As discussed in the section about bedding, all the requisites for body comfort should be provided for.
4. Our stomach should be relatively empty. Digestive processes detract from the soundest sleep. We should not have a heavy load of food within when retiring, either juicy or concentrated. Can you imagine what eating several pounds of watermelon before retiring would do to your sleep? Obviously your sleep would be disturbed by several visits to the bathroom during the night.
5. If excited by a movie, a discussion, TV or anything else, do not attempt sleep. Rather, get into some rather passive pursuit such as reading that will bring on the somnolent urge while the emotional condition is allayed.
6. Many individuals cannot sleep alone because they are so accustomed to sleeping with a mate. Sleeping with another represents a certain security and assurance.

   On the other hand, sleeping with another has its liabilities. The movements and noises of the sleeping mate may disturb sleep. If this is the case, an extra bed should be utilized.

The conditions for favorable sleep are more elaborately presented in the booklet, *Better Sleep for a Better Life*.

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8. Sleep Problems In Adults And Their Solutions

Though it seems wise to title an entry as above, it is really superfluous to list the solution to sleep problems when they are, as a rule, no different than other disease problems. Most sleep problems arise from violating the conditions favorable to sleep that you have been studying and from violations of life's laws. Thus, the solution to sleep problems is really the same as it is for other diseases that arise from the same violations.

8.1 Insomnia

Insomnia is an inability to sleep. Obviously, this interferes with the body's ability to recoup the nerve energy it needs for the following day's activities.

If an individual complains about an inability to sleep and that he or she is not well-rested, the person is suffering from insomnia. Many physicians have noted that insomniacs really do sleep but don't realize it. Although this is true, many sleep specialists are now discovering that insomniacs' sleep is very low grade and is not very restful. Moreover, it may be punctuated by periods of wakefulness. Most insomniacs are not wrong about their problem existing. Too many physicians dismiss the patient's problem and prescribe sleeping pills or tranquilizers which ultimately make the problem worse by adding to the body's toxic load.

Rather than immediately searching for methods to induce sleep, you should first look for the causes of the problem. Insomnia results when an individual is assaulted by too much stimuli. Stimuli can result from improper sleeping conditions, but are usually due to body toxicity. This toxicity results from both autogenous sources and from ingested materials. Drugs and drug-like substances are foremost offenders. These include caffeine, condiments, chocolate, soft drinks, cooked foods, wrong foods, over-the-counter and prescription drugs, etc. The solution to insomnia is simple: Discontinue causes! Remove the conditions that interfere with sleep, and implement the conditions that promote it.

Insomnia is usually overcome in a few days during a fast and will not recur if a regime of healthful practices is adopted. A good night's sleep can be had by almost anyone who discontinues body-disturbing practices and institutes healthful practices.

8.2 Apnea

A is a prefix meaning against or without and pnea means breath. Hence, apnea is a condition of being without breath.

During sleep many individuals will miss one or more breaths—they simply stop breathing momentarily. This stoppage of breath usually lasts only a few seconds, but it can last a minute or two in some individuals. The fact that the breath stops at all indicates a less than normal body condition. The longer the period of breathlessness, the more pathological the body's condition. This condition may occur dozens of times during a night in sufferers.

Apnea may occur because the brain is not issuing the proper commands to the lungs and body mechanisms to inhale and exhale. In the case of sufferers from multiple sclerosis, these signals may be misdirected. Or, apnea may be caused by growths or abnormal obstructions. Where these conditions occur, a choking sensation quickly alerts the brain and often awakens the sleeper. Apnea interferes with sleep and may be a significant factor in insomnia. If frequent breathlessness occurs, the body sounds its alarms. The sleeper must be brought to a phase of lighter sleep, even wakefulness, to restart breathing. Fasting and healthful living almost always restore the body to normalcy, thus overcoming apnea.

8.3 Snoring

Snoring is not normal! A multitude of conditions can be responsible for snoring. Enlarged tonsils or adenoids may block the air passage sufficiently to cause the loud "flutter" of snoring. Most snoring occurs because the soft palate, when relaxed, flutters in the diverted current of air. Diverted air may be due to growths, fatty tissue in the throat, nasal deformities or other swelling.

Most fasting people who have previously snored are surprised when the condition disappears. The condition does, however, speedily return if the person returns to its causes. But many have overcome it permanently.

Flabby muscles or fatty growths may cause the condition. Fasting usually causes autolysis of the fatty tissue. A vigorous exercise program that includes head exercises sometimes corrects the condition.

Snoring is almost always present in those who suffer apnea although most snorers do not suffer apnea. The causes of snoring and apnea are sometimes one and the same, i.e., obstructions in the air passages. Solutions to snoring are rare but the surest is a healthful regime of living.

8.4 Narcolepsy

Narcolepsy is a "seizure of numbness." It is an uncontrollable urge to sleep that may come upon the sufferer without warning. Such a sudden urge to sleep may cause an accident or may disrupt activities, though usually the sufferer has enough warning to situate himself/herself harmlessly.

An urge to nap should not be confused with narcolepsy. Even in a healthy person, sleep can be induced if the person suffers a considerable sleep deficit.

Incorrect actions of body control mechanisms are eliminated when the modifying influences of drugs and body toxicity are discontinued and removed. Fasting and a healthful regime will provide the answer to these problems.

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9. Sleep Problems In Infants And Children With Suggested Solutions

Sleep problems in children are extensive in our society. These include extended wakefulness, crying, abnormal demands for food, apnea, head-banging, nightmares and soon.

Almost all of these manifestations spring from an abnormal body condition begotten of, today's criminal treatment of children. To feed babies anything other than mother's milk is a tragedy. Freshly expressed fruit juices might be substituted for a feeding of mother's milk here and there, but even that is not advisable before six months of age. All other feeding is a disaster for the infant. Inoculating and drugging infants is criminal in every sense of the word. Feeding them starches, cooked foods, caffeine and other such fare wrecks their delicate but vital faculties.

Formula-fed babies who are started on cereals within two months of birth, who are given cooked and condimented meats and other unfit foods and are drugged develop many pathologies. These manifest as the "usual childhood diseases" and as sleep problems.

An infant that does not feel right will not act "right." Abnormal behavior comes from abnormal conditions. Usually, a short fast will enable the child's body to cleanse itself. A proper regime of living that includes exercise (yes, even for an infant!), correct foods for the age, fresh air and sunshine, ample sleep, etc., will further improve the child's conditions.

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10. Nostrums, Medications And Drugs Adminstered For Sleep Problems

Almost everyone has advice for insomniacs, including other insomniacs—but usually their advice just doesn't happen to work in their particular case! One of the latest fads is to take a heavy dose of the amino acid L-tryptophan before retiring. This fad came about as the result of an inquiry as to why drinking a glass of milk seemed to cause sleepiness in those who had sleep difficulties. However, milk is not heavy in this amino acid, hence there must be some other explanation as to why people become sleepy after drinking milk.

Anything that requires extra blood and nerve energy makes us drowsy, especially if taken at or near our regular sleep hour. Tryptophan itself is a fractionated product and as much as half an ounce will cause vomiting and diarrhea. The mechanism whereby sleep is hastened by a heavy dosage of tryptophan is probably from a drug effect, despite medical protestations that there are no side effects. The fact that a small amount of tryptophan will cause vomiting is indication enough that it does indeed cause drug effects.

The list of sleeping pills, tranquilizers, barbituates, aspirin compounds, antihistamines, antipsychotic and antidepressant compounds, chemicals and herbs supposed to induce sleep makes fearful reading. Perhaps we should add alcohol to this list, since it also seems to make people sleepy.

The truth is that drugs do not make us sleepy so much as they induce coma or a comatose state. Drugs bring us nearer to death, and there is little difference between the amount of these drugs needed to put us into a comatose state and the amount needed to produce death! Sleeping pills are all harmful. Natural sleep is the only sleep we should seek and we should pursue this by entering upon an /entirely natural regime of living.

Everything done to cause us to lose consciousness is unnatural. Unnatural responses to needs merely intensify problems instead of solving them. The treating professions prescribe drugs that ultimately make matters worse for the sufferer. Those who advise the use of herbs or special foods make the same mistake. Instead of advising the sufferer to discontinue those practices which cause insomnia, those who would "treat" the symptoms leave causes intact and tinker with modalities that cause drowsiness or coma.

There are over 50 million Americans with sleep problems, almost one in four. People who suffer insomnia usually have a number of other complaints as well. Sleeplessness is but one symptom of body toxicity. Remove the toxicity and all complaints disappear simultaneously. Fasting enables the body to free itself of toxic materials and a healthful regime will not impose toxin buildup.

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11. Our Biological Clock And Sleep

Humans are diurnal creatures, that is, they conduct their conscious activities during the day. We are instinctively sleepers by night. The pattern of night/day sleeping continues even in subjects who are continuously kept in the dark for weeks at a time. The circadian rhythm is not disturbed by unceasing darkness. Experiments with subjects I kept in rooms without lighting for up to two weeks did not shake the rhythm, though subjects have had their rhythms lengthened and shortened while staying in caves lit with artificial daylight. The change in rhythm they experienced corresponded with the shortened or extended "days."

Our sleep patterns gradually change when we change time zones, or when normal activities are changed by advancing or regressing the clock.

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12. Improving The IQ Through Sleep

Your intelligence quotient depends upon how efficiently and intensely the brain operates. It is well-known that caffeine will temporarily intensify and excite thinking until the letdown comes. Many stimulants will intensify mental activities. Good health will naturally intensify and enhance mental activities without providing a "letdown." Nothing in the world will sharpen mental acuity as will a few days to a few weeks of fasting. Mental acuity arises from two primary conditions:

1. The less toxins in the blood that flows through the brain, the better the brain is able to function.
2. The more nerve energy there is available, the more of it there is available to the brain for thought processes.

Hence, the more adequate our sleep, the more nerve energy we'll have for the brain and for more intense thought processes. When "you're sharper than a tack" your body is purer and your nerve energy greater than at other, mentally duller times.

Have a rejuvenating sleep!

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13. Questions & Answers

Is oversleeping really bad for you? I hear a lot lately that too much sleep can make you sick.

> There is no such thing as oversleep. The body will not sleep beyond need. Consciousness returns when need has been met. We can't control that. However, we can by many devices shorten our sleep and simply refuse to get enough.

Sleep is a restorative agency, not a pathogenic practice, Medical men have said that fresh air is bad for you because it has been proven that city dwellers moving from polluted cities to vacation areas in fresh pure air get sick. Calling oversleeping pathogenic is similar to calling fresh air bad for you.

This attitude comes about because medical opinion regards disease as a war against the body by invading forces such as bacteria or viruses or both. Disease and sickness are not recognized as a body-instituted cleansing and repair process. When the body's vitality is increased by fresh air or by heightened nerve energy derived from sleep extraordinary to normal, the body uses the opportunity to start a healing crisis.

Rather than regarding sleep as an enemy of well-being, you should regard it as one way in which to more quickly help reestablish physiological normalcy. When in the relaxing and reassuring atmosphere of a fasting institution, many fasters start off by sleeping most of the time, sometimes for up to a week. When their bodies are sufficiently cleansed, they cannot sleep as much as is regarded normal. Note that in the case of heavy sleeping they could do so only because the body needed it to regenerate the increased nerve energy to restore normalcy. When normalcy has been reestablished, they find it impossible to get the amount of sleep they regard as normal. Thus we can see that oversleeping is myth, that the body will not, indeed, conduct the sleep process beyond need.

What's so great about napping?

I can do no better than quote from the illustrious longtime Hygienic professional, Dr. V. Virginia Vetrano. Here are her observations on the immense value of napping and of getting additional sleep when it is needed.

Napping is extremely important to every individual from birth to 140 years old. Taking a siesta after lunch improves digestion, absorption and assimilation and promotes better health through better nutrition. Taking naps prevents excessive fatigue and promotes better and more efficient work. Resting and napping actually increase our productivity. Taking a ten-minute rest break every hour helps us to get more done in less time. When one is fatigued, mental acuity and physical powers are greatly diminished. Resting, including napping, sharpens the mind and body. By napping and preventing excessive fatigue, we are less nervous and irritable at night and we can fall asleep more quickly. It has been shown that there are fewer marital problems in those people who rest after lunch than in those who must put in long days without an afternoon nap or rest period.

If you go to bed exhausted, the body must first recuperate before it can begin its anabolic processes, cell renovation, cell renewal, healing and repair. A rested person going to bed will be more fully recuperated in the morning. A person going to bed exhausted will wake up only half refreshed, and must face another day without relaxation, so he is never fully revitalized, repaired, or replenished. As a consequence, toxemia and disease ensue.

Learn to nap and learn to rest. Rest during your coffee break and part of your lunch break, instead of stimulating yourself with too much food and beverage. Rest again until refreshed, upon arriving home from work. Teach yourself to work in a relaxed state, free from all tension. You will notice a definite physical and mental improvement when you secure more rest and prevent fatigue.

You've said that sleep regenerates nerve energy. My biology book says sleep is for resting fatigued nerves that have been overwhelmed by toxin accumulation. It also says that the fatigue is caused

by the need to restore deranged body chemistry, that is, restore potassium/sodium balances. Do you agree with this?

I became a student of the sleep process in my early days as a Hygienist. I noted that, at first, I was sleeping so much that, even when working, my sleep was sometimes most of the day. Later, after a fast of 12 days I noticed that I was going to bed at a normal hour but waking four to five hours later and unable to sleep further. I tried to find out why and thus steeped myself upon the subject.

I do not regard nerves any more fatiguable than the heart, which is on duty for 24 hours daily. I regard the body as keeping its nervous system in better order than its heart for that is equally vital. Body processes are conducted 24 hours daily and if the nervous system fatigued and "conked out," this would obviously not be possible. The nerve restores its chemical normalcy after transmitting an electrical impulse in fractions of a second. It does not need eight hours in which to restore normalcy.

Toxin accumulation does not itself cause sleep. It does occasion a greater expenditure of nerve energy. A faster who has thoroughly cleansed his or her body will sleep three to five hours daily. But, as we know, a very toxic individual can drag around and deny needed sleep. Toxin accumulation would not cause sleep anyway but coma as in intoxication by alcohol or other drugs.

The body sleeps when its nerve energy reaches a critically low level. An ordinary battery will stop supplying sufficient spark to operate the auto's electrical system long before it is dead. Before normalcy is established, the battery must be recharged. This appears analogous to what occurs in the body!

You will note that I speak in these matters with a note of certainty and finality. After many years of researching the subject and reading all the researches and conclusions, you don't have to be a genius to see where the truth lies—it becomes as obvious as the nose on your face. It yells at you, quite literally. When you're following a wrong premise and give it power regardless of facts, you'll always arrive at a wrong conclusion. I definitely regard your biology book as wrong.

Why don't we get electrosleep devices if it supplies us with the nerve energy we need?

Russians, Israelis and even Americans have conducted extensive research on electrosleep. The published researches I've read have failed to give many specifics, though much can be inferred.

There can be little doubt that those subjected to electricity in millivolt ratings can derive from this source a supply of electricity to use as their own as if it were regenerated under the condition of sleep. Those who have obtained electrosleep seem to have been able to pursue normal activities for 22 hours out of 24. Keep in mind that normal activities drain us of nerve energy and that the extra five or six hours of activity daily uses extra nerve energy. That extra nerve energy, as well as that which is normally expended in a sixteen or seventeen hour day, must be supplied by the electrosleep. Electrosleep seemed to do this for the subjects, since when they were taken off electrosleep, they quickly became eight-hours-per-day sleepers again!

I could find nothing in these researches that would indicate what happens to humans when the routines of their normal circadian rhythm are altered by electrosleep. The question of value of electrosleep must be weighed carefully against any liabilities it might have. More extensive studies into electrosleep must be made and published before its true value can be determined.

Does sexual indulgence really make us sleep more?

Yes, we need more sleep because of sexual activity. There is a great intensity of nerve energy expenditure in the sex act. Under normal circumstances the male will, quite literally, exhaust himself and will often collapse in sleep. The body gets quite a "high" during the sexual climax because it secretes narcotizing endorphins. The overall effect lowers nerve energy to such an extent that the body demands sleep almost immediately to restore the expenditure. Nothing can equal the sex act as a "sleeping potion!" Moreover, the regeneration of sperm in the male requires a great body expenditure of both resources and nerve energy. Those resources are of the finest materials obtainable from the body reserves and cells. The body gives its very best to the reproduction of the species. Nature has placed the survival of the species ahead of individual survival.

Isn't sex good for you?

Occasional sex indulgence is good for both the psyche and body faculties. Its frequent indulgence will, to put it in lay terms, "burn us out." Sexual activity draws upon nerve energies the body requires for its most vital activities. If sexual indulgence persists, the familiar syndromes of enervation, toxemia, irritation, inflammation, ulceration, etc. ensue. Prostate cancer can be a result of excessive sexual indulgence in men. So-called general diseases are due to accumulated body toxins as a result of venery.

Sex can be both good and bad for you. Keep in mind hat the conjugal act in animals occurs only when the female is in heat and only for the purpose of procreation. We have a culture that makes sexual activities an end in themselves. This practice may not be harmful if it is not overdone. It is very difficult to pronounce any standards upon these matters.

Doesn't sleep do the same thing as rest?

While the body rests during sleep it does lot, under the condition of rest only, accomplish what it does under the condition of sleep. Rest enables the body to catch up on its metabolic activities, whereas sleep is primarily for the purpose of nerve regeneration.

I've read Better Sleep for a Better Life. It was a revelation for me. Why don't scientists take note of it, especially its information about sleep being for regenerating nerve energy? I haven't read any other book that says this.

I have said previously that Dr. Nathaniel Kleitman has formulated the theory that sleep is for the regeneration of nerve energy. He may have found this idea in Hygiene. Dr. Shelton said fifty years earlier that sleep restores nerve energy. Perhaps Dr. Kleitman's findings were like those of the noted Uri Nicolayev of Russia, who fasted many schizophrenic patients with celebrated results. He was a student of Dr. Shelton's writings and merely applied them in practice. Insofar as Dr. Kleitman has taken note of the Hygienic position, science has recognized the role of sleep.

I've heard it said that dreams should be taken seriously because there is always some deepseated meaning in them. What are your thoughts about this?

Right off I'll tell you the best thing about dreams is that they don't come about in reality and have no overtones of significance. The only thing you should take serious about dreams is their role in saving the condition of sleep until it is more or less replete. Dreams are the

> body's "lightning rod" that satiates vicariously disturbing impulses that arise in the body. Dreams "ground" the stimulating impulses that would normally prematurely return us to wakefulness.

Is it true that nightmares can be caused as a consequence of atrocious foods or upset stomach ? What causes nightmares?

> Nightmares or terrors during sleep can arise from many impulses in the body including those generated by the distresses of a meal that cannot be digested but which gives problems instead. Fitful sleep results from poor body conditions such as in indigestion but also from aches, pains, inflammations and other body pathology. Nightmares may arise from fears that are not allayed during waking hours. Nightmares are nothing more than dreams that the body conducts to preserve sleep.

Do water beds give you the equivalent of an extra hour of sleep as most salesmen for them claim?

> If air circulation and warmth are properly met, this statement is true. The water bed enables full body weight to be evenly distributed over the entire underside instead of at a few contact points as on floors and hard beds. This extra comfort disturbs the body less than when there are pressure points as in much conventional bedding. The body can more efficiently conduct the sleeping process due to fewer disturbing factors.

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Article #1: How To Put Yourself To Sleep Easily By A.F. Willat

If you have difficulty going to sleep when you feel that you need it, and your brain is so active that you cannot stop thinking and it is keeping you awake, you can overcome the trouble by following in detail a certain routine of thinking positively. The reason you have this problem is because something important is on your mind at the time.

Some persons fall asleep easily because they do not take life so seriously and do not worry about other people and their troubles. They are not so "unselfish" and just accept life as it shows up. So, for those persons who are always concerned about others troubles, the following procedure will put you to sleep very easily.

When you are thoroughly convinced that you really need some sleep, all you have to do is to purposely mix up your thoughts so completely that you won't know what you were thinking about. It's that simple, and you need only put your mind on a simple, routine system of thinking which is so easy to follow that it becomes almost automatic to continue it after you have been interrupted by the interjection of unintentional and unrelated thoughts.

Before trying to follow this method, you should put your body in a natural, relaxed position with nothing to disturb your comfort. Lie directly on your back in a straight position and place your arms alongside your body so that the blood can flow freely. Then place your legs in a straight position to get rid of all the possible kinks and bends in all other parts of the body.

Put a pillow under the head, but not under the shoulders. Now, slowly take deep breaths so your lungs fill with air. Then exhale all the way to empty them completely. Inhale again to fill the lungs normally, and then try to inhale a little more after that. Exhale normally, and then try to exhale still more.

Your next step is to imagine walking over to a blackboard with imaginary chalk in your hand and slowly draw a vertical straight line from near the top to the bottom of the board. Do this several times more, as naturally as you can. Now, imagine that your are slowly drawing the figure two (2) extending the full height of the board. Do this a few times in your natural handwriting that you can be proud of. It must be done easily. Next, do the same with the other figures, 3, 4, 5, 6, 7, 8, 9, 10.

Any other routine system of mixing up your thoughts could be as effective, but this method has been used for a long time and is perfectly satisfactory.

If you do it very slowly, you'll probably be asleep before you know it, and when you wake up you won't remember what figure you drew last.

Doing the thinking rapidly will only keep you awake. Using ten seconds or more to draw each figure will stop your thinking, you'll become drowsy, and then lose consciousness entirely.

Even if you should wake up in the middle of the night, you will be able to put yourself back to sleep more easily than before.

You must never doubt your ability to have this routine plan work. Don't think about it. Just do it, and know that if you follow the directions correctly it will put you to sleep every time.

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Rest: A Much-Neglected Health Factor By Hereward Carrington, Ph.D.

Some New Highlights On This Subject

A wise oriental once said: "He who can perceive inaction in action, and action in inaction, is wise among men."

It is during the hours of rest and sleep—when we seem to be most passive—that something within us is intensely active, recharging us with vital energy for the next day.

When we are active, we are expending energy; when we are seemingly inactive, we are receiving it. For "energy is always noted in its expenditure, never in its accumulation."

Animals instinctively know this. So do babies! As the Irishman once remarked, "They sleep a good deal of their waking day." We spend a third of our lives in sleep, and its remarkable recuperative effects are well-known. Have we not all had this experience? We are tired—fatigued. The head nods for only a few moments, and yet we feel refreshed, invigorated. Those few seconds have changed our whole outlook on life.

But it is not always necessary to sleep in order to obtain these beneficial results. Rest will revitalize us, too; but must be the right kind of rest. Complete relaxation with the eyes closed is a part of this formula—but only a part of it. There is a technique of rest, as there is for anything else. The best results are obtained only from the right kind of rest. How should one go about insuring this?

First of all, a few obvious essentials. The room in which we are attempting to rest should be as quiet as possible, and the light subdued. There should be a feeling of *certainty* that there will be no distraction and disturbances. The muscular system should be relaxed, and this may be accomplished by going over the body in thought, relaxing every part of it in turn as we come to it. (Deep breathing exercises will help in this.) Certain areas should receive particular attention, as they are points of tensions; the solar plexus, the back of the neck, the jaw, the throat, the shoulders. Go over the body several times in this way, relaxing each point in turn as you come to it.

Recent researches have shown that merely closing the eyes rests the brain and mind in a peculiar way. An electric rhythm starts as soon as the eyes are closed, and ceases immediately when they are opened. What the exact purpose and nature of this rhythm are, still remains to a great extent a mystery, but one might well imagine that they serve to clear "negative charges" from the brain. At all events they denote recuperation. The activity of the senses, and particularly the eyes, prevents this from occurring.

Fatigue is of two kinds: muscular fatigue and fatigue of the nerve cells. The former is easily overcome by a short period of rest; every athlete knows this. Exhaustion of the nerve cells, however, is another matter; this is deep-seated, and time is required to recharge the tiny "batteries." It is this lowering of energy in the nerve cells that leads TO physical and even mental trouble. Carried to an extreme, it leads to "nervous breakdown."

This life-energy of ours should be carefully conserved. When it is riotously expended it must be replenished. If not, we run into trouble. Overwork, sexual excesses and prolonged strain waste the energies. But more important than all these are the *emotions*. These are the factors which short-circuit the nervous system and exhaust its reserve energies the most quickly. Any amount of thinking will never tire us, *providing* emotions are not associated with these thoughts.

All strong emotions have this effect. It is well-known that fear, worry, anxiety, anger and similar powerful emotions will have this result, but so will intense excitement and foolish enthusiasm! Take a football game. The players become tired, but a brief period of rest refreshes them, and they are ready to "raise hell" that night. But the spectators are exhausted! High tension over too long a period has this effect. And it is the same in our everyday lives. As Dr. Trall once remarked, "A life cannot be both intensive and extensive." A relatively calm and peaceful life will insure longevity; and in the meantime will insure freedom from nervous depletion and breakdown.

All this does not mean that normal enthusiasms should not be indulged in, or that one should become a jellyfish, devoid of energetic thinking and acting. Provided destructive emotions are not present, these would represent merely a wholesome, healthy life. But, just as powerful feelings can drain the cell-energies rapidly, less powerful ones, sustained over long periods, will exhaust them slowly. Fears and worries particularly have this effect. So will frustrations, resentments and inner disharmonies. These will fight against one another and ultimately devitalize their host completely.

There is an old saying that a man can climb mountains all day and be relatively fresh at the end of it, whereas if he has to wash dishes for ten minutes he is exhausted! The reason for this, of course, is that in the first instance his whole being is working in unison, wheras in the latter case he is fighting against himself. His conscious mind forces him to perform the activity while his subconscious mind is resenting and resisting it. The result is that he is like two mules hitched to opposite ends of a rope, pulling against each other. Result: They get nowhere. But hitch them up in tandem, and they will pull you out of the rut. It is this internal emotional conflict which wears down the energy of the nerve cells and in time produces dire results.

No one should be ashamed of lying down for a few minutes some time during the day, closing the eyes and relaxing. This is especially true of elderly people. It rests the heart, equalizes the great blood-lake and restores the energy of the brain and nerve cells. More important still, it will prevent you from becoming fatigued. Towards the end of the day, "tiredness" seems to progress in almost geometrical ratio. That is why it is necessary to go to bed at a reasonable hour, if one has to get up early. If one is tired after sixteen hours, the seventeenth hour will fatigue you far more than one-sixteenth of the waking day, and the eighteenth hour still more, and so on. Those last two or three hours are often the ones which make all the difference between a normal life and one which is headed for ultimate physical and mental trouble.

Two other important factors should be noted in this connection. The first is that a complete change of mental interests will often act as a great reenergizer. Perhaps new areas in the brain are involved; more probably the conscious and subconscious mind are now working in harmony, rather than in opposition.

Whatever the cause, the fact remains that a man may be tired out at the end of a day's work, but as soon as he begins tinkering with his hobby he is no longer exhausted. Travel has much the same effect. A complete change of mental scenery will work wonders in the way of rejuvenation, as we all know.

The second essential for complete internal rest I have rarely seen mentioned anywhere—and yet it is highly important. The vital organs of the body need rest, too, just as our external muscles do. I refer particularly to the digestive organs. It is now generally acknowledged that we all eat far more than we need, in order to maintain the physical and vital wastes of the body. The amount of energy required to convert and digest this quantity of food must be prodigious, and this energy must be drawn from the general fund. A little judicious fasting will work wonders in restoring this vital expenditure. Many people are chronically tired for no other reason: they keep themselves constantly fatigued because of this internal overactivity of the digestive organs—even during the hours of sleep, when a "late supper" is indulged in. Giving these vital organs a rest is highly essential. The benefit to be derived from occcasional fasting or semi-fasting are attributable largely to this—the rest given the organs of digestion at such times. The rejuvenating effects of these periods of abstinence and self-discipline have been noted by many who have given them a fair trial. Doubtless you can do the same.

Rest—external and internal—is a fundamental requisite for a healthy, normal life. The human protoplasm needs rest. It must have it. Nothing else will take its place. The human heart beats approximately 100,000 times every day—every twenty-four hours—and yet (if not abused) it can continue to function in this way for eighty or a hundred years. Why? Because, between each beat, your heart rests. It is a momentary rest, it is true, but enough to permit its recuperation. Activity and relaxation should alternate. That is the law of life. Obey this law, and health, harmony and happiness should be yours!

Article #3: The Need For Rest By Dr. Herbert M. Shelton

The motto of the early Hygienists—"health by healthful living"—was comprehensive and included within its scope the whole way of life. It did not refer to a plan of eating or a system of exercise or to any other single facet of life. From the time of Graham forward, it was fully realized that every facet of life was as important as every other if one hoped to maintain good health. It was also understood that all the elemental needs of life had to be met in keeping with the needs and capacities of the sick organism if health was to be restored.

Among the important elements of a valid Hygiene was rest. Hygiene places great emphasis upon the importance of rest. Rest, in which is included sleep, is nature's great restorative process, just as activity and excitement constitutes her great exhaustive process. Activity is necessary to the highest expressions of organic life, but it must be alternated with periods of rest, or else the organism wears itself out.

In life, two simultaneous processes are in continuous operation. First, there are the processes of growth, development and replenishment; second, there are the processes of wear and tear. Collectively, these two processes constitute *metabolism*. To the process of wear and tear, the term catabolism is applied. *Catabolism* is dominant in periods of activity. *Anabolism* is the term applied to the process of replenishment, development and growth and is dominant during periods of rest and sleep. Neither of these processes is ever entirely passive during life, but, in general, it may be said that when one process is at the height of its activity, the other is at its lowest point of activity. *Anabolism* may be said to be the period in which the body renews itself, replenishes itself, refreshes itself and prepares itself for renewed activity.

It will thus be seen that when we say rest is a cessation of activity, we mean only that it is a cessation of certain forms of activity. The *anabolic* processes are intensely active during periods of rest and sleep. In states of sedations, narcosis, drug-induced *hypnosis*, *anesthesia*, etc., when physical and mental activities are greatly reduced or almost suspended, *anabolic* activities are also greatly reduced or nearly suspended; hence it is that drug-induced inhibition of the activities of life does not result in refreshment and renewal of the body. These states leave the body depressed, languid and unfitted for further activity. Normal rest and sleep, on the other hand, produce alertness, freshness and a feeling of vigor and prepare one for further action. It may thus be seen how important rest and sleep are to the replenishing processes of life.

The infant and young child require much rest and sleep, perhaps primarily because the *anabolic* processes are at their greatest intensity. This is to say that in those periods of life when development and growth are greatest, *anabolism* is most intense; hence, much rest and sleep are required. The invalid also requires much rest and sleep, not primarily because anabolism is more intense in the body of the invalid, but because it is less efficient and requires a longer period of time in which to accomplish the same recuperation and renewal. It is a cardinal principle of Hygienic science that *nothing is remedial except those conditions which economize the expenditure of the forces of the organism*. Those invalids who vainly imagine that they can exercise themselves into vigor usually succeed only in wasting their already depleted stock and work so hard at getting well that they keep themselves enervated. There are times when the invalid needs exercise, but first of all and foremost in the ranks of his current needs, is rest.

We divide rest into four kinds: *physical rest*, which may be obtained by discontinuing physical activity, going to bed and relaxing; *sensory rest*, which is secured by quiet and by refraining from using the eyes; *mental rest*, which is secured by poising the mind, this is to say, by ceasing to worry and to fret and by the cultivation of mental equilibrium; and *physiological rest*, which may be obtained by reducing physiological activities. This last form of rest, may be best obtained by either greatly reducing the amount of food taken or by abstaining from food altogether.

When our primitive ancestors had performed a certain amount of work, they became tired and weak, even sleepy, and were thus forced to rest. By thus regularly and properly meeting the demands of their bodies from rest, they were reinvigorated and made, ready to resume their work. But a time came when man learned to force his body to continue activities after fatigue demanded a halt. He learned to lash his organism with *stimulants*. Without stimulation the brain grows weary and the physical demand for rest becomes so great that we lie down and rest and sleep. But to drive the body and mind with *stimulants* is to exhaust these. Activity, even strenuous activity, does not injure man so long as, by natural living, he possesses the power to work. When fatigue calls for rest, he will rest. Injury results when, by the use of *stimulants*, he forces himself to continue working after nature has demanded a cessation of work. If he lashes himself with *stimulants*, he will overtax himself and not rest when he should. We see a graphic illustration of this in the common coffee-break of today. A few minutes out from activity is provided the worker who, instead of taking advantage of the, opportunity to rest, fills up on stimulants and foodless cooked foods. The result is that the coffee-break, instead of proving a boon, becomes a bane.

To rest a whole day, when greatly fatigued, either of body or mind, is both agreeable and beneficial. A much longer period of rest is required by the invalid who perhaps, is greatly devitalized and much enervated from long indulgence and overactivity, excesses, *stimulation* and emotional excitement. These profoundly enervated individuals may require weeks or even months of rest before organs that have been lashed into impotency will rest into full functioning power.

Physiological rest, which is more commonly known as fasting, is best taken under competent supervision. This is especially true if the period of abstinence is to be a lengthy one. Most people may safely take a few days of fasting without expert supervision, but these frequently spoil the results of their fast by the overeating which they practice immediately thereafter. Indulgent individuals, who are lacking in self-control, should be supervised even during a short fast; otherwise, they are likely to receive but small benefit from their period of abstinence.

The chronically tired, exhausted individual, seeking to rest, should retire to some quiet, secluded place, preferably in the country, where the air is pure and disturbances are at a minimum, and go to bed and relax. If he is not sick, he need not spend his whole time in bed; but if there is any marked ailment from which he seeks to recover, he should realize that the more nearly he can approach the immobilization of the embryonic period, the more rapid will be his recovery. He should abstain from all *stimulants*, both of a chemical and emotional nature. The noise and excitement of radio and television programs interfere with rest, with poise and with sleep, thus preventing recuperation and retarding recovery.

Our noisy civilization, which is growing more noisy day by day, is as great an evil as are air pollution and water pollution. If we could practically hibernate and effectively insulate ourselves against newspapers, magazines, television and radio and other sources of noise and excitement, we would refresh and replenish ourselves in a much shorter time and with greater efficiency.

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Article #4: Rest vs. Stimulation by Dr. Herbert M. Shelton

For years I have stood out against the employment of all methods of artificial stimulation (irritation or excitation) of the body of the sick person because such methods tend to exhaust the energies of the patient. One of my critics says of this: "The loss of 'vital power' which seems to be a bogey man of Dr. Shelton is not so bad as he paints it. The body is not a static but a dynamic machine constantly regenerating and losing 'vital power' or energy." We may rant the truth of his statement that the body is a dynamic machine constantly generating and losing energy, without being compelled to grant his contention that it is helpful to waste, by stimulation, the energy of the body as it is generated.

The power of the body to generate energy is limited, the power of the sick body to generate energy is crippled, he sick person, and especially the chronically sick person, suffering from nervous fatigue as the result of a previous state of energy. He is not helped by any measure that further depletes his energy-stores. Stimulation is a forced draught upon the energies of the body. It compels the expenditure of energy, not in doing useful work, but in consisting the stimulant. If it is long continued or often repeated, exhaustion is the result. The depletion of the body's energies is commensurate with the amount of stimulation it is subjected to.

The opposite practice, that of conserving the patient's energies through rest, is a far more rational and an infinitely more successful practice. A workman returns home in the evening very tired from a hard day's toil. We do not prescribe a stimulant for him, but rest and sleep. A sick man comes to us with a tired organism after weeks, months, or even years of overwork, stimulation, dissipation, etc., and we pursue the opposite course. We tell him that he needs more stimulation, that his organs need to be made to work more. We begin a course of treatment that consists of stimulating the skin, the kidneys, the colon, the nervous system, etc. Sometimes, if le is not too badly depleted when he comes to us, we succeed in whipping up a short-lived simulation of health, very often, indeed it is the rule, we see our patient grow progressively worse from the first.

Danger of Stimulation

The very fact that a period of depression (a reaction), commensurate with the prior period of stimulation, follows every period of stimulation should reveal to us the true wasteful character of stimulation. If we grant that anything is gained during the period of stimulation, we must see that this is lost in the reaction. The more we seem to gain the more we actually lose.

The stimulation afforded by any stimulant grows progressively less and the subsequent depression progressively greater as the use of the stimulant is continued. Stronger and more frequent doses or a new and different stimulant must be resorted to, and the period of recuperation must be longer.

Another serious objection to the stimulation practice is that it deals with effects only and tampers with the functions of the body and ignores the causes of the troubles present. It seeks to restore health by forcing increased action in the body, rather than by correcting or removing the causes of the disease.

Suppose we assume that we are dealing with a highly toxic patient and it is desirable to eliminate the accumulated toxins from his body. If we set out to do it by stimulating his organs of elimination, but ignore the cause of the toxic state, we would be in the same position as that of the man who attempts to dip a fountain dry without cutting off the water supply. He dips and dips until he is exhausted, only to find that there is as much water in the fountain as when he started. Indeed, if there were no other outlet for the water, the longer he dipped and the more tired he became, the faster would the water accumulate, for, as his fatigue increased, his dipping would fall off and the water would gain on him increasingly. In just the same way we whip up the organs of elimination to greater and greater effort and keep up the process until these organs and, perhaps, the whole organism are exhausted, only to find that the body is as toxic as ever. Indeed, due to the impairment of function that inevitably results from these stimulating measures, the body becomes increasingly more and more toxic.

The Importance of Rest

There is no more effective method of increasing elimination than that of rest. Increased activity increases the production of waste; decreased activity lessens the production of toxins. Increased activity expends energy; rest and sleep conserve energy. The more an organ is stimulated, the less able it becomes to perform its functions. Give it sufficient rest for recuperation, replenishment and repair and its vigor and functional efficiency are increased.

Much energy is consumed in physical activity. If rest is substituted for activity, the energy commonly spent in physical activity is available for use in doing other and, for the moment at least, more important work. Nature does not cut off the appetite, prostrate the patient and cut down mental activities, sexual activities and sensory activities, in typhoid, for instance, for nothing. These are all conservative measures—designed to conserve the energy commonly expended in these forms of activity, in order that it may be available for use in the, at present, more important work of recovery.

Rest Is Vitogenic

Activity consumes the substances of the body, is vitolytic; increased activity increases the consumption of body substance. During rest, the cells, the tissues and the organs are repaired, replenished and renewed. Rest is vitogenic. Resting organs are better able to repair their damaged structures than stimulated organs. Rest and sleep are the great representative restorative processes.

The actual storing up of the energy reserves or the energy sources of the body takes place during rest. Activity expends and rest recuperates the body's supplies. The stimulation (irritation and excitement) of an already depleted body only hastens the exhaustion of the few remaining energy-stores and brings on the final collapse sooner than it would have occurred otherwise. The more the body is stimulated, the sooner it reaches the state of complete collapse. The weaker the body is, the less able it is to withstand the "action" of stimulants—the greater is the necessity of "doing nothing" intelligently.

Only those who have had sufficient experience with both the stimulating (wasting) practice and the resting (conserving practice to enable them to judge the merits of the two practices are in a position to pass judgment upon them. Anyone who has not completely abandoned the stimulating practice and employed only the conserving practice on hundreds of patients and over a period of years, and who, in the face of this lack of experimental knowledge of the practice, proclaims the superiority of the stimulating practice and employed only the conserving position as were the armchair philosophers of the pre-Baconian period—he simply does not know, and cannot know, what he is talking about; he is only spinning, spider-like, a fantastic theory out of the web of his fancies.

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1. Introduction

1.1 Mental Well-Being Is Dependent Upon Good Nutrition

Proper nutrition is not only the foundation of physical health, but it is also the prerequisite for emotional and mental well-being. "A sound mind in a sound body" is how the Greeks of two thousand years ago expressed this relationship. Today we have such terms as psychosomatic, holistic health, dietetics and so forth that also point out the growing awareness that the health of the mind is inseparable from the health of the body.

Nor should this observation be surprising in the least. Illnesses and poor physical health give rise to feelings of anxiety, worry and depression. And, similarly, mental stress and emotional upset can contribute to the many sicknesses commonly thought to be physical in origin. So interdependent are the health of the body and mind that there can be no such thing as a "depressed healthy person" or a "schizophrenic physically sound individual."

It can be said that radiant physical health begets perfect emotional and mental poise and a calm, clear mind produces physical well-being. There is no disputing the fact that a healthy mental and emotional state can be insured through good nutrition.

The fact that mental well-being depends upon nutrition should be obvious if we realize that the quality of our blood determines the quality of our thoughts. Like all other organs, our brain receives its sustenance in the form of oxygen and nutrients carried in the bloodstream. If the blood is almost wholly withdrawn from the brain, unconsciousness occurs. If the brain is drained of blood for a short time, death results.

When the oxygen content of the blood drops due to poor respiration, the oxygen available to the brain also drops, and we become listless and apathetic. Our mental processes become slow and confused.

If vital nutrients are missing from the bloodstream, or if toxins are being circulated through the body, the brain is as surely affected just as the liver, kidneys, bones and muscles are.

In extreme cases of a toxic bloodstream or poor nutrient availability, mental illnesses result. These illnesses are obvious to even the casual observer. However, in the more subtle cases of "blood poisoning" brought about by faulty nutrition, the mind is also intimately affected.

In fact, the majority of the population has never enjoyed complete mental health because their bloodstreams, which nurture the brain, are in a constant state of pollution. Few people have experienced the crystal clarity of acute mental perception that accompanies a purified bloodstream. Consequently, most people accept their daily fears and frustrations as natural. With optimum nutrition, however, such a compromise in our mental well-being is unnecessary.

1.2 Emotions and Their Relationship to Diet and. Health

Emotions, too, play an intricate role in nutrition—both by affecting our choice of diet and by influencing the use of nutrients within the body. In fact, perhaps the most important reason why optimum nutrition is not universally applied is that eating has so many emotional connotations. To many people, eating and food are connected with the emotional states of pleasure, pain, reward, punishment and so forth.

All of us have pleasant or unpleasant associations with food, and we resist changing these associations. As a consequence, the average person often thinks that proper nutrition means giving up those foods they emotionally favor and eating those they hate. "If it tastes good, it's fattening" is the common joke among dieters.

Not only do these emotions influence our choice of diet, but the diet in turn influences the emotions. Certain foods play havoc with the blood sugar level, sending people into periods of depression or irritability. Other foods make calm children noisy and hyperactive, while certain foods, such as a chocolate candy bar, have been known to trigger schizoid attacks in susceptible individuals.

Clearly, nutrition plays a vital role in our mental and emotional health. By studying this role in detail, we can discover the optimum diet and the proper mental and emotional attitudes that promote total health in the individual.

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2. How Foods Affect Mental And Emotional Health

In an interesting story about a family who followed an optimum diet of chiefly fresh fruits, complemented by some nuts and seeds, the three children in the family had been following a predominantly all-fruit diet for several years. During that period, they were extremely well-behaved. They were kind and gracious to their parents and to each other. They cooperated in their work and play with no signs of irritability.

As an experiment, the mother one day fed the children several slices of whole wheat bread. Within an hour after the meal, the children were fighting among themselves and had several outbursts of anger and emotional fits.

Coincidental? Perhaps, but consider that many people are allergic to wheat products and that wheat eating is usually associated with warlike populations. (See the observation made by J. I. Rodale later in this lesson.)

The point here is that when a person follows a pure, high-quality diet, any substandard foods consumed will quickly make their presence known by their effects on the mental and emotional states.

Not only does wheat eating result in health problems and consequent emotional and mental disturbances, but also eating foods high in fat tends to dull the mind and cloud the thinking. Fat digestion is so demanding that much blood is diverted away from the brain to the digestive system. As a result, the thinking processes become slower and a mild form of depression occurs.

The above examples represent only mild cases. When extremely poor-quality foods are eaten, their effects on the mind and emotions are much more dramatic—sometimes causing complete mental breakdowns and personality transformations. Unhealthful foods and their effects will be discussed later.

The effects of food on the mind have been studied for many thousands of years by Oriental philosophers. Many of these philosophers have gone so far as to categorize the effects that many commonly-eaten foods have on the mental state.

2.1 Classification of Foods

Although Western science has only recently discovered the relationship between mental states and nutrition, people in the Eastern countries have been aware of the effects of diet on the mind since around 4000 B.C.

The *Bhagavad Gita*, an ancient Hindu text on spiritual conduct, classifies foods into three types:

1. Pure foods ("sattvic"),
2. Stimulating foods ("rajasic"), and
3. Impure or rotten foods ("tamasic").

2.1.1 Pure Foods

Pure foods, which consist primarily of fresh fruits and vegetables, are said to bring calmness and tranquility to the mind. These foods are reputed to increase the clarity of mind and sweetness of disposition. They are especially recommended by those desiring spiritual growth and a meditative mind.

2.1.2 Stimulating Foods

Stimulating foods including spices, meat, eggs, onions, etc., are said to create animal passions and to cause a restless, unsatisfied state of mind. These foods contribute to nervous disorders and emotional outbreaks.

2.1.3 Impure Foods

Impure foods which include putrified, processed and preserved foods, decrease thinking capacity, dull the senses and contribute to chronic mental ailments. They accelerate the aging process and cause early death.

Regardless of our particular beliefs in religious systems, we should appreciate the painstaking observations made over thousands of years by these students of the diet and the mind. They have long known, as is being discovered by scientists, that the quality of our food directly affects the quality of our thoughts.

In his series on *Diet and War*, J. I. Rodale provided a correlation between a country's tendency toward war or peace based on its national dietary. He discovered that the national attitude was more warlike and aggressive in proportion to the amounts of sugar, meat, wheat and rye products consumed by its populace. Throughout history, it has been the meat-eating nomads who have made war on the peaceful agrarian tribes.

2.1.4 The Two Ways That Food Affects Our Mind and Emotions

Basically, foods affect our mental and emotional state in two ways:

1. They either furnish or deplete vital nutrients upon which our mental and emotional health depend, and
2. They either do or do not produce toxic by-products, in the body which poison the brain and contribute to emotional problems.

As for some examples, eating grapes furnishes the blood with readily-assimilated natural sugars and minerals that are conducive to mental activity; consuming white sugar, on the other hand, depletes the body of B-vitamins, and this leads to nervousness and mental depression. Eating fresh raw foods places little or no toxic matter in the body; whereas eating preserved and cooked foods saturates the bloodstream with toxins that poison the body and interfere with brain function.

We can deduce from the above observations that optimum nutrition for physical, mental and emotional health consists of selecting those foods that, first, can supply the body with all of its nutrient needs and that do not interfere with the nutritional balance, and, second, contribute little or no toxic by-products.

Foods that disrupt the nutritional balance of the body and toxify the system are the nutritional culprits of poor mental and emotional health. Most of these culprits are actually "nonfoods" (such as sugar, alcohol, caffeine drinks, etc.) and have no legitimate place in the human diet.

2.1.5 Nutritional Robbers

Every day millions of people ingest various substances that have no food value at all. Worse yet, these "nonfoods" not only do not supply any needed nutrients, but they also rob the body of vital minerals, vitamins, etc. As a result, eating these nonfoods cheats the body of nutrients and has profound harmful effects on the mind and emotions.

Perhaps the most pervasive and insidious nutritional robber is white sugar.

2.1.6 Sugar

Sugars occur naturally in most of our foods. Fruits especially are high in sugars that supply the body and mind with high-quality fuel. Sugars in their natural forms as they occur in fresh, unprocessed foods are a valuable part of the diet.

Refined white sugar, however, is a chemical menace because *it lacks the essential minerals and B-vitamins for its metabolism*. As a result, the body surrenders its own minerals and B-vitamins for use in metabolizing refined sugar.

The sugar-caused depletion of vitamins and minerals from the body upsets the body's nutritional balance and predisposes the individual to mental and emotional illnesses that have their roots in nutrient deficiencies.

White sugar causes emotional outbreaks, especially in children and adolescents. Interestingly enough, it was discovered that the juvenile offender in Chicago on the average consumed over three times more white sugar in his diet than did the nonoffender. Schools that have removed their carbonated drink and candy machines have discovered that vandalism and absenteeism also decrease.

Long-term sugar consumption, as indulged by the majority of the American population, leads to chronic blood-sugar level problems that may manifest as diabetes or hypoglycemia. People with such blood-sugar problems are prone to periods of depression, irritability and nervous attacks. Many times they actually experience "nervous shakes" as their blood-sugar level slides and rises.

An abnormal plunge in blood-sugar levels is insidious—it sends shock waves through every cell in the body and affects the brain and nervous system most of all. An erratic mental state results, and some of the accompanying symptoms are: headaches, fatigue, insomnia, irritability, restlessness, crying spells, nervous breakdowns, excessive worry, inability to concentrate, depression, forgetfulness, suicidal thoughts, illogical fears, allergies and so on.

2.1.7 Caffeine, Nicotine and Alcohol

Besides sugar, some other nutritional robbers are the cigarette, the cup of coffee and the martini.

Nicotine, as obtained from smoking tobacco, adds to metabolic dysfunctioning. It impairs the absorption of vitamin C and interferes with the blood circulation. By constricting the blood vessels, nicotine robs the brain of its essential nutrients, particularly blood glucose, its major fuel. In fact, not only does nicotine inhibit vitamin C absorption, but it actually destroys some or all of the vitamin C already in the blood. One of the mental effects of vitamin C depletion is increased irritability. Smokers tend to be quick to irritate and often exhibit emotional outbursts.

The drug, caffeine, found in coffee, tea, cola drinks and chocolate, causes nervous disturbances, including anxiety. One to three cups of coffee contain enough caffeine to cause anxiety and other emotional disturbances. Caffeine also stimulates insulin secretion, thereby disturbing the blood-sugar level in the body.

Alcohol, too, disturbs the blood-sugar level. In fact, low blood sugar occurs in 70-90% of all alcoholics. As a result of studies, it was also discovered that most alcoholics suffer from a niacin (vitamin B3) deficiency that leads to periods of depression and feelings of lack of self-worth. Such emotional states may then lead to more alcohol drinking in an effort to escape these feelings.

All of the above-mentioned nutritional robbers tend to be self-perpetuating; that is, they create the very conditions that often make the user of these items return to them. Caffeine withdrawal symptoms, for example, can be halted by drinking another cup of coffee. The irritability caused by smoking is soothed by another cigarette. The "shakes" caused by a period of sobriety can be removed by another slug of whiskey. The crashing blood-sugar level created by sugar intake can be temporarily raised by a candy bar or other sugary "food." In short, all of these nonfood items are actually *addictive drugs* just as opium and heroin are. If we are truly concerned about the "drug problem" in America, it would be best if we set our own house in order first. This would remove the cause of many of 6ur mental and emotional problems that result from faulty nutrition.

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3. Emotional Aspects Of Diet And Digestion

So far we have discussed how nutrition affects the mind—specifically, how a nutrient deficiency may contribute to a mental or emotional illness. It is equally important to realize that, while diet does affect our mental and emotional well-being, our emotional state in, turn, in influences both our choice of diet and how well our food is digested and assimilated.

3.1 How Negative Emotions Inhibit Digestion

Depressions, worry, nervousness, anxiety, tension and other negative emotions are all based on the primary emotion of fear. Worry is fear of the unknown; anxiety is fear of upcoming situations; tension is fear of people or demands made by people; nervousness is fear of one's own inability to adequately handle the responsibilities of daily living, and so on.

When primitive man was afraid, he usually tried to run away from the source of the fear. When animals are afraid, their first impulse is to flee. Modern man, however, has fears about the intangibles in life. Most of his fears are due to internal factors, not external, and he cannot run away from them.

Although human fears have moved away from concern about the wild jungle animals to worries over mortgage payments, etc., the physiological responses to these fears have not changed in millions of years.

Panic is an extreme manifestation of fear, and it is instructive to trace the physiological changes in the organism that accompany this emotion.

As soon as a threat to the organism is manifested as a strong fear, a complex chain of events begins that eventually affects every cell in the body.

First, the hypothalamus gland near the brain transmits a series of strong signals through the spinal column to nerve centers throughout the body. In the throat, large amounts of thyrotopic hormone is released into the system to stimulate the organism. Near the kidneys, a flood of adrenocorticotropic hormone is produced as the adrenal glands are called into action. These hormones then trigger a series of programmed responses throughout the body.

The blood vessels in the skin and the digestive system undergo a rapid constriction to direct the blood to the muscles in the arms and legs (hence, the term "pale with fright"). This prepares the body for the "flight or fight" response to the fear.

Simultaneously, the spleen is contracting and pouring out a large amount of white corpuscles and platelets into the bloodstream in order to take care of any anticipated injuries. The liver also forces out a stream of blood sugar to feed the extreme demands made by the aroused system.

The saliva in the mouth dries up since there is no desire for food in the presence of fear. The nostrils expand to take in more oxygen and the eyes dilate to take in more visual stimuli. In extreme fear, the abdominal gases move downward and force any stool or urine in the system out, thus lightening the body and preparing it for flight.

The emotion of fear produces the proper physiological reactions in the body so that it may run quickly away or fight if it is cornered. These types of changes in the body are actually very beneficial if there is an imminent danger of physical harm.

These same reactions occur, usually to a lesser degree, for an intangible fear as for a physical threat.

If we worry about bill collectors or rush-hour traffic, our bodies go through similar physiological reactions to when our lives are physically threatened.

Now let's look a little closer at the relationship between fear and digestion.

First, it is obvious that no one whose life is in danger is going to have an appetite.

Dr. Herbert M. Shelton once described an experiment performed on a cat that had just finished eating. The cat's stomach was observed with X rays, and digestion was proceeding normally. A dog was then brought into the room and the cat took notice. Immediately all digestive processes in the cat halted. Its stomach ceased moving and the digestive juices stopped secreting. When the dog was removed, the cat's digestion resumed.

Food cannot be digested or assimilated in the presence of fear. If we eat when we are worried, depressed, tense or fearful, the digestive system cannot handle the food properly. It may be only partially digested and lay fermenting or putrefying in the stomach.

We should never eat when we are emotionally upset or "out of sorts." If we are uncomfortable in body or mind, we should not eat until we feel better and regain our poise.

Additionally, it is not a good idea to try to eat while driving a car, discussing business or personal problems, reading disturbing news, watching television or in any situation that may give rise to intense emotions.

3.2 How Positive Emotions Enhance Digestion

Several years ago, a man was diagnosed by the medical profession as having terminal cancer. He was told that he probably had about six months to live.

He was released from the hospital and he ended his medical treatment as he went back home to live. For the first month or so, he was very depressed and laid in bed all day watching television. He was in constant pain.

Each day in the late afternoon he watched the cartoon programs on television before the evening news. He always laughed at the cartoons and noticed that by the end of the show his pain was not as noticable. It did return, however, as he watched the evening news.

He decided that there might be a relationship between his laughing and the subsidence of pain. He installed a videotape machine and then bought all the funny movies that he remembered from his youth.

He watched all the slapstick comedies he could find for hours at a time. He bought dozens of joke books and read them. He made it a point to laugh as much as possible during his waking hours.

Gradually, his pain left him. After six months, he was still alive and his cancer had been arrested.

Happy emotions do influence physiological processes in the body, just as do negative emotions. When we are cheerful, carefree and happy, we rarely become sick. One of the results of a happy disposition is improved digestion.

When we feel positive about ourselves and our surroundings, we relish our food more and it is more easily assimilated. Surrounding ourselves with good companionship, pleasant conversation and a wholesome environment makes eating a pleasure, and digestion progresses easily.

When we are relaxed, our stomach and other organs are less tense; they feel less constrained and can perform their tasks more easily. In fact, the physical act of laughing after a meal allows the food to pass more readily through the digestive tract.

We should make every effort to surround ourselves with pleasant emotions and thoughts before and during meals. Prayer, meditation or a period of silence before beginning a meal can help us to "wind down" our activities. By establishing a quiet period before we begin eating, we remove ourselves from the hurried emotions and past thoughts of the day. We take time to renew ourselves spiritually before we renew ourselves physically. Regardless of one's religious beliefs or lack of beliefs, it is simply common sense to observe a period of emotional poise and mental quiet before eating. This may take the form of a prayer, an affirmation about the food we are about to eat, or simply a period of quiet silence where we anticipate the enjoyment of the upcoming meal.

3.3 Emotional Factors and the Foods We Choose

Eating an optimum diet would be simple if we were all rational beings, freed from emotional conditioning. However, in the realm of diet, it is often the emotions and past habits that are king and queen instead of reason and clear perception.

We eat ice cream, spicy foods, candy and other destructive foods primarily because of emotional needs and emotional associations with these foods—not because of any true physiological need or premeditated reason.

People form emotional attachments to foods as a result of childhood experiences, past associations or self-conditioning. Consequently, certain foods are often eaten during particular emotional states, such as depression, etc., or in hopes of inducing a specific emotion, such as contentment or happiness.

For instance, ice cream is often associated with the rewards of childhood. When we were children, ice cream represented a treat or perhaps a sign of parental approval or indulgence. "If you'll be good, I'll buy you an ice cream cone," is a common promise of harried parents.

Thus, at an early age, ice cream is associated with "being good" and with parental approval. Consequently, when we have been good (such as staying on a good diet for a few weeks), we decide to play both parent and child and reward ourselves with a bowl of ice cream. Similarly, if we are feeling depressed or overwhelmed by life's problems, we may eat other childhood "reward" foods to temporarily escape our adult troubles.

Holidays such as Christmas and Thanksgiving are intimately associated with strong emotions and certain festive foods. So strong is this emotional association of food with holiday fun that some health-conscious individuals may eat turkey, pastries and sweets on a holiday in an effort to capture the childhood memories of days long past, as well as for parental approval in the present.

Please note that no value judgement is placed upon the emotional associations and attachments to food. To a certain extent, all of our food likes and dislikes are based upon emotions. Few people eat out of purely rational reasons, nor is it necessary to do so. What is necessary, however, is to be aware of the role emotions play in our food choices. If we are eating certain foods that are not conducive to health because of a disturbed emotional state, we should be aware of our behavior and try to approach our problems in some other manner besides food.

Foods themselves cannot satisfy emotional needs. If we are depressed, eating chocolate chip cookies may stir the memories of a carefree childhood, but they do not remove the cause of that depression. Indeed, the foods we are eating may be creating the emotional problems we are trying to escape from.

For example, in our culture, most children are brought up to associate sweet, sugary foods with approval, love, affection, etc. A child is often given candy as a reward. This type of conditioning becomes an internal pattern which is carried over into adulthood.

When grown-up people feel lonely, bored or in need of reinforcement, they may buy an ice cream cone or put money in the nearest carbonated drink machine. They eat the sugary reward food and feel somewhat better emotionally for a few minutes. This illustrates that a negative emotional state, (boredom, insecurity, loneliness, etc.) may influence the selection of and eating of nonfood items (candy, cookies, snack foods, etc.).

These nonfood items then contribute to a nutritional imbalance which may, in turn, re-create the emotional state that one is trying to escape from. For instance, the refined sugar in sweet foods gives a temporary rise in energy and a false emotional "high." After this energy surge, the sugar has the effect of depleting the body of B-vitamins and other nutrients. This sugar-created depletion then sets the stage for additional emotional distress and depression.

A seemingly inescapable cycle is thereby created: A person is continually eating sugar-filled foods in an effort to escape the depression that the foods themselves are helping to create.

3.4 Food Likes and Dislikes

Many of our food cravings and our dislike of certain foods arise from past emotional associations. There are many teenagers and young adults today who refuse to eat vegetables because, as children, they were scolded by their parents if they did not clean their plates of all the overcooked, lifeless vegetables served them.

Now that they are older, they associate their refusal to eat vegetables with independence from their parents.

A man of this writer's acquaintance will not eat fresh fruit of any sort. As a young child he was forcefed watermelon by his parents as punishment for not eating his supper.

As another example, the widespread use of dairy products has its roots in emotional childhood associations. Young children were told by their parents (who were told by the dairy industry) that "milk makes you strong." School teachers had posters of the "Basic Four" food groups, with milk prominently displayed. The drinking of milk is also associated with being bottle-fed as an infant. Milk drinking may then become the bridge between the emotionally stressed life of the adult and the carefree world of the child.

3.5 Emotions and the Quantity of Food We Eat

Not only are our food choices determined in a large part by our emotions, but so is the amount of food we eat and the manner in which we eat. When we are stressed or nervous, we tend to bolt our food down, thereby eating "on the run" and scarcely taking time to chew our food, properly.

3.6 Overeating

Overeating, too, is chiefly an emotionally-caused problem. Food for the overeater becomes both an escape from dissatisfaction with life and a drug to desensitize the emotions. Compulsive eating when no true hunger is present serves as a form of sensory indulgence little different from alcoholism, drug addiction or sexual excess.

The compulsive eater often uses food as an emotional salve. Most commonly, it is used as a substitute for feelings of love and affections. Chocolate candy bars and potato chips may replace meaningful personal relationships in the overeater's life. Food no longer is used as fuel and nutrients for the body, but becomes an easily obtainable form of pleasure that can be indulged in with a minimum amount of social disapproval.

Overeating results primarily from a negative self-image. Compulsive eaters often believe that they are unworthy of being loved. To prove this to themselves, they often become obese and unattractive. They reason, "No one wants me now because I am unattractive. I am fat." By becoming physically unattractive, the obese person is able to avoid facing the real problems behind their lack of love or affection. These problems may be real or imagined psychological unattractiveness or a personality disorder.

Since overeating is often an emotional problem, it can be effectively solved only through a change in the emotional state of the overeater. If compulsive eaters can change their food choices so that they are at least overeating on healthy foods, and not "junk foods," they will at least avoid the additional emotional problems that the "junk foods" create. The chief solution to obesity is the development of a more positive self-image and an understanding that the person is deserving of love and affection.

3.7 Undereating and Dieting

Like the overeater, the compulsive dieter or undereater also usually suffers from emotional or psychological problems. The phenomenon of "anorexia nervosa"—dieting to the point of starvation—has become an increasingly common problem, especially among young women.

Whereas overeating often comes from a desire to "reward" oneself, undereating is often an attempt to "punish" oneself or the people living around the undereater (particularly the parents). By withholding needed food, the undereater punishes himself for either real or imagined personal shortcomings. Undereating becomes a method of punishing the parents in particular, because the refusal of food is a rejection of the most basic child-parent relationship—that of nurturing.

Of course abstaining from adequate food intake to the point of starvation is the extreme result of an emotional disturbance. It should be pointed out that controlled fasting undertaken for reasons of health is not the same as an erratic and prolonged nutrient-deficient and calorie-poor diet.

Although not so extreme as anorexia nervosa, millions of Americans regularly place themselves on diets that are trumpeted in the latest magazines and paperbacks or in mimeographed office newsletters. Often these self-prescribed diets are so poor in vital nutrients and high in empty calories that they cause serious damage to the kidneys, liver, stomach, etc. As a consequence, the mania for dieting among Americans is creating a nation of mental and emotional misfits.

Let's clarify the difference between *fasting* and *dieting* for weight loss. Many weight-loss diets as published in the popular press permit the dieter to continue eating harmful, low-calorie foods while simultaneously reducing the amount of beneficial foods in the diet. As a result, severe nutritional inbalances occur that may contribute to emotional problems. In comparison, fasting allows the body to reestablish its nutritional balance. So successful is fasting in this regard that it has been used to treat severely emotionally-disturbed patients who had nutrient inbalances throughout their bodies.

In many weight-reducing diets, the person is allowed to have all the coffee, tea or diet drinks desired since these drinks have no calories. Such drinks severely disrupt the already disturbed blood-sugar level and may plunge the dieter into deep depression. Add to this that a dieting person usually increases his smoking habit (if he already has one), and the stage is set for additional nutritional inbalances.

One popular diet instructs the person to give up all carbohydrates (such as fresh fruit and vegetables) and eat only protein (such as cooked meat). This invariably results in protein poisoning, metabolic disturbance, mental confusion, lack of emotional poise, and liver and kidney damage. Incidentally, it is just such a diet that was used by the ancient Chinese to break down the emotional resolve and mental health of their captured prisoners.

Most weight-loss diets make the same nutritional mistakes that lead to emotional problems. First, they ignore the differences between *refined* carbohydrates (which supply incomplete calories and little or no vitamins or minerals) and *unrefined* carbohydrates (which have calories that provide essential nutrients). Second, many of the foods recommended are "reward foods," such as a small slice of pie, a few vanilla wafers, some raspberry jam, etc. These types of foods are included in these diets to entice the person to stay on the diet. Literally, he is allowed to have his cake and eat it too, although not without accompanying difficulties.

What happens on many weight-loss diets is that the dieters grow irritable, depressed and confused. They deprive themselves of needed nutrients by filling up on low-calorie nonfoods that contribute to the nutritional inbalance. The nutrient deprivation and toxic by-products created by these diets often produce drastic personality changes. It is not uncommon to hear the spouses of many dieters remark: "I'd rather have you fat and happy than the way you are now."

Israeli researchers performed a study on ten men and women who were committed to a psychiatric institution as a result of the mental and emotional problems caused by their erratic dieting. They discovered that drastic weight reduction through conventional dieting had its most devastating effect on the nervous system. Six of the ten dieters had never suffered from emotional problems prior to this first attempt at weight loss.

Weight loss and weight control can be accomplished without accompanying negative mental and emotional changes by fasting or by consuming a proper diet. Supervised fasting not only produces a loss in weight, but it also allows a nutritional balance to occur in the body for continued mental and emotional health. The eating of low-calorie, *high-nutrient* foods such as, fresh raw fruits and vegetables allows the weight to normalize without denying the body needed nutrients.

3.8 Diet and the Ego

One last area of dieting and the mind needs to be covered, especially since it is most applicable to those persons who are truly concerned about their diet and are searching for a way to improve their overall nutrition. This area is the relationship between personal pride, or "ego," and the diet we adopt.

Almost everyone is emotionally attached to the diet they follow. I have heard people who dine exclusively at "fast food" restaurants defend their diet with nutritional charts of french fries and chocolate malts. Meat eaters argue that humans are naturally carnivorous. People who follow a macrobiotic diet believe fervently that grains should be a major part of our diet.

Each group is intensely emotional about the diet they adopt. They believe that they exclusively are correct, and they have a lot of personal pride invested in their chosen diet.

This is especially true of people who have actually taken the time to investigate the effects of diet on health. When they finally discover "their diet," they often become blinded to reason. They embrace their new diet as a mother clutches her newborn, and they will defend it with as much emotion (though scarcely with as much reason).

This is not to imply that there is no optimum diet. Most certainly a best diet does exist, and it is the one that promotes physical, mental, and emotional and spiritual health better than all others. Such a diet, however, can only be recognized and evaluated when we divest ourselves of passionate emotion and self-invested ego.

This is very difficult to do. We are all attached to our personal ideas and theories. We all like to believe that we are right. No one likes to realize that he has been mistaken about a cherished belief, be it political, religious or nutritional.

However, if we are to push beyond emotional and personal identifications with diet and understand the proper role of nutrition in health, then we must be open-minded and be willing to let go of past beliefs when they no longer serve us.

Certainly, personal experience and education can help us in choosing the proper diet. Difficult as it may seem, however, we must approach the idea of optimum nutrition with as few preconceptions and prejudices as possible.

Only when we are mentally and emotionally "clear" will we be able to recognize the correct path to proper diet and, indeed, proper living.

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4. Methods For Overcoming Negative Emotional Conditioning

We have seen how many poor diet habits are connected with emotional conditioning from childhood and in our adult lives. To change our eating habits and to adopt a better way of nutrition involves changes on an emotional level as well as changes in our daily activities.

Awareness is the most valuable method we can use in overcoming emotional associations with destructive foods such as sweets, fried foods, etc. If we are conscious of why we want a bowl of ice cream, we are in a better position to deal with that desire. By recognizing the impulse as arising from past emotional conditioning and *not from a current real or physiological need*, we are better able to change our habits.

Along with this awareness is a need for education about the foods we desire or avoid. If we understand how eating white sugar forces the body to utilize its own supply of vital nutrients for its metabolism, we are less likely to eat it. If we know the many health benefits of raw foods, we are in a position to learn to enjoy them for that sake. So we must first educate ourselves about proper nutrition and then develop an awareness about the foods we put into our bodies.

Another important method for overcoming emotional conditioning is the development of a positive self-image. Many people indulge in self-destructive eating habits out of a desire to punish themselves for "not being good enough." If people see no worth in themselves, they will have a difficult time in wanting to improve their health through a change in diet. The desire for good health often indicates a developing positive self-image. Many people suffer from feelings of inadequacy or inferiority. They do not feel they deserve optimum health. What we need to realize is that radiant health and well-being is a birthright of all human beings. Each of us deserves to be totally healthy in mind, body and soul, and we must regain this birthright through proper nutrition and a positive emotional attitude.

4.1 Affirmations

Along these lines, the use of affirmations and meditation can be useful in developing the positive emotional environment we need for making these changes in our diet and in our lives. Affirming the qualities we wish to develop within ourselves is a powerful method for overcoming past emotional conditioning. For example, if we have weak willpower in resisting destructive foods, we can say to ourselves daily:

> I am strong in will and restraint.
>
> I eat only those foods good for me.

These statements are called *affirmations*. An affirmation is simply a *positive statement we make about ourselves*. By using these positive statements, you can affect many changes at the emotional and mental level.

You should devise the affirmations that are suitable for you at a particular stage in your life. It is important that you state the emotional qualities you desire in a positive manner. For instance, instead of saying, "I will not worry," it is better to state: "I am calm, serene and centered." It is also beneficial if these statements are phrased in the present tense, *as if they are now occurring*.

These affirmations may be written daily or they may be repeated silently or out loud. Casually they should become a part of your daily life for several weeks to work effectively.

Affirmations are not magical, nor are they simply "self-hypnosis." They are an effective method for surrounding yourself with a positive environment and a healthy mental state in which to grow. They allow you to assume responsibility for your own emotional health, and they serve as a direct means of activating your latent powers. They are a form of a personally devised self-therapy that have only positive, nonharmful results.

Affirmations are the link between our conscious mind and our hidden emotions. As we consciously direct our energies toward a desired quality, we tend to attain that goal. If affirmations are used regularly and in good faith, we can rapidly outgrow those harmful emotional states that hinder our personal growth.

4.2 We Alone Are Responsible For Our Mental and Emotional Health

In 1865 Louis Pasteur made a discovery that is the basis of the "germ theory" of disease. This theory of disease suited modern man's ego quite well. No longer did he have to blame himself for the sicknesses caused by his own transgressions of the natural laws of health, but he could instead blame the germs that invaded his body.

The germ theory effectively shifted man's own personal responsibility for his health onto the shoulders of the medical profession who knew how to kill the offending germs. Consequently, man soon perceived his own personal health as something that was no longer in his hands.

This type of thinking asserts itself in other areas as well. If we feel mad or out of sorts with the world, it is always the fault of our parents, our spouse, our boss or the government. Somebody or something causes our emotional and mental problems. It surely isn't us, we think.

This desire to blame the failure of interpersonal relationships, or even complete emotional and mental breakdown, on "outside" factors such as hidden stress, poor home environment, etc., also allows us to shift the responsibility away from ourselves and to some other person or event. As a result, we seek outside help for these problems in the form of therapists, counselors, psychiatrists, etc.

The fact is, however, that a body that is properly cared for with good nutrition is able to withstand the major causes of emotional and mental illnesses, just as it is able to withstand the major causes of physical diseases.

If we assume responsibility for our own health and supply the body with the highest life-giving nutrition, we can also insure ourselves the peace of mind and stability of emotions that allow us to withstand stress and the other causes of mental and emotional illnesses. A properly nourished person can withstand factors that might provoke mental or emotional outbreaks in less-well-fed people.

In an article on marriage failures, Dr. Cecilia Rosenfeld stated: "One of the prime causes of marital discord—nutritional deficiency—is too often overlooked. In my own practice, I have found that, in a surprising number of broken marriages, spouses suffered from a blood-sugar imbalance. Many of those husbands and wives showed symptoms of irritability, violent temper, abnormal sensitivity and extreme fatigue. Corrective nutritional guidance dispelled these unpleasant symptoms for many spouses—and in the process, often bolstered their crumbling marriages."

Along the same line, Dr. Joseph Nichols, president of the Natural Food Associates, wrote: "The unhappily married are often suffering from dietary deficiencies more than from the kind of social incompatabilities traditional therapists seek to explore."

Blaming our problems on a demanding boss or argumentative spouse then is somewhat akin to ascribing all our physical problems to invisible germs. If we desire good mental and emotional health, we must work for it and assume full responsibility for this facet of our well-being as well. We must create the proper conditions for mental and emotional stability through proper diet and nutrition. This is where an optimum diet helps.

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5. The Optimum Diet For Mental And Emotional Health

At this point, it is useful to summarize what we have learned so far about the relationship between nutrition and the mind and emotions in order to determine what constitutes an optimum diet.

First, to insure mental and emotional well-being, the diet must supply all needed nutrients in the form of unprocessed whole foods. Nutritional supplements are useless; they cannot be effectively used by the body and cannot be used to fill in nutrient gaps caused by a poor diet.

Second, all "foods" (nonfoods) that rob the body of nutrients must be eliminated in order to maintain the nutritional balance crucial to mental and emotional stability.

Third, foods that leave heavy toxic by-products in the bloodstream must not be eaten if we wish to avoid poisoning our body and our mind. Even small amounts of these toxins are enough to induce depression in most individuals.

Fourth, foods should be eaten in a harmonious environment with a calm, relaxed disposition.

Finally, foods should be eaten out of true physiological need when hunger is present. They should not be eaten as emotional substitutes, for stimulation or as a means of "escape."

Perhaps the most pressing need is the elimination of all nonfood' items from the diet. These nonfoods include white sugar, white flour, alcohol, salt, condiments, and all heavily-processed foods. These foods alone are the major causes of mental and emotional illnesses, and they perform no positive function in the body whatsoever.

Most, health-minded individuals and health-oriented dietary systems condemn these nonfoods as explicitly harmful. Nonfoods are indefensible from the standpoint of good nutrition and must be immediately eliminated from our diet if we wish to regain our natural mental and emotional stability.

The second priority is the elimination of all foods that leave toxic by-products in the body. Some of the foods which leave toxins in the body are: all foods with chemical additives and preservatives, meats, eggs, dairy products, herbs, artificial and preserved foods, fried foods, cooked foods and certain noxious vegetables such as onions, garlic, etc.

For those people who have not yet adopted a vegan diet (that is, a diet free from meat and all animal products), it is of extreme importance to eliminate all foods containing additives, preservatives, etc., in order to decrease the toxic overload that eating animal products produces. Animal products, and meat in particular, prevent full mental tranquility due to the amount of toxins both naturally contained in them and artificially added to them.

In addition to following a vegan diet, the amount of cooked food should be decreased and eliminated. Eating cooked foods results in a state of mental lassitude and deprives the body of the full nutrient range contained in the foods. For a remarkable state of mental clarity, a raw food diet is highly recommended.

What we discover after examining the above observations is that an optimum diet should consist primarily of the following foods: fresh fruits, vegetables, nuts, seeds and sprouts eaten in an unprocessed state and in an harmonious environment.

These foods provide a full range of all needed nutrients; they leave little or no toxic by-products in the body; they do not result in body loss of any nutrients; nor do they upset the body's natural nutritional balance. They provide the foundation for total physical health and promote an optimum state of mind and excellent emotional health.

These foods alone will not guarantee total well-being—no diet can do that—but they will give us the needed foundation for mental and emotional health.

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6. Questions & Answers

Whenever I'm depressed, I just want to eat and eat. I know it's bad, but what can I do to stop this?

> First, it's important to realize that most depression is caused by a morbid preoccupation with the self. You need to "get out of your self" to effectively combat depression. Food is just a way of trying to distract yourself from your depressive thoughts. Instead of eating, I suggest that you exercise vigorously. It has been discovered that intense activity, such as running and other exercise, is an effective way to deal with depressive tendencies. Also, you can tackle a chore that you have been putting off, or just try to help out another person. These are much more positive ways of dealing with depression than moping and eating.

I'm a businessman and I have to take clients out to lunch. I try to sell them on my ideas and I usually get a bad case of indgestion. What do you think?

Unfortunately our society tends to make eating into a business or a required social affair all too often. If you must conduct business while eating, then I would suggest that you make sure you choose foods which are easily digested, such as salads or fruits. In addition, concentrate on the actual chewing of each mouthful of food. If you direct your attention as much as possible to the physical sensation of eating, you will be more relaxed as you eat. Always eat lightly and in small quantities if you must dine in a potentially tense situation.

I'm a little overweight and I resent you implying that it's because of an emotional problem. My mother and grandmother are also overweight, and it just runs in the family. I've been told it's glandular.

It's interesting that people think fat may be inherited or that it is "natural." No animals other than humans are obese. No other animals experience glandular disorders that cause weight gain unless they were fed an inadequate and unnatural diet. It is true that obesity runs in the family, but this is because poor dietary habits are transmitted from parent to child—not because of some predisposed glandular condition. True, you may not feel emotionally "sick," although resentment itself is not a healthy motional reaction, but your weight problem will make it difficult to maintain a high level of emotional well-being. As an experiment, why not fast for a few days and then adopt the optimum diet. I guarantee you that your "inherited glandular problem" will disappear and that you will not suffer from weight problems again.

Sometimes I find myself crying a lot for no apparent reason. Can a diet cause this?

A diet that radically affects the blood-sugar level can certainly make a person easily moved to tears land breakdowns. If you will eliminate all sugar, caffeine, nicotine and alcohol from your diet, you will most likely experience a lot more emotional stability. Blood sugar quickly normalizes on a natural diet with none of the above-listed artificial foods.

Sometimes I follow a good diet for days at a time, and then I just go on a binge and eat all those yummy foods I've been denying myself. I feel bad afterwards, and I want to stop this pattern.

The most important thing is to first stop thinking of those harmful foods as "yummy" or that you are "denying" yourself of them. Chocolate ice cream, candy bars, pies, pastas, etc., are not treats—they are poisons. You have been conditioned to think of them as reward foods. They harm your body and result in your feeling bad after you eat them. When you try to stay on a good diet, do not be too hard on yourself. We all must unlearn a lot of harmful emotional associations with foods. Most people occasionally feel that they simply must have that "forbidden food." When you get these feelings, stop and look at your emotional state. Are you anxious? Nervous? Worried? If you are experiencing any negative emotional state, stay away from the food you are craving. The craving is a sign that you are trying to use the food as a substitute for facing your emotional problems.

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Article #1: About Emotions And Health By Marti Fry

Herbert M. Shelton, the father of modern Natural Hygiene, wrote an article entitled "Emotions and Health" for his magazine, *Dr. Shelton's Hygienic Review*, in October of 1978. He describes the relationship between our mental and emotional states and our physiological processes, especially the process of digestion: "Under emotional stress, any or all of the digestive secretions—saliva, gastric juice, pancreatic juice, intestinal juice, bile—may be checked, and the digestion in process when this inhibition occurs is temporarily, at least, suspended."

Dr. Shelton says the reason digestion is checked during stress is because the manufacture and flow of the secretions needed in the digestive process depends upon nerve energy. Nerve energy "is transmitted to all the organs of the body through an intricate network of nerves. *Emotional stress or shock interferes with both the generation and transmission of nerve energy.*" (Italics are ours.)

He goes on to say: "If the shock or strong emotion comes when eating is in progress, there may be a sudden loss of desire for food and eating will be discontinued. In many cases, great grief, fear, or shock will result in the food in the stomach being vomited. It is not likely that emotions check the actions of enzymes that have already been poured out upon the food in the stomach and intestine, but they inhibit the secretion of added juices that may be needed. Certainly the muscular activities of these organs are inhibited or suspended.

"This impairment of digestion will last during the entire period of shock or strong emotion and until nervous balance is restored. If enervation is profound, reaction may be slow in developing so that the undigested food undergoes fermentation and putrefaction. *Next to overeating and wrong eating, mental influences cause most of the digestive impairments with which people suffer.*" (Italics are ours.)

"These functional impairments eventually result in organic change. Organic changes are endings resulting from repeated toxemic crises."

After explaining the relationship between the emotional-mental condition and bodily processes such as digestion, Shelton tells us how we can use this knowledge. "Our Golden Rule is this: If not comfortable in both mind and body from one meal to the next, miss the next meal. If you are worried, apprehensive, grieved, angry, jealous, depressed, irritable, grouchy, petulant, fearful, or otherwise mentally distressed, wait upon the recovery of poise before eating. This is as important as not eating when in pain or when there is fever. It is as important as not eating when fatigued. Good digestion depends upon emotional poise."

Shelton also advises us that we are better off eating light, easy-to-digest foods such as fresh fruits than heavier foods, such as proteins (flesh or even nuts or seeds) or starches, when we anticipate the possibility of upcoming emotional or mental stress. He says that, to avoid discomfort and poisoning from undigested or partially digested food in our system, "there are times and occasions when we should not eat at all. If we anticipate a shock to our nervous system or if one is unavoidable, we will find it much wiser to meet the emergency with an empty rather than with a full stomach."

However, it's not just to avoid temporary discomfort that we should refrain from eating or eat very lightly during or in anticipation of a stressful situation. We should follow this rule for the sake of our long-term health also. Not only is digestion inhibited during stress1, but so is excretion (elimination). Continuous or frequent mental or emotional stress, "by inhibiting the functions of life—secretion and excretion—build chronic disease." Shelton recommends that we "free ourselves of our *imaginary troubles* and ingrowing grouches or learn to control our eating." He stresses the following point: "To cease eating, to miss a few meals at exactly the right time—the psychological moment—thus avoiding indigestion and the resulting poisoning, will do more to prevent illness than almost anything else that may be named. It is important, therefore, that we learn to adjust our living habits and particularly our eating habits to our mental stales."

Dr. Shelton says that a "big reason why so many epidemics of colds, tonsilitis, diptheria, measles, scarlet fever, etc., follow so closely upon the heels of the holiday season" is because a large quantity of the least wholesome foods are eaten during a time of great excitement. He says, "Overexcitement and overeating build a septic state of the Prima Via, poisoning the entire body." In the words of Dr. Weger, a medical doctor turned Hygienist, you are "either poised or poisoned." He was, of course, referring to the retention of wastes during stress. Dr. Shelton says, "But, if there were no other evil effects of overworked emotions than that of checked or inhibited digestion, this alone is quite enough to result in disease. The ductless (endocrine) glands have their functions disturbed by the emotions, so that the whole process of nutrition is impaired."

While a balanced mental state and a calm emotional disposition often reflect a healthy physical condition and wholesome attitudes toward self, others, and life, poise is also necessary in order to maintain a high level of physical health. When great excitement or stresses do exist in our lives, however, let's follow Shelton's "Golden Rule" and miss the next meal. Let's remember that "good digestion depends upon emotional poise."

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Article #2: Fruitarianism For Health And Long Life By Dr. O.L.M. Abramowski

Great as the improvement is in my bodily condition, the change for the better in my mental and intellectual faculties has kept pace with it. My father, when past fifty years, became a hypochondriac and also looked at life from a very gloomy point of view. When I approached the half century, I too, developed this pessimistic inclination, and I had quite accepted my fate—that I was to be an outspoken hypochondriac.

I was dissatisfied with myself and my surroundings and gave up the hope of ever reaching a better condition. Every year onwards seemed to prove to me certainly that life was not worth living!

Especially did I notice this despondent mood on awakening in the morning, when sometimes an actual fear of impending disaster would get hold of me and render my life absolutely miserable.

All this is gone now; hypochondria and despondency are long left behind. Out of the pessimist preparing for death has developed an irrepressible optimist who feels he should live a full century and spread the joyful gospel of health and rejuvenation among suffering humanity with all his youthful vigour and endurance.

Intellectually, the improvement is just as marked—my memory is vastly improved and I can concentrate my thoughts now as I never could before. Out of a decided follower of authority, public Vaccinator, etc., I have developed into a self-thinking critic, an intellectual seeker after truth. I have been able not only to get rid of an incalculable amount of old and erroneous ideas, but to go in for quite a few fields of study and observation with a zest and interest I had not known since my days at the University:

Time never hangs heavily now; all my different occupations, studies and enterprises are treated with the same absorbing interest. Still, I find time for play and exercise with the very fascinating babies in my family and for a social chat with friends in the evening. I have no fear of any disease nor any common everyday accident, as I now know my body creates the disease and is quite able to cope with accidents. I make my plans with the firm conviction that many useful years are yet in store for me and that mine should be a green old age with a quiet, painless death as the closure of my visible existence when the doors open into Life Eternal.

Article #3: The Mind-Benders by Kecki R. Sidhwa, N.D., D.O.

When people show symptoms of mental instability or mental sickness, we invariably swallow the old gobbledygook that modern psychiatry with its drugs, injections, electric shock treatments, prefrontal lobotomy or psychotherapy a la Freud, Jung or Adler will right all the wrongs in a few short sessions. But if the truth be told, and it's time we were told the truth, psychiatry as practiced today is falling apart at the seams.

Both psychiatry and psychotherapy are branches of orthodox medicine. Medicine was once based mainly on magic and still is. Plato, the Greek philosopher, believed that the womb or hysteros had a strong desire to produce children. If it remained sterile for long after puberty, it became temperamental. It started to flow around, and hysteria was attributed to this cause. Hippocrates (the so-called Father of Medicine) prescribed valerian to drive the womb back to its rightful place. In England some physicians still prescribe a mixture of valerian and bromide as a treatment for mentally depressed women. Valerian is a depressant!

Another example of physician—and drug—induced mental and emotional problems was observed in a survey. People who had taken barbiturates for one year or over had chronic psychiatric and physical complaints and made increasing demands for barbiturates. Barbiturates make people more anxious and more depressed in the long run.

Harry Solomon, a professor of Psychiatry at Harvard University, banned all barbiturates, and his patients became much more competent. It has been suggested and suspected that the taking of barbiturates addles the brains of young human embryos and affects the intelligence of the child. Yet, hospitals, doctors and psychiatrists prescribe these drugs in order to "cure" depression, insomnia and anxiety. Treatment by drugs is nearly always assumed to be good, both by the physician and the public, until proved otherwise—this takes some proving and some time—meanwhile the damage has been done.

That mental and nervous disorders spring out of our misbehaviour in life and unnatural living habits, as much as physical disorders, has to be drummed into the minds of the public as much as into the medical profession. Bad nutrition; lack of exercise; polluted air; lack of sunshine; insufficient rest and sleep; enervation; and mental and emotional habits; and the taking of drugs, medicines and social poisons like tea, coffee, chocolate, cocoa and alcohol, all lead to toxemic tissues, resulting in breakdown of brain cells and nervous tissues.

Instead of dealing with these primordial causes of our lack of well-being, the medical profession doles out pills and/or so many sessions on the analyst's couch, both causing further trouble, apart from waste of time and money.

No one knows how much illness and death is attributable to alcohol. The middle-course alcoholic has nearly four times as much sick leave from work as does an average person, and his life expectancy is reduced by ten or twelve years compared with the average. In Britain, about 1% of the population, i.e., nearly 350,000 people, are alcoholics, and a quarter of these show mental and physical deterioration. In America, the percentage is higher, 47%. Psychiatrists, with all their panhandling of substituting one stimulant for another, one drug for another, are unsuccessful at stopping people from drinking. So far, physicians have been more successful at causing addiction than at curing it.

The blame for drug addiction of all kinds can and should be rightly laid at the door of:

1. Physicians and the orthodox medical profession for lulling us into a false sense of security by drug dependence;
2. The manufacturers of drugs, alcohol and other poisons; and
3. The government which tolerates and even encourages sale of these commodities.

Drug companies are not charitable institutions. Our aches and pains, our mental discomforts and our insomnia are their gold. Not surprisingly, their most profitable drugs are those that have the public gently but surely hooked on taking them, as they ensure a regular and enthusiastic clientele. The drug companies, the breweries and the tobacco companies all exploit our addiction to various chemicals. The mind-bending process, already started from early childhood, gets its final coup de grace with the stress, strain, rat race, and political and social injustices of our modern-day society.

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Lesson 17 - Exercise And Its Beneficial Role In Nutrition And Digestion

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1. The Philosophy Of Exercise

In order for health to be achieved and maintained, there must exist a proper balance between rest and activity. As certainly as rest follows exertion, so too must activity follow repose. It is on our own two legs that progress, growth, and true health are achieved. If we rest too much and do not balance our rest with the proper amount of physical activity, we can never achieve and maintain our true health potential.

Normal physiological functioning within the human body is dependent upon nutrition, drainage, warmth, and freedom from violence. In order to insure proper functioning for all the cells, body fluids should be in perpetual motion. Exercise is essential in maintaining this grand vital circulation and in giving tone to all vital functions and perfection to all vital changes. It also secures a proper supply of blood to every part of the body, keeps the lymph moving normally and maintains the general health of the entire system. Exercise serves to strengthen and nourish all the various organs and systems of the body. It is, in fact, the most important component of the Hygienic regime for developing vital tonicity for the entire body. When exercise is neglected, all the various muscles, organs and glands and the circulatory and respiratory systems become weakened and sluggish, leading to a decrease in physiological efficiency.

Exercise is much more than simply developing strong muscles. It is body building in the complete sense of the term. Every cell and fiber is involved. The heart, kidneys, liver, skin, hair, eyes, etc., including the brain and nervous system, are stimulated and strengthened in these various functions. The tone and quality of the entire system is improved. The skeletal system, for example, depends upon exercise in order to maintain its size, strength, and physiological functions.

When a part of the skeleton is placed in a cast due to a fracture, muscle tear, etc., in order to prevent further damage and allow time for healing, the bone and surrounding musculature begins to atrophy, reducing the size and strength. However, when the cast is removed and motion is once again possible for the area, the muscle and bones respond by regaining their normal structure and function The development of respiration; the powers of digestion and assimilation; and the strength of the heart and efficiency of elimination depend largely upon physical exercise. The blood and lymph improve, respiration is deepened, and the lung capacity is increased through exercise.

When a specific part of the body is put into action, the body responds by sending more blood, nutrients, and nerve energy to that part. This response leads to overall improvement in the nutrition and drainage of the particular part involved. As the metabolism is increased, there is a consequent improvement in the tone and qualities of the tissues involved. Exercise is the most effective and efficient means for bringing about this result throughout the entire system.

The main concept for understanding the philosophy of exercise is: If we do not exercise, muscles begin to lose their tone, becoming weak and flaccid. In time, these muscles can atrophy to the point of wasting away. This same situation is true for the entire body. Not only do the structural parts of the body suffer from lack of exercise, but their function is impaired as well. By an irrevocable law of life—growth, development and strength of mind and body are acquired through exercise. Exercise is as essential to physical vigor, strength and development as air is to life. Exercise is cumulative in its benefits. If practiced correctly and consistently, strength and endurance along with coordination and agility become our reality. Posture is improved, which assures a correct relationship between the bonqs, muscles, organs and all other tissues of the body. A dimension of grace and poise along with an increase in beauty and symmetry is established and maintained. Most importantly, an overall feeling of joy and happiness from living life to the fullest is experienced. Exercise causes muscles that are tight and tense to be stretched, adhesion to be broken up, and nerve energy to be balanced and improved. It hastens the absorption and expulsion of various growths and deposits. Because of the intimate relationship between mind and body, the benefits derived from exercise on a physical plane also improve the qualify of the mind.

The effects of different exercises upon the body are extremely varied. Certain exercises develop great strength, others improve our endurance, agility, flexibility, speed, etc., but no one exercise can do it all. Therefore, it is very important that our exercise program be diverse enough to achieve all the benefits.

If deformity is to be corrected, one can learn specific exercises which will aid in correcting the problem. Some of the various deformities which benefit from corrective exercise are: round or stoop shoulders, spinal curvatures, innomonate abnormalties, bow legs, knock knees, club-foot, flat feet, various organ deficiencies, etc. These types of corrective exercises should only be performed under the watchful guidance of a skilled instructor.

Where a person is suffering from some chronic ailment or recuperating from acute symptoms, exercise can play an important and vital role in restoring the individual back to health.

At one point during the history of man, our ancestors were forced to produce great amounts of physical exertion in order to survive. But as civilization has grown and developed, and with technology creating more sedentary jobs, a large proportion of society now reaches maturity without experiencing a great deal of physical exercise. As a result, America has become a nation of fat and flabby weaklings, growing old prematurely and suffering a great deal from the ill effects produced from physical inactivity. Whereas more and more individuals are leading sedentary lives behind a desk, others are forced to overwork their bodies, thus creating injuries. Along with this imbalance, the ever-increasing specialization in work is leading to overuse of some parts of the body and neglect of other parts. As a result of this imbalance within our society, some substitute for the work of securing food, defending property, running from predators, etc., must be created. For it is nature's will that we have exercise. Nature will remove the muscles and render any limb entirely useless that has ceased to exercise. But if we begin to make efforts in restoring the integrity of the inactive body part, nature will once again restore what she originally took away.

Society today is geared towards the development of the intellect. The prevailing feeling today is to ignore physical culturing simply by covering it up with stylish clothing and gaudy cosmetics. However, we need only to open our eyes and compare the soft, flabby, unshapely bodies of the average adult with the fine symmetrical bodies of the well-developed man or woman to realize where true ugliness lies. There is no beauty or joy in beholding a skinny, malnourished physique or a fat barrel-shaped torso that is the rule and not the exception of present day society. We idolize the creative, witty, and intellectual giants of our society, ignoring the fact that they are often weak and sickly individuals. Although we should give credit to these intellectuals for their achievements, many of these people develop their mind while ignoring their body. No one can give his best intellectual ability to the world if his body is not functioning properly. The thought of our world leaders sitting around a table, smoking, drinking, and eating constantly while deciding the fate of the world is extremely frightening. This human body of ours is responsible for carrying on the works of nutrition—digestion, assimilation, disassimilation and excretion of waste. If any of these functions are impaired, the brain, which is the organ of the mind, is also impaired.

The importance of keeping the body at a high degree of physical perfection while obeying all the laws, rules and requirements of nature is of greatest necessity. Our full potential can only be achieved when a powerful intellect is backed up by a powerful physical body — a body where the organ and tissues are strong and vigorous enough to sustain the mind, even during its most strenuous activity.

As has already been mentioned, there is a normal and inseparable relationship between the mind and the body. When there is an imbalance between these two, then the potential of both suffers. Nature has joined them together in a bond that is intimate and very delicate. The mind is dependent upon the body not only for its nourishment from the blood, but for the sensory stimulation it provides through the eyes, ears, nose, skin, and tongue. Nature has inseparably harnessed body and mind together so that they pull together in perfect concord. So long as they are allowed to do this, only good can come.

The importance of exercise can never be overemphasized. As practitioners of Natural Hygiene, you must always make your clients aware that complete health will never be maintained without regular exercise. Many schools of so-called natural healing spend a great deal of time on diet, vitamins, herbs, and techniques of body manipulation, but few ever deal with the value of exercise. Perhaps it is because the concepts and truths are too simple and not esoteric or sophisticated enough for these intellectually-oriented approaches. The philosophy of Natural Hygiene embraces the simple truths of life, and recognizes that life is motion and that we soon lose that which we don't use. As this lesson progresses, we will discuss in more detail many of the benefits derived from exercise. The fact that exercise decreases nervous tension, increases the clarity of the mind, leads to more efficient use of organs and systems, produces more power, endurance and flexibility, etc., makes it a very important component of the Hygienic system.

Exercise, as an integral part of Hygiene, must be considered in wholistic terms. Whatever forms of physical culturing we are involved in, it must influence the entire body in a balanced manner. The weight lifter who engages only in that activity but not in any other form of physical activities will have highly-developed muscles but a poorly developed cardiovascular system.

In order to insure a balanced program of physical conditioning, three types of exercise must be utilized. These are contraction, stretching, and aerobic exercises. Each type is unique and provides benefits not offered by the other two. In proper combination, these three types of exercise will provide the essentials for developing a strong, healthy body.

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2. Effects Of Exercise On The Bodily Systems

2.1 Musculoskeletal System

Like most animals, man is endowed with the ability to move in relationship to whatever situation arises, as well as the ability to move different body parts in relation to each other. As a result, we are capable of maintaining various postures and counterbalancing the effects of gravity. We are also capable of transferring mechanical energy to the outer world by doing work as well as by absorbing various mechanical effects. These skills are the result of the ability of the skeletal muscles to transform chemical energy into mechanical energy during their contractions.

The human body is composed of many different individual muscles, each with its own particular job to do. From a functional point of view, however, the mass of skeletal muscles in the organism may be looked upon as one large organ of movement, which constitutes about 40% of our total body weight. The reason for this consideration is that most activities, especially those connected with more vigorous activities such as athletics, are the result of the integrated activity of nearly all the muscles in the body. Thus, as Hygienic practitioners, you should develop exercise programs that will utilize all the various muscles. A program that includes stretching, contracting and aerobic exercise will fulfill this requirement.

Though the skeletal muscles function like one large organ, the instantaneous distribution of activity is continuously changing as the individual muscles are called into action or released into passivity, depending upon how our central nervous system responds to the particular activity.

Individual muscles, in most cases, act as a functional unit with other similar muscle groups. These groups are usually categorized as *flexors*, *extensors*, *supinators*, etc. In most situations, it is possible to determine one or a few prime movers. These prime movers are then assisted by *synergists* and are controlled or stopped by antagonists that are placed on the other side of the instantaneous axis of movement. So even though it is anatomically possible to define individual muscles, a functional or physiological subdivision of the individual musculature is not possible.

The skeletal muscle is made up of a series of different sense organs: mechanoreceptors, thermoreceptors, pain receptors, etc. Of these, only the mechanoreceptors have been thoroughly studied. The two major mechanoreceptors are the muscle spindles, situated in the center of the muscle, and the Golgis tendon organs located within the tendons.

All skeletal muscles in the body are made up of numerous muscle fibers. In most muscles these fibers extend the entire length of the muscle. Each muscle fiber is enervated by a mixed nerve (motor and sensory) located in the middle of the fiber. Each muscle fiber contains several hundred to several thousand myofibrils. Each myofibril in turn is made up of myosin and actinfilaments, which are specific protein molecules responsible for contraction. The myofibrils are suspended inside the muscle fiber in a matrix ailed sarcoplasm.

The muscle spindles are suspended in a network of connective tissue that is parallel with the muscle fibers. During exercise, the skeletal muscles are continuously undergoing lengthening and contraction. When a muscle fiber is lengthened, sensory impulses are generated and the muscle spindle becomes excited. On the other hand, when a muscle fiber is contracted, the effects of the muscle spindle become inhibited. This response of the muscle is known as the dynamic stretch reflex.

The dynamic stretch reflex is caused by the potent signals originated from key receptors located in the muscle spindle and transmitted by the primary nerve endings of these same spindles. When a muscle is suddenly stretched, a signal is transmitted through these primary endings to the spinal cord and will continue as long as the degree of stretch increases. The end result is a reflex contraction of the same muscle from which the muscle spindle signals originated. Thus a sudden stretch of a muscle causes reflex contractions of the same muscle returning the length of the muscle back toward its original length.

The muscle spindle is also responsible for the "negative stretch reflex." When a muscle is shortened (contracted), exactly the opposite effect of the dynamic stretch reflex occurs. Upon contraction, the muscle spindle becomes inhibited, thereby discouraging the further shortening of the muscle. Thus the negative stretch reflex opposes the shortening of the muscle in the same manner that the positive stretch reflex opposes lengthening of the muscle. Therefore, it is the muscle spindle reflex that maintains the relative length of a muscle.

The Golgi tendon is entirely an inhibitory reflex and functions exactly opposite from the dynamic stretch reflex. Located within the muscle tendons (that portion of muscle which attaches to the bone), the Golgi tendon is stimulated by relative muscle tension. This is different from the muscle spindle, which is responsible for detecting relative muscle length. The Golgi tendon detects tension transmitted into the spinal cord causing reflex effects on the specific muscle involved. When muscle tension becomes extreme, as in extreme physical exertion, the inhibitory effect from the Golgi tendon organ can be so great that it causes reaction and is a protective mechanism which prevents tearing of the muscle from its bony attachment.

The following points should not only help in summarising what has just been discussed, but should also provide a conceptual picture of the role of skeletal muscles in exercise.

1. Skeletal muscles allow the organism to adapt to whatever situation arises in the environment.
2. The muscular system helps to maintain proper physical posture as well as counterbalancing the negative effects of gravity.
3. The muscular system is composed of many different individual muscles. Depending upon what their duties are. They are either flexors, extensors, supinators, provators, etc. These muscles function in groups. Depending upon what activity is taking place, one or two muscles are the prime movers. Other muscles support the prime movers as synergists and yet other muscles provide antagonism that balances the prime movers. During most physical activities, the skeletal muscles of the entire body continually function as an integrated unit.
4. The skeletal muscles are intimately connected and are directly dependent upon the smooth functioning of the entire nervous system. In order to maintain the nervous system, attention must be given to all the areas of Hygienic living. Poor nutrition, lack of rest, etc. lead to an imbalance in proper regulation of nerve force, leading to a decrease in vital energy and less effective mechanical activity.
5. The sense organs of the musculoskeletal system provide the means by which the tone of the muscle is maintained. These organs provide the means to insure the maintenance of muscular stability by providing the necessary information for either contraction or relaxation of the specific muscle.

It is important to look at the muscular system in a wholistic manner. Though it is possible to develop individual muscle groups with specific exercises, this can only cause an imbalance with various other muscle groups that are not simultaneously developed. Therefore, it is important to provide a balanced and consistent exercise which will provide the necessary strength, flexibility and endurance to the entire muscular system. The end result will be a muscular system that is highly developed and functioning in harmony with all the other systems of the body.

The functions of the skeletal system are complex and varied. Besides providing a structural frame that muscles, nerves, organs and all other various tissue can surround and attach to, the skeletal system provides storage for many nutrients and produces blood cells. Bone tissue continually undergoes a process of bone destruction and repair. Large osteoclastic cells are continuously engaged in destruction of bone cells and osteoblasts continuously repair the damage.

According to Wolff's law, bone develops its greatest strength along the lines of greatest stress and strain. An increase in physical activity stimulates osteoblastic (building) activity, while a decrease favors an increase in osteoclastic (destructive) activity. In this manner the osteoclastic cells are encouraged to remove the useless bony structures and osteoblasts are stimulated to replace them with stronger bone in the region where greater strength is required. The more activity an individual individual engages in, the stronger and more durable the skeletal system becomes.

In our society, as an individual becomes older, his or her level of physical activity dramatically decreases. As a result, the bony structure begins to demineralize, leading to a weakening of the entire structure. As the individual becomes weak and feeble, the bons may begin to spontaneously fracture. Had the individual maintained his or her exercise program, he or she would not have become dependent upon others to provide the movements no longer available to him.

2.2 The Respiratory System

2.2.1 Basic Mechanisms of lung expansion or contraction

The lungs can be expended and contracted by (1) downward and upward movement of the diaphragm to lengthen or shorten the chest cavity and by (2) elevation and depression of the ribs to increase and decrease the diameter of the chest. Inspiration takes place when the diaphragm contracts, pulling the lower boundary of the lung cavity downward, increasing its longitudinal length. Expiration takes place automatically when the diaphragm relaxes, allowing the elastic recoil of the lungs to draw it back upward. During normal inspiration, respiration takes place simply by contraction of the diaphragm. However, the mechanical means by which respiration takes place during exercise is a little more involved.

As we've already mentioned, normal inspiration takes place principally when the diaphragm contracts, thereby pulling and lengthening the lungs. This creates a lower pressure in the lungs that is automatically filled by the higher atmospheric pressure outside the body. Usually, expiration is an entirely passive process; that is, when the diaphragm relaxes, the elastic structures of the lungs, chest cage, and abdomen force the diaphragm upward.

During exercise, a greater demand is placed upon the mechanical structures of respiration. More muscles come into activity in order to increase the amount of oxygen now needed by the rest of the body. During inspiration, not only does the diaphragm contract, but muscles from the chest, neck and spine also contract and aid in the process. Expiration is no longer passive; it is aided by contractions from the abdominal muscles as well as from the lower rib muscles. From a mechanical point of view, if these various muscles are not strong and capable of functioning efficiently and effectively, the tissues of the body will not be supplied with sufficient amounts of oxygen during exercise.

2.2.2 Diffusing capacity of respiratory membrane

During respiration, oxygen is taken into the lungs from the atmosphere. In the lungs oxygen is exchanged with CO2 (waste product from cell metabolism) from the bloodstream. The oxygen is carried to all the tissues in the body in order to nourish and provide the necessary component for developing energy necessary for cell functioning. The overall ability of the lungs to exchange gases from the blood is expressed in terms of its diffusing capacity. In the average individual, the diffusing capacity for oxygen under resting conditions averages about 21 milliliters/minute. However, during strenuous exercise, the diffusing capacity for oxygen increases to about 65 ml/minute, or three times the diffusing capacity under resting conditions. In order for this to happen, three bodily functions must take place:

1. More blood vessels must become available, thus creating more surface area for the gaseous exchange between the lungs and the blood.
2. Dilation or expansion of all blood vessels.
3. Stretching of the lung surface responsible for gaseous exchange, thus making the walls thinner for gas exchanges and increasing the surface area.

The more an individual exercises, utilizing increased respiration, the more efficient the diffusing capacity will become. During rest or slight activity, only a small portion of the lung is used, resulting in a significant portion becoming dormant. The same holds true for the circulatory system where a significant number of blood vessels are not utilized. This disuse will lead to a decrease in the ability of the system to provide the necessary oxygen for the tissues even during the slightest degree of activity.

During strenuous exercise, the average individual may require as much as 20 times the normal amount of oxygen. Due to the increase in cardiac output, however, the time that blood remains in the area of gas exchange is greatly reduced. As a result, the oxygenation of blood could suffer for two major reasons: the blood remains in contact with the lungs ,for shorter periods of time, and far greater quantities of oxygen are needed to oxygenate the blood. However, the blood is almost always fully oxygenated when it leaves the lungs even during the heaviest of exercise, due to two major factors:

1. As we've already mentioned, the diffusing capacity for oxygen increases about three fold during exercise.
2. The blood stays in the lungs about three times as long as necessary for oxygenation. Therefore, even with the shortened time of exposure during exercise, the blood can still become fully oxygenated.

As you can see, with exercise, the lungs and their structural synergists become stronger, more resilient and much more efficient. More tissues in the body are oxygenated while simultaneously more blood vessels and lung tissue are utilized. The lungs are interdependent upon all the other systems of the body. Only when all these systems are functioning smoothly and efficiently can we achieve the high levels of health and enjoyment that life has to offer.

2.3 Cardiovascular System

Perhaps the single most important factor that we must consider in relation to the cardiovascular system is "cardiac output." Cardiac output is the quantity of blood pumped from the heart into the aorta each minute. Venous return is the quantity of blood flowing from the veins back to the heart each minute. Although blood can temporarily increase or decrease in central circulation, the total cardiac output must be equal to venous return. The average cardiac output for normal young males is about 5.6 liters/minute. When including all adults and females, the cardiac output is an average of approximately 10% less than that of the normal male. Since cardiac output changes with body size, the output is commonly stated in terms of the cardiac index. The cardiac index is determined by cardiac output per square meter of body surface area. The average cardiac index for adults is about 3.0 liters per minute per square meter.

When a person rises form a reclining to a standing position with the muscles becoming taut, as if preparing for exercise, the cardiac output rises 1-2 liters per minute. Cardiac output usually remains almost proportional to the metabolic body rate; the greater the degree of activity or the muscles and organs, the greater will be the cardiac output. Therefore, the work output during exercise increases in linear proportion to the cardiac output. In bouts of very intense exercise, the cardiac output can rise as high as 30-35 liter per minute in a well-trained athlete.

This is 5-6 times the normal value.

During heavy exercise, tissues can require as much as 20 times the normal amount of oxygen and other nutrients hat are transported via blood. Thus, transporting enough oxygen from the lungs to these tissues may demand a minimal increase in cardiac output of five to six times its normal value! Since this is far greater than the normal, instimulated cardiac output of the heart, several factors which will insure this massive increase of cardiac output during this heavy exercise are called into play. They are as follows:

1. Before exercise begins, the autonomic nervous system is stimulated by the thought of exercise. This stimulation increases the permissive level of the heart pumping from 10-20 liters per minute, depending upon exertion caused by the exercise. Simultaneously, extra quantities of blood are pushed from the periphery toward the heart by constricting veins and increasing systemic filling pressure. These factors may increase cardiac output as much as 50% before exercise even begins!
2. At the onset of exercise, the blood vessels of the muscles become dilated, due to the signals transmitted from the motor cortex to the sympathetic nervous system. This instantaneously increases the cardiac output. The by-product of this sympathetic activity increases heart activity, mean systemic pressure, and arterial pressure.
3. The direct effect of increased metabolism in the muscles causes an increased use of oxygen and

other nutrients as well as the release of vasodilating substances. Thus, local vasodilation and local blood flow increase tremendously.

In summary, an intricate setting of background conditions of the cardiovascular system insures the required blood flow to the muscles during heavy exercise. These conditions include increased activity of the heart muscle. The local vasodilation in the muscles occurs as a direct consequence of muscular activity and finally sets the level to which the cardiac output rises. Thus, it is mainly the muscles themselves that determine the amount of increase in cardiac output, up to the limit of the heart's ability to respond.

The heart, like any other muscle, can be strengthened or weakened, depending upon the amount of activity or exercise it undergoes. According to Starling's Law, the heart is an automatic pump that is capable of pumping far more than the normal value of 5 liters per minute of blood which returns from peripheral circulation. Thus, the primary factor that determines how much blood will be pumped by the heart is the amount of blood that flows into the heart from systemic circulation, which is greatly enhanced by physical exercise. After a certain point, averaging about 15 liters per minute, cardiac stimulation (such as the stimulation of exercise) is necessary for this increase in the permissive level to which the heart can pump. Exercise greatly increases the effectiveness by which the heart provides blood and thereby oxygen and other vital nutrients to all areas and tissues of the body.

In juxtaposition with this increase in cardiac efficiency, these vital blood pathways are cleaned out and overall circulation is enhanced. Like any muscle, when there is an increase in activity and usage, there is an increase in size or musculature enlargement. Heavy athletic training causes the heart to enlarge, sometimes as much as 50%. Coincident with this enlargement is an increase in the permissive pumping level of the heart that may be as great as 20 liters per minute (as opposed to the maximal normal level of 13-15 liters per minute). So, when exercise is integrated into each day of our lives, there is an overall long-term increase of effectiveness of the entire cardiovascular system.

In summary, exercise greatly increases the demand of blood flow to the muscles and tissues. To insure this required increase of blood flow, there must be an increase in arterial pressure and an overall, increase in the activity of the heart muscle. As a direct consequence of muscular activity, there is local vasodilation of the muscle tissue involved that sets the final level of the rise in cardiac output. This rise is vital in the insurance of muscular efficiency. The heart acts like any other muscle in that it can be strengthened and enlarged with heavy exercise or weakened by neglect. As Hygienic practitioners, it is important to realize the relevance of exercise in providing blood, oxygen and other vital nutrients, to all areas of the body and enhancing overall cardiovascular efficiency in circulation. Only with maximal cardiovascular efficiency can we maintain our strength, endurance and clarity of mind.

2.4 Other Systems

Generally speaking, during heavy exercise there is a constriction of blood flow to certain organ systems that are not as immediately involved in the physiology of exercise as are the musculoskeletal, cardiovascular and respiratory systems. The organs of the gastrointestinal tract and the kidneys in particular are affected by the detour of blood flow and energy during exercise.

2.4.1 Kidneys

Severe exercise appears to have at least two principal effects upon the kidneys: diminished urine flow, and diminished renal (kidney) blood flow. When the blood volume becomes too great, the cardiac output and arterial pressure increase. This has a profound effect on the kidneys, causing loss of fluid from the body and blood volume to return to normal. Conversely, if blood volume falls below normal with a decrease in cardiac output and arterial pressure, the kidneys retain fluid and the progressive accumulation of fluid intake rebuilds up to the normal blood volume. During severe exercise, the rise in body temperature causes increased sweat and respiratory loss of water, which intensify kidney changes.

The sweat excreted during heavy exercise contains 300-600 mg. of urea per liter (a concentrated waste product that is diluted by the kidneys to prevent poisoning of the system), thus to a considerable extent compensating for the decrease of excretion of urea through the kidneys during exercise.

During heavy exercise, there is a great reduction in renal blood flow, and a slight alteration in the filtration rate of the kidneys. The reduction of renal blood flow is progressive for at least 30 minutes after the start of exercise and is directly related to the severity of the exercise. (Chapman, 1948 a.b.).

This drop in renal blood flow can be explained by the diversion of blood to the working muscles and the brain. Recovery of renal plasma flow is considerably slower than is the recovery of pulse rate or blood pressure (Chapman et al. 1948). The resting kidney has a large inbuilt safety margin so that the renal blood flow can be drastically altered without significantly altering the functioning of kidney filtering.

2.4.2 Gastrointestinal Tract

It appears that strenuous exercise inhibits both secretory and motor functions of the stomach. Studies done by Campbell, 1928 came to an early conclusion that exercise of moderate intensity (such as running 1-2 miles slowly) inhibited both secretion of gastric juice and the rate of gastric emptying of its contents. Lighter exercise (such as walking) did not change the rate of gastric excretion and actually appeared to enhance the rate of emptying into the stomach. The amount of exercise required to inhibit gastric function varied with the physical fitness of the individual. To generalize their findings, "exercise which produced no discomfort helped digestion, and exercise which produced discomfort delayed it." These observations were extended later in the century, concluding that all types of exercise after a meal prolonged the final emptying time of the stomach more than the same activity preceding the meal. When flouroscopically examined immediately after exertion, the stomach appeared either totally inactive or had only feeble peristaltic movements. Recovery, however, was prompt and emptying was greatly accelerated during the second hour after exercise.

In summary, there is evidence that heavy exercise has certain effects on kidney functioning. The sweat excreted during heavy exercise contains a high concentration of urea, thus compensating for the decrease of urea excretion via the kidneys during exercise. When there is an increase of sweat and respiratory loss of water, there is an intense change in the kidneys. Also, during extreme exercise, there is a drop in renal blood flow due to the diversion of blood to the brain and working muscles.

It also appears that strenuous exercise inhibits both secretory and motor functions of the stomach, although the amount of exercise required to inhibit gastric function is dependent upon the physical fitness of the individual. Though exercise tends to temporarily inactivate stomach function during exertion, there is a prompt recovery and acceleration of function in the post exercise hour.

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3. The Three Major Categories Of Exercise

3.1 Contraction Exercises

Unlike the aerobic and stretching exercises, when we talk about contraction exercises we are considering primarily the development of muscular strength and endurance. Muscular strength refers to the amount of force that one can generate in an isolated movement of a single muscle or group of muscles. The greater the muscular strength of an individual, the greater the amount of force he or she will be able to generate. Muscular endurance refers to the amount of time an individual can perform a particular contraction of force, i.e., how many sit ups, push ups, curls, etc. Muscular endurance involves a specific muscle or group of muscles, unlike cardiorespiratory endurance, which involves the total body.

Muscular strength and endurance can be developed by any one or combinations of three different modes of physical contraction exercises. These forms are termed isometric, isotonic and isokinetic contractions.

Isometric training involves muscle contractions against a resistance, greater than the force that can be applied where no movement of body parts takes place. Pushing against a sturdy wall or a parked car results in contractions of the muscles involved, but will not lead to any perceptible movement of the body or the objects involved. Numerous exercises can be devised simply by applying force by different parts of the body upon common objects around the house as a source of resistance.

Isotonic training involves the actual movement or lifting of a steady resistance through the range of motion of the various joints involved. A classic example of isotonic exercise is the lifting of weights.

Isokinetic training involves a constant speed of movement against a variable resistance. The strength of a muscle varies at different angles as a result of change in the angle of pull and perspective leverages.

Thus when we lift a constant resistance, the muscle is not exercised to the same extent at the middle of its motion as it was at the beginning. In other words, if we are curling a 50-pound weight, the closer we come to completing that curl, the stronger the muscle becomes. During isokinetic training, the resistance changes to match the strength of the muscle at each point in the range of motion.

Research has shown that each of the three forms of strength-training procedures produce substantial increases in strength, power and muscular endurance. In comparing the different forms as to which offers the most complete program, very little has been written on isokinetics. This is due to the fact that it is a relatively new science and is not totally understood., So, most of the comparison is between the isometric and isotonic procedures, and is as follows:

1. Both isometric and isotonic produce substantial gains in muscular strength, with many studies indicating that isotonic exercises provide the greater gain.
2. Both muscular endurance and recovery from muscular fatigue is faster in muscles that have been trained isotonically.
3. Isometric procedures develop strength only in limited portions of the total range of motion, whereas isotonic procedures produce a more uniform development in muscle strength.
4. Isometric procedures involve no joint movements and can be safely and effectively used during the period of recovery from injury in order to prevent substantial loss of muscle size and function.

   As mentioned earlier, research on isokinetic training is limited. However, a major advantage to this form of training over the other two forms is in the area of rehabilitation. Isokinetic exercise allows the muscle to exercise through a full range of motion with varying degrees of resistance. The resistance will depend on the strength of the the muscle at different angles in the range of motion. Although more research needs to be undertaken, isokinetic procedures appear to be just as effective as either isotonic or isometric—perhaps even moreso.

As Hygienic practitioners you should keep in mind that while contraction exercises are extremely beneficial in muscle strength and endurance, these procedures do very little for the development of the rest of the systems in the body. In fact, without balancing the contraction exercises with aerobics and stretching, these procedures could even be harmful. Keep in mind strong muscles and a weak heart do not make for a good combination. Develop exercise programs that utilize contraction training one day, aerobics and stretching the next. In this way you will be utilizing different areas daily while allowing other areas a chance to recover.

3.2 Stretching

Along with the other two categories of exercise, stretching is of crucial importance. Regardless of how superb and strong a physique may appear, without proper extension and stretching of the muscle groups, there will be an imbalance of posture. Additionally, there may be a muscle-bound disequilibrium which could deter the overall well-being and mental poise of the individual.

Stretching should be done in a slow, static manner. The body itself provides necessary weights and counterweights through a variety of balanced static postures. Stretching postures must maintain proper vertebral extension. If done correctly, stretching brings steadiness, health and lightness to the limbs. A thorough stretching program exercises every muscle, nerve and gland in the body. It secures a fine physique which is strong and elastic without being muscle-bound. In turn, stretching postures reduce mental and physical fatigue and soothe the nerves. Only when the body is fit and flexible can it serve as a vehicle of mental poise. Physical abuse and bodily disuse result in atrophy and dysfunction of the delicate mind-body interactions that lend us the ability to live and function in a constant state of total well-being.

3.3 Flexibility

Flexibility can be defined as the range of possible movement without a joint or a sequence of joints. A study (Kras, H.1972) done on several hundred adults who had complaints of chronic lower back problems revealed that approximately 80% had severe muscle weakness and joint inflexibility diagnosed as the cause, while only 20% had a specific anatomical disease or lesion as the cause. Thus, there is an obvious tendency in our society to neglect the body through lack of physical exertion including stretching and flexibility exercise.

Following is a summary of some recent research done on flexibility and exercise. (H.H. Clarke, 1975-76). There is little agreement among researchers with regard to the definition and limitations of "normal" flexibility. Flexibility is highly specific and varies for each joint or joint group. Thus, the flexibility of certain joints cannot be used to generalize the flexibility of other areas of the body. Although specific data is not available, there is a relationship between flexibility measures and differences in sex and age. Although flexibility can be increased with persistent exercise, the magnitude of increase is a very individual matter and is dependent upon the specific types and forms of activity. The connective tissues primarily responsible for resistance to movement include muscle, ligaments, joint capsules, and tendons. (These terms are sufficiently defined in the definition section.)

Research, logic and experience indicate that stretching exercises are effective in improving flexibility. Although many athletes and physicians still view such tragedies as muscle pulls, tears and strains as inevitable within a heavy exercise program, there is a growing awareness that these injuries are not accidental and can be predicted and thus prevented. Many of the top professional football teams (i.e., Steelers, Broncos, Redskins, etc.) now employ "flex" coaches to direct the players in stretching exercises. This is a prevention against injury.

An important factor to remember while incorporating a stretching routine into your daily exercise program is not to stretch or strain beyond a "pleasant tension." There will be/some discomfort initially, due to the trauma of the stretch to the unconditioned muscles, but the pain will most likely be in the form of a nagging ache or dull pull. "Pleasant tension" refers to a slight, dull discomfort of the muscle as a whole, with no accompanying sharp or burning sensations. When there is a sharp localized sensation in the ligament, back off; this is more than "pleasant tension." In other words, stretch just beyond what is comfortable. It is important not to hold tension while stretching; this defeats the purpose. Stretching, like all other forms of exercise, is a release. While holding a stretching posture, if you feel tension in a specific area, concentrate on relaxing that area, and releasing that tension. One should not hold the breath while stretching; instead, breathe normally. Oftentimes an exhalation is conducive to the release of tension. One other important point about tension: Don't hold tension in your face. There is a tendency while releasing tension from the legs, back, arms, abdominal region, etc., to transfer the tension and sensation of discomfort to the face. Thus, often times one may find oneself with a furled brow, squinted eyes and clinched teeth. Let this tension go, along with the rest of it.

Stretching should be slow, consistent, sustained and static. Stretching should not be ballistic. Dr. Herbert deVries, Ph.D, lists some advantages of static stretching exercises:

There is less danger in going beyond the safe limits of stretching when doing static exercise because the exerciser moves into the position slowly and stops before harm is done. With ballistic exercises, the exerciser may realize too late that he or she has passed the limit. Also, the energy costs for slow, static stretching is lower than for rapid ballistic stretching, so the exercises aren't as tiring to the athlete.

> Furthermore, static stretching tends to relieve muscle soreness, while ballistic exercises may cause severe muscle soreness. Thus, it is recommended, when integrating stretching into your exercise program to increase your overall flexibility, be consistent and static in your movements. Listen to your body as you flow into the postures, never letting the tension accumulate, but rather relax into the stretch. Your body will let you know what your individual "pleasant tension limit" is, and don't take the stretch any further. You will not achieve the extreme position of the stretching posture overnight. It takes persistence, patience and cautions.

As Hygienists, we want to improve our level of vitality, strength, and endurance and then maintain it. If a person is overly tense or unable to sleep, their vitality and endurance will decrease. Conversely, when tension and stress cease, vitality increases. Stretching enhances the quality of life by giving us flexibility and endurance while enhancing our mental poise. We were born with a potentially wide range of motion; however, many people are caught in the laziness of today's society and do not use but rather abuse their potentials of strength, endurance, aerobics and range of motion. The high quality of life that is available to all of us thereby is reduced to laziness. Through exercise and the other requirements of Hygienic living we gain our health. Health is not a commodity which can be purchased with money. Instead it is an asset to be gained by hard work and proper living practices.

3.4 Aerobic Exercise

A wild cat, such as a tiger, lion, cougar or panther, stretches, runs, leaps, etc. every day. It is trim and vital and has an incredible endurance level. Place this animal in a zoo and, though its stretching continues, its physique "goes to pot" and the cat becomes lazy. Why? Its aerobic exercise has ceased.

An individual's capacity for sustaining heavy, prolonged muscular work is dependent upon the supply of necessary oxygen to the working muscles. The word 'aerobic' literally means "with oxygen." Therefore, "aerobic work" is defined as work performed when sufficient oxygen can be supplied by the body to reduce the necessary performance of the task. According to Cooper, 1970, the most beneficial aerobic exercises include jogging, running, swimming, cycling, brisk walking, handball and basketball. The aerobic demand for these various forms of exercise is highly dependent upon the amount and rate of the work performed.

Aerobic exercise is a mandatory component in the overall Hygienic program of exercise. Some of these aerobic activities are far less demanding than jogging or swimming or some of the other exercises mentioned above. Low-intensity aerobic exercises, such as walking, must be of longer duration, but they are highly effective and are certainly regarded as aerobic activity. Choosing an aerobic type of exercise is dependent upon individual considerations such as age and level of physical fitness. Nearly anyone, regardless of physical condition, can effectively contribute to his/her own method of aerobic fitness.

Aerobic training activates many wonderful changes in the body. Your lungs will process more air with less effort, your heart will grow stronger and pump more blood with each beat, the number and size of the blood vessels carrying blood and nutrients to the body tissues will be increased, tone of the blood vessels and muscles will be improved and total blood volume will be increased.

The earliest to develop and most natural forms of exercise are walking and running. Primitive human beings survived by being able to walk or run great distances. We still have the bodily structure that was designed to cover 25 or more miles a day, but today our body rebels as soon as we attempt a 30-minute walk, let alone a 15-minute jog. We marvel at the stamina of the Tarahumara Indians of Mexico, who race at high altitudes in kickball games and relays that often last up to two days and cover one to two hundred miles. Perhaps our fascination with their stamina is a subconscious recognition of our natural potentials. According to Dr. Thaddeus Kostrubala, M.D., for 3 million years the genus of homo sapiens had to run to survive. He also says that our femur thigh bone is designed specifically for running.

In order to zero-in on specific characteristics of aerobic activity, some advantages of a well-planned jogging or running program are briefly mentioned below. Running should be done for 30-45 minutes four or five times weekly. Keep in mind that the length of the work out must be gradually worked into and thus will vary with the individual. The advantages of integrating a running program to your life are rich and many.

A running program is a simple, effective way to stimulate the circulation and exercise the heart. It provides a gentle, steady and prolonged demand on the heart, more so than does a series of short, choppy, ballistic exercises. Running exercises many parts of the body simultaneously. It can be adapted to the age and physical fitness of the individual and can be performed at nearly any time or place. Another advantage of running is that it requires no special facility or equipment, therefore the costs are minimal. Running is a good therapy to reduce anxiety and depression.

A runner's feet hit the ground 1600 to 1700 times during each mile. This can be rough treatment if done improperly. There are many criticisms of running as an exercise due to the high rate of injury. A recent *Runner's World* poll reveals that 22% of runners suffer from knee injuries, 20% from achilles tendon injuries, 10% from shin splints and 9% from forefoot strain and fracture. It is a current consensus among experts who practice sports medicine and run or jog themselves that most of the injuries are due to overwork, faulty shoes, weakness, lack of flexibility and improper running techniques. According to Dr. George A Sheehan, M.D., running causes a loss of flexibility in the back of the legs. Because of this lack of flexibility, exercises that stretch the muscles in the entire legs and back are a necessary component in the exercise program. It is possible to increase your chances of avoiding injury by not running on a hard cement surface, selecting high-quality running shoes, performing stretching exercises to counteract the lack of flexibility caused by the contractile reactions of running and by improving the overall muscle strength of the major muscle groups involved.

Regardless of what form of aerobic exercise that you chose to adhere to, take the necessary cautions to prevent injury, be persistent with it, and the benefits of aerobic fitness will enhance your total well-being.

Aerobics is not a total physical fitness program. It must be integrated into a consistent exercise program which also includes stretching and contractile, strength building exercise. Though these three categories of exercise often overlap, all three (aerobics, stretching, contractions) are necessary for maximum health and joyful living.

4. Exercise And Nutrition

Some of the first accounts of athletics and nutrition go back to the early Olympic Games in Greece. It was indicated (Harris, H.S., 1966) that there was a considerable insistence by Greek doctors on the importance of the diet that led to a keen interest in the diet of their athletes. Very little meat was originally consumed in Greece. The diet consisted of whole grains such as barley or wheat, eaten in cereal or bread form, and a variety of vegetables, such as onions, carrots, cucumbers, marrows, beans and various green leafy vegetables. Fruit was abundant, especially grapes and figs, apples, pears and nuts. The pomegranate was a prize. Although the Greeks did consume large amounts of goat milk products, adequate nutritional requirements were contained within the former food groups.

During the 1900's there developed the popular belief that any form of sustained muscular exercise required an abundance of meat foods. It was postulated that during exercise the substance of the muscle was consumed, and therefore hard work would remove a considerable portion of the muscle material that could only be replaced by eating animal protein. However, a study was done in Zurich (Eggleton, 1948). Two scientists climbed one of the Bernese Oberland peaks, one living on a nitrogenous-free diet (free of meats), while the other ate a diet containing nitrogenous foods. They found that when they were resting quietly, the amount of nitrogen excreted was not increased by their physical effort, either during or following the climb. This served as the basis for the modern outlook on the relationship of muscular performance to nutrients, which is that the muscle oxidizes the sugar and fat for the production of its energy, and does not use up its own substance. Thus, it is only when the muscles are chronically inactivated or during starvation that the muscle tissue is actually used up.

Energy requirements are obviously dependent upon the amount and quality of the expended energy during various tasks. This is also modified by other factors. For instance, energy requirements vary widely with age. A newborn baby requires less total energy than either a full-grown man or woman.

Individuals vary to a certain extent in their caloric requirement, and in certain diseased states this variance is even greater. In colder climates, there is a greater loss of heat to the surrounding air, and thus more caloric intake is required to balance this offset. In a warmer climate, less heat is radiated by the body and therefore less calories are needed.

As previously stated, there is a difference between the caloric requirements for carrying out various types of physical exertion. Some items of interest from the original data published by Mary Schwartz Rose in the United States are noted below. In a healthy human being, sleeping generally requires 65 cal./hr.; standing relaxed requires 105 cal./hr.; light exercise, 170 cal./hr.; walking slowly, 200 cal./hr.; walking moderately fast, 300 cal./hr.; severe exercise, 450 cal./hr.; running slowly, 570 cal./hr.; an very severe exercise, 600-650 cal./hr.

Studies done just following W. W. II (Eggleton, 1948) indicated that a robust man doing heavy industrial work can metabolize 4000 calories of food during a working day. This raised the question of whether one variety of food is better than another in making up the calories consumed. Eggleton says that a good deal of evidence from the work on muscles and muscle extracts indicates that carbohydrates are the main fuel for exercise although some studies show that a proportion of the muscle fibers do utilize some fat for energy.

It is estimated that pure carbohydrate provides 1800 cal./lb. and so does pure protein; but pure fat provides 4200 cal./lb. The belief of these heavy laborers is that every time meat is consumed, a certain amount of fat is also consumed, and thus the total amount of food required to provide the same amount of calories is less when eating meats, than when eating just carbohydrates and proteins.

It is clear to see that our society is obsessed with caloric intake, with total disregard to the quality and composition of the foods which are consumed. There is much controversy about the composition of diet for athletes. Much of the controversy concerns the amounts of protein, fat and carbohydrates consumed and their relationship to exercise and athletic performance. When discussing the quality of diet with regard to these three nutrient groups, we must examine two salient questions: (1) Whether an excess of one of these three nutrients is more important than any of the others, when pertaining to exercise, and (2) Whether the consumption of one or the other of them on the day of exercise or the athletic event is likely to be of much significance.

As far as the latter question is concerned, the only substance which is likely to have a significant effect when taken before an event is sugar. By sugar we mean the simple sugar from fruits are most readily used, and then the more complex sugars which are broken down from starches (carbohydrates).

A study was done on the relationship of breakfast to athletic performance (Holdi & Synn, 1946) concerning the carbohydrate intake of swimmers with relation to a 100-yard swim. The results showed that the compositon of the meal, as far as carbohydrates were concerned, did not effect either the blood sugar level at the end of the swim or the performance. They concluded that the energy reserves of the body were more important than the composition of the pre-swim meal. The implications are that a long-term maintenance of a quality diet has a much greater effect on performance than does the administration of a quality meal just prior to exercise.

Another study (Karpovich, 1941) showed that the amount of carbohydrate metabolized in exercise is dependent upon the amount of carbohydrate in the diet, and the lower the carbohydrate in the diet, the higher the amount of fat metabolized. Karpovich also claims that when energy is derived from fats, the work performed is actually 10% less economical than when the energy is derived from carbohydrates. There is also little doubt that protein or fat, since they need such a long digestion period, produce little benefit when administered just before an athletic event.

In regard to the former salient question of whether an excess of the three nutrient groups (carbohydrates, fats, proteins) is more important than any of the others when dealing with activity, we find that all three substances are equally important and are readily available in appropriate amounts in the Hygienic diet.

Though recent trends in nutritional advice tend to overemphasize protein, all protein in our bodies does not come from outside protein sources. There is a constant interchange of carbohydrates, fats and proteins within our bodies. Food is used not only for the formation of the body, but also for the energy expended in daily exercise and activity. Though carbohydrates and proteins are somewhat interchangeable, carbohydrates are more readily required in volume during physical, metabolic exercise than proteins.

For the utmost efficiency in exercising and for physical exertion, we need a good deal of both simple and complex carbohydrates in our daily diet. Through the gradual decomposition of monosaccharides (simple sugars) and polysaccharides (complex sugars or carbohydrates), our metabolism and activity level is sustained. Therefore, it seems that the ideal diet for an active person or an athlete is based on fresh fruits, vegetables (including leafy green vegetables and roots to maintain the necessary amount of protein and calcium), nuts and seeds.

As mentioned earlier, we find that in many societies there is too much emphasis on caloric intake, with little regard to quality and composition of diet. We must consider that some foods convert into calories at a higher rate than others. For instance, simple sugars contained in fruits convert to calories more readily and thus caloric discharge ceases much sooner, than do more complex sugars contained in many vegetables and legumes, which are more slowly converted and burned into calories. Meat and dairy products are even more slowly broken down and converted, and cause a lot of wear and tear on the digestive organs. In this respect, a diet centered around fresh fruits, vegetables and a small amount of nuts and seeds is far superior to a diet centered around meat and dairy products.

5. Questions & Answers

Why is it necessary for me to integrate all 3 of the major categories of exercise into my exercise program?

> Certain exercises, such as weight lifting only done on the upper body, or running, develop a few individual muscle groups. The causes an imbalance with the other muscle groups that are not simultaneously developed. For example, weight lifters often become muscle-bound because of their excessive contraction exercises (building strength and endurance) that leave no room for flexion and extension of those tightened muscles. One of my patients actually had broken blood vessels (bruises) on the surface of the skin from being so muscle-bound that it infringed on the circulation. We have found that integrating the proper combination of contraction, stretching and aerobic exercise into daily life and being consistent with it will provide the necessary strength, flexibility and endurance in the muscular system, maintaining an optimal level of functioning so that it may harmonize with the other systems of the body.

Why are people so obsessed with caloric intake, rather than the quality of the food they eat?

> In today's society there are many fads and fad diets that insinuate that the only relevant factor in weight loss is caloric consumption. With this assumption, many people feed their dieting bodies a set number of calories, but calories consisting of highly refined foods and often non-nutritional substances. Their bodies are forced to feed off of this refined food, but the energy derived from a low nutrition diet is less efficient. It seems logical that the quality of food is directly related to the quality of activity. Note that these effects are long term (over a long period of time) and that one wholesome pre-exercise meal is likely to have little immediate effect on the quality of exercise. It seems, however, that people are realizing more and more the superficiality of caloric consumption exclusively and the great importance of the quality and composition of food consumed.

Article #1: Staying In Shape For Life By Richard K. Schmidt

I once knew a man who exercised every day. His routines were sometimes as long as three hours, yet he never missed a day. I asked him one time what he was training for, why he stayed in such good shape. He merely replied: "I'm staying in shape for life." I then asked him how he was able to do it, how he managed to face such a gruelling workout day after day without a miss. He said simply: "I enjoy doing it. I look forward to my workout everyday."

This sounded logical, but I still went away with the impression that he had some unusual powers of self-discipline and self-motivation. Not many people in the world could do what he did. He just didn't seem to have the same motivation problem that most of us have.

Motivation is indeed a serious problem for all but a select few. But how do we overcome this motivation problem? How do we become more consistent with our daily exercise programs? Is there an ideal exercise program that will help us do this? This paper is designed to help answer these questions.

For the past four years, I conducted a study on Exercise. I wanted to find out why it is so hard for people to motivate themselves to exercise. I talked to many people—some who were jocks and some who weren't. All, I found, agreed on the same thing: Exercise is important but hard to do. Rarely did I find anyone who was satisfied with his degree of consistency. I heard many excuses and alibis. They ranged from overcrowded schedules and personal problems to physical ailments, mental stress and plain laziness. However, in reality, all these were nothing more than the motivation problem in disguise.

Being a former professional athlete myself, I know how it feels to be in good physical shape. I want to stay in good shape all the time. But now that the ole coach isn't around to drive me, it's hard to psych myself up for the workouts. If I don't have anyone to work out with, it becomes twice as hard. The daily routine becomes as appealing as facing the Sahara Desert. Many others feel the same way.

Based on the information I gathered, I concluded that the motivation problem is linked directly to the exercise program itself. The more the person enjoys the exercise, the sport or the workout, the easier it is for him to get involved and challenge is the main attraction. The desire for exercise because we need it is, at best, secondary.

Obviously, the root of the motivation problem is in the head. Exercise Reform is a head trip—mind over matter. We are basically lazy creatures, prone to do only what is convenient and enjoyable. We just naturally need fun reasons to do things. The key, then, to Exercise Reform, is to find some way to make the workout as convenient and enjoyable as possible. An exercise program has to be designed to accomplish this. It has to be tailored to the average person with a busy schedule, to the person who doesn't play sports, who is faced with the task of working out on his own, often without the support of a workout partner, felt, if I could devise such an ideal program for myself, to overcome my own motivation problem, perhaps it would work for others as well.

It took the better part of a year to design such a program. I tried many different time schedules, different exercises and routines. Finally, I arrived at a comfortable program and spent the next three years experiencing it and studying the results. I am now convinced that it's the ideal program I was looking for. It has solved my own personal motivation problem—I consider it a complete success. The results of the past year, especially, leaves no doubt that almost anyone can achieve the same success.

Anyone can win out in his motivation struggle with his own personalized exercise program. However, in designing such a program, the person must focus on three main areas: He must: 1) choose a suitable time of day to work out; 2) choose the proper exercises for his program; and 3) focus on building the program into his bodily system. These are the three keys to consistency in the Exercise Reform.

Choosing The Proper Time For Exercise

As we consider the first of these keys, we are trying to choose the best time of day to work out. In doing so, we must focus on the most important thing: We must choose a time of day when we cannot be disturbed or interrupted by anyone or anything. This must be our time, a sacred, inviolable time that we devote entirely to ourselves.

However, finding a suitable time slot in a busy schedule is not easy. It seems we must give up something. Giving up an hour's sleep in the morning is the most logical thing to give up. For the lark, the day person like myself, giving up an hour's sleep in the a.m. is not hard. Most day people enjoy getting up early. But for the owl, the night person, it may pose a serious problem. But once over this obstacle, the owl, like the lark, will find many advantages and rewards connected with the early a.m. workout. Early a.m. is the most ideal time of day to work out for the following four reasons:

First, we must get up in the morning anyway, usually for reasons other than our own. But getting up an hour early is getting up because we want to, for our own reason—to work out and maintain our good health. This also eliminates the chance of oversleeping, causing us to be late for work and other commitments.

Second, getting up an hour early clears the workout away before the regular daily activities begin. This eliminates unforeseen complications such as changes in schedule, minor illnesses, extra tiring days, etc. from causing cancellation of late scheduled workouts.

Third, in the early a.m. the stomach is empty and exercise does not complicate digestion as it would from exercise later in the day.

Fourth, in the summer, morning workouts are coolest, more comfortable and less taxing to the body than workouts during the heat of the day. (During the winter, indoor exercising with the use of the indoor runner's treadmill prevents cancellations of the routine due to extra cold mornings.)

I personally find the early a.m. workout the most peaceful and enjoyable experience of the day. I get up at 4:20 a.m. and jog for an hour from 4:30 to 5:30 a.m. This really puts me on top of the day, clears my head, keeps me mellowed out and in balance all day. I find I'm much more alert and aware of life; I'm able to experience it to the fullest and enjoy it more. My appetite is better, and at the end of the day I rest better. But if I feel sleepy during the day, I take a short nap, especially if I went to bed late the night before. This eliminates another common excuse for postponements and cancellations.

Once you overcome the obstacle of getting up an hour early, you too will find the early a.m. is not only the most enjoyable time of the day to work out, but the most ideal, all things considered. It's the only time of day when no one can disturb or interrupt you: They are still in bed. And once you have established this "sacred" time of day, you have taken the first big step toward consistency in your Exercise Reform.

The Exercise Routine

Once our time of day is settled, we must then focus on the next of the keys—the routine itself—what kind of exercises we'll be doing. We are looking for a few good exercises for our ideal routine. Our most important consideration here is to select exercises we find enjoyable to do. They must, however, be exercises that will provide us with a good upper and lower body workout. The routine must be both simple and effective, and it must not be too time consuming. If we hate our exercises, we will soon dread and hate our routine as well. A troublesome conflict will then arise, and, instead of looking forward to our workout, we begin finding more and more excuses for postponement and cancellations. This is an unnecessary conflict and burden on our lives. It is the most common cause for failure in Exercise Reform because it undermines our motivation. It robs us of the joy of exercising and all the little rewards our daily exercise programs brings to our lives.

We know we must exercise our bodies for good health. It is up to us, then, to devise an exercise routine that keeps us exercising consistently—not for the need of it, but for the enjoyment of it. That's why I have adopted a routine I find thoroughly enjoyable.

My principle exercise is the jog. It is the most complete and enjoyable exercise we can do. It requires only a few supplementary exercises to give us the balanced, ideal routine we are looking for. In addition to my daily jogging routine, I add four sets of fifty pushups for my major upper body supplementary exercise. I do a set of these every quarter hour during the jog. After the hour jog is over, I add the supplementary exercise routine consisting of four torso-limbering exercises: Toe-toucher, Windmill, Sidebender and Trunktwister. I do only one set of each of these exercises and only twenty repetitions per set. This takes about five minutes and my routine is done. The important thing here is that the workout is over at the time I'd normally be getting out of bed. After a shower and perhaps a fruit breakfast to complete the a.m. preliminaries, I look forward to the day with great expectations, unbelievable energy and a positive attitude that makes life a real joy to live.

An hour's jogging, of course, is a goal to work up to. It should be done gradually, depending on age and physical condition. This goes for choosing the exercises and number of repetitions as well. The main thing is to choose supplementary exercises that work the upper body to supplement the jog if it is being used as the principle lower body exercise in the program. These exercises must be simple, effective, not too time consuming and, most of all, they must be enjoyable to do. The routine then becomes enjoyable, something we look forward to each day. In this way we take the second big step in solving the motivation problem in our Exercise Reform.

Making The Exercise Program a Way Of Life

Once we have decided when we're going to exercise and what exercises we're going to do, getting the program built into our system is relatively simple. All that is required is that we become loyal to our newfound routine for a few months. The principle of "building it in" is to make the exercise program a way of life, an integral part of our life activities. We want the workout to become a necessary bodily function like eating, sleeping, defecating and urinating. These bodily functions are so much a part of our life activities that we do them each day and scarcely notice. That's the way it must be with our exercise routine. We must do this routine each day if we expect it to become a vital bodily function.

Some people advocate alternating exercises or even the routine itself every other day. I disagree. The key to consistency is building the routine into the system. This can only be achieved by doing the routine, like all other bodily functions, *every day.*

Trying to become consistent with our Exercise Reform should be looked upon as a project, an exercise in goal-setting and self-discipline. That is the way I approached it. The first year while I was still designing my program, I allowed myself one miss per week. At first it was hard to maintain this level of performance. Gradually, however, my body became accustomed to the exercise and my mind to the routine. The workouts became easier and easier to do because the workout had become built into my system. The second year I allowed myself only one miss per month. This was easy. The routine by then had become effortless, very enjoyable and rewarding. The third year I missed only three days. I was so much into the routine by then that I wouldn't have missed a workout for anything. It just never occurred to me to miss. Last year, the fourth and final year of the study, was a complete success—not a single miss—complete mastery over the motivation problem. I was indeed staying in shape for life and was enjoying every minute of it.

Such excellent progress can also be yours once you've completed the third big step in your Exercise Reform—once your workout has become like a bodily function, completely built into our system.

The three steps you have just taken in your mind can be taken just as easily in reality. You too can achieve success in your desire to become involved in your own Exercise Reform. It doesn't matter that your daily schedule is crowded. It doesn't matter if you're not an athlete or in good physical shape.

Even if you must work out alone—you can succeed. In designing your own exercise program, all you need do is focus on these three steps: (1) Choose a time of day when you cannot be interrupted by anyone or anything, and think seriously about the early a.m. hours for your workout. (2) Choose exercises for your routine that are simple, effective and not too time consuming. But most of all choose exercises you like and will enjoy doing every day. (3) You must do your routine faithfully every day until it becomes built into your system like a vital bodily function.

Following these steps should produce the desired results—the ideal exercise program you have been looking for, the program that helps you overcome the motivation problem and keeps you exercising consistently, not for the need of it, but for the sheer enjoyment of exercise. In this way you too will have no trouble "staying in shape for life."

Exercise: A Hygienic Perspective By Ralph C. Cinque, D.C.

That daily exercise is essential to develop and maintain good health is one Hygienic principle upon which there seems to be universal agreement. Even the medical profession encourages regular exercise as a means of prolonging youthfulness and promoting cardiovascular well-being. The overall merits of regular exercise are fully recognized, and we have no need here to further expound upon them.

However, there exists a great deal of confusion regarding the relationship between exercise and health. Many people equate health with physical conditioning. The classical American model of male health is represented by a robust well-muscled physique, with erect posture, great strength and power. Without necessarily deriding this ideal, I must insist that it is not synonymous with health. There is not always a direct proportion between the level of physical conditioning and the level of overall health. Physical conditioning is only one aspect of health. The best athlete is not necessarily the most healthy. The one who runs ten miles is not necessarily in better health than the one who runs only five, or one, or for that matter, none at all.

I once overheard a well-developed body builder relate to his companion that he was subject to occasional episodes of gout. Every few weeks one or the other leg and foot would swell up and produce agonizing pain. He would be crippled for days at a time and would have to resort to large doses of aspirin and other pain-killers in order to obtain relief. This incident made a tremendous impact on me because this particular body builder had an absolutely splendid physique. His muscular development, his posture, his body weight, his carriage, his symmetry, and his proportions were virtually ideal. He had the physique of a Greek god. By all popular notions, he was a picture of health. Yet, it should be obvious to the readers of this article that his health was far from perfect. Gout does not develop without causes, and being well-muscled does not lessen its implications or severity. How ironic that in the process of building an admirable outward condition, he built a morbid internal condition. It is likely that his interest in body building prompted him to follow a high-protein diet and to use protein supplements, liver extracts, etc., and that these practices were mostly responsible for the development of gout.

Although it is true that those who engage in regular physical activity achieve greater longevity than those who are largely sedentary, it has not been shown that superb athletes achieve greater longevity than those of moderate ability. With the exception of cardiovascular diseases, the incidence of degenerative diseases among athletes (such as cancer and arthritis) is approximately the same as for non-athletes. Lou Gehrig died of amyotrophic lateral sclerosis. Babe Ruth died of cancer. There have been many outstanding athletes who have died tragically of crippling diseases.

Acute diseases are equally as common among athletes. Many an athletic contest has been postponed due to colds and flus. Tennis star Jimmy Connors was recuperating from a month-long bout of mononucleosis right before one of the Wimbledon tournaments, and some have suggested that this was a factor in his loss to Borg.

Despite strong evidence to the contrary, the popular notion today is that exercise will insure us against disease. We are told that as long as you run everyday, you can eat all the fatty meats you want and not develop arteriosclerosis, for the running will keep down blood cholesterol and prevent arterial plaquing. We are told that playing tennis regularly will enable the body to "burn up" the caffeine and other toxic alkaloids of coffee and cola drinks, so drink all you want. Regular exercise will keep down blood pressure, so why cut out salt? Exercise diligently, perhaps excessively, and ignore every other aspect of Hygiene. That is the advice we receive from many of the "experts."

As Hygienists, we must stress the fact that exercise does not insure against disease and it does not remedy disease. All it can possibly do is supply the body's need for activity. If the individual who exercises but ignores proper diet fares better than the one who neither exercises or eats correctly, we can account for this by recognizing that the latter ignored two life essentials while the former ignored only one. Exercise does not undo the effects of dietary abuses, but a lack of exercise may compound the effects of dietary abuses.

The body has physiological needs that can only be met through vigorous physical activity. The development of muscular strength and endurance, a powerful heart, great respiratory capacity, vibrant circulation, thorough lymphatic drainage and superb neuromuscular coordination all require the influence of regular exercise. However, from the standpoint of overall health, there is a limit to the amount of good that the body can derive from regular exercise. The body's actual physiological needs for exercise are not as great as some people believe. We do not have to become marathon runners in order to avoid cardiovascular disease. One can achieve high-level health without ever developing outstanding athletic capabilities. Of course we have no objection to vigorous physical training, and we recognize that it is the only way to enhance performance. Possessing great strength, speed and endurance is practical and desirable even if it doesn't guarantee great health or longevity.

Vigorous exercise entails a tremendous energy expenditure. This expenditure is compensated for in the physiological benefits that we derive from exercise. The amount of energy that we can safely expend in physical activity depends upon the level of our overall health and vitality. The invalid, who is in great need of rest, can only engage in brief and mild periods of exercise without enervation. The seasoned athlete, on the other hand, may be able to perform amazing feats of strength and endurance without dissipation. It is difficult to designate arbitrarily what constitutes excess in the realm of physical activity because individual factors are the most important considerations. What is excessive for one person may be unproductive for someone else.

The initial effect of exercise is to deplete the body of nerve force and tissue substance. The secondary and lasting effect, however, is to strengthen and build the body. This occurs while resting as the body prepares for future episodes of activity. Exercise must be vigorous in order to be effective. Slow walking, sauntering along on a bicycle, casually twirling the extremities—these activities are of little value. Subjecting the body to stress (within reasonable limits) is what exercise is all about. Exercise must be invigorating, strenous, challenging and taxing in order to occasion dynamic physiological changes. Only by placing great demands upon our bodies can we acquire great strength and stamina.

A short period of vigorous activity is more beneficial than a long period of mild activity. A short but hard run will build greater power than a long slow jog. It is also less depleting. Lifting a heavy weight a few times will build greater strength than lifting a light weight many times. A good exercise regime will provide for both endurance, the ability to sustain an activity over a long period and strength, the ability to overcome resistance in a single instance, as well as speed and agility. A well known jogging expert advised a woman recently to run slower in order to increase her jogging distance to ten miles. My advice would have been just the opposite, that is, to run a shorter distance harder, thereby deriving greater physiological benefits and less profound exhaustion.

Determining the best manner in which to train depends upon what one's objectives are. The person who is exercising for general health and fitness will have different goals than the one who is trying to achieve excellence in some particular sport. Obviously, one can only become a great long-distance runner if one habitually runs long distances. One can only become a great cyclist if one cycles regularly. Great swimmers become so only by putting in many hours in the pool. Developing outstanding capability requires participation far in excess of the body's physiological needs for activity. However, expenditures of this kind can be made without depleting the body as long as the individual gradually subjects his or her body to greater stress, and makes a point to secure enough rest and sleep to fully compensate for the added exertion. For example, one should not attempt to run long distances (30 to 40 miles per week) while going to school full time and working (as I once tried to do). It is possible to become progressively more enervated even as one's level of conditioning improves. However, for the individual with a less hectic schedule, who is able to rest 9 to 10 hours every day, such a running program may be entirely constructive.

Unfortunately, many runners do overexert themselves. The effects of excess vary from mild to severe strains and sprains. Pronounced physiological depression marked by weight loss, loss of libido, insomnia, amenorrhea 'in the female, and digestive disturbances have resulted from an overly strenuous training schedule. These problems are usually resolved easily by securing more rest and curtailing one's activity. In some instances, too rapid progression is found to the crux of the problem.

Which activities are best from a Hygienic standpoint? As always, we refer the argument back to Nature. Those activities that conform with physiological principles relating to joint motion and body mechanics are most desirable. Formal exercise is really just a substitute for natural activities that we would perform in a state of Nature. All natural activities require total body participation. When we run, jump, climb, swim, etc., our bodies are acting as a unit, even though certain muscle groups may be playing a predominant role. Such activities not only strengthen and condition us, they enhance body energy, coordination, balance and freedom. By entailing a fluidity of motion, these activities enable us to avoid excessive strain and tension. In contrast, activities that entail rigid postures, isolated muscular efforts, and limited ranges of motion, may have the opposite effect, that is, to increase tension and to stress the joints and muscles.

Perhaps running is the most natural human activity. Like deer, human beings are running animals. We are capable of running great distances smoothly, effortlessly and efficiently. Certainly we are not aquatic animals and bicycles never grew on trees. Team sports are popular because of cultural influences, not biological inclinations. Running is considered to be the most superb exercise for strengthening the heart, lungs and circulation. It is not necessary to run great distances in order to derive these physiological benefits. Running 2 to 3 miles every other day is fully adequate to achieve optimal cardiovascular conditioning. Those who wish to run greater distances can do so, but no one should feel compelled to run longer than this for health reasons. Running sprints, running up hills, running up stairs and other variations are likely to be of greater value than just jogging. Running alone is not adequate for good conditioning. Such activities as vigorous calistenics, weight training and gymnastics round out an exercise program that includes running. This is particularly important in regard to developing the upper torso and extremities, which are largely undeveloped by running.

When is the best time to exercise? Again, we must apply Hygienic reasoning. Eat when you are hungry. Drink when you are thirsty. Rest when you are tired. So it would follow that you should exercise when you feel vigorous. It is a mistake to use exercise as a stimulant, to perk ourselves up through exercise when our bodies are actually calling for rest and sleep. A feeling of relative vibrancy should precede and occasion our workouts and not vice versa. If we feel languid, we should rest until our energies have been recuperated to the point that we feel like becoming active. If you happen to feel all washed out on any given day, it would be unHygienic to force yourself to exercise in spite of it. Just as we can rouse up an appetite by eating, even in the absence of hunger, so too can we rouse up a feeling of invigoration by exercise, but the latter is just as artificial as in the former. Get in tune with your body and seek always to supply your body's needs as they fluctuate in the course of daily life. There is really no best time to exercise, just as there is no best time to eat. Some mornings I feel inclined o start running right out of bed, and I do so. Other mornings I feel no such inclination, so I postpone or cancel my usual run. Learn to live with a flexible schedule in regard to exercise, and for that matter, all aspects of Hygiene.

Can a person attain great athletic ability eating fruits, nuts and vegetables? The answer is a qualified yes. I was introduced to Hygiene by two brothers, both in their 30's, who had been Hygienists for many years and who were excellent runners of marathon caliber. Eating Hygienically lends itself to great athletic achievement, particularly in endurance activities. A high alkalinizing diet, composed largely of fresh fruits and vegetables, enhances one's oxidative powers and one's ability to sustain muscular effort. On the other hand, such a diet promotes rather slender body build. I have never met a raw fooder with a "Charles Atlas" physique and doubt that I ever will. For one thing, the diet is too low in protein. Secondly, raw vegetable foods do not stimulate anabolism the way cooked foods do. Yet, lean muscularity may be closer to the biological norm for physical development than the immense size that we generally associate with classical body building. It is unlikely that human beings in a state of Nature, living on the spontaneous products of the trees in a gentle climate, would tend to massive physiques. Peoples throughout the world who are known for achieving great longevity tend, as a rule, to be rather slender. Keep in mind that I do not object to weight training or bodybuilding, but only to the excessive bulkiness that many weight lifters develop.

Many Hygienists are too thin and underdeveloped. In most cases, barring pathological causes, this is the result of an overly restrictive diet, both in regard to quantity and variety of food and to inadequate physical training. In all fairness, however, we must recognize that the paucity of outstanding athletes among Hygienists is due mostly to the paucity of Hygienists. Yet, Hygiene has not been without its talents. Among our practitioners, for example, Dr. Sidhwa is a first-rate long-distance runner. Dr. Burton is a prominent cyclist in Australia who competes regularly in grueling races. Dr. Benesh is a veteran physical culturist who, at the age of 67, engages in weight training, running and vigorous calisthenics. The last time I visited him, he said apologetically that he was running only six miles a day, but added quite candidly, "I try to take it at a fast clip." Dr. Shelton, himself, was an outstanding weight lifter and had a rugged build that matched his personality.

What role does exercise play in the recovery of health? I believe that it plays a greater role than some Hygienists think. Unfortunately, many Hygienists are preoccupied with food and fasting. To them, life is one great cleansing. They live from one fast to the next one. Or they consume themselves in concerns over food in between. Purification becomes their greatest goal in life, elimination the ultimate purpose in living. They fail to see fasting for what it is—a temporary expedient that enables us to secure a foundation from which to build ourselves. The only contests they wish to enter are fasting marathons. They never give their bodies a chance to enter a building phase. They deny themselves, by their imbalance, the opportunity to grow, to develop a physique, to acquire great strength, speed and endurance. Instead of practicing Hygiene so as to live, they live so as to practice Hygiene—a most unHygienic endeavor. It is no wonder that such individuals remain weak, puny and pedestrian in their lives.

Among feeble children, particularly, I have found exercise to be of greatest importance in building vigor and promoting growth and development. Those with weak digestion can derive much benefit from engaging in vigorous physical workouts. The role of exercise in promoting recovery in tuberculosis, and other respiratory problems, is well known. Exercise strengthens not only our muscles, but our entire organism, including our minds. It is possible that exercise has a more profound effect upon the organism than any other single Hygienic factor.

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Lesson 18 - Ascertaining The Human Dietetic Character, Part I

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1. Prologue

1.1 Human Anatomy, Physiology and Psychology Evidence Our Dietary Nature

The next two lessons are complementary in that both endeavor to establish, beyond refutation or doubt, all the particulars of human dietetic character. Once you're aware of correct dietary fare you'll be able to render one of the greatest services possible in America today! You'll be able to teach your clients how to eat for health rather than for disease, suffering and early death, that is now so commonplace in America.

In no area of our living regimes do we transgress our biological mandate as grievously as in the matter of diet. If our correct diet is fruitarian fare, then America consumes less than 10% of its correct dietary. Since the bulk of America's fruit is consumed by less than 25% of our populace, it should come as no surprise that there is such a great preponderance of disease amongst us.

In sallying forth into the world to bring the message of healthful living to others, you must be armed to the hilt with the knowledge to substantiate the truths you've learned. Moreover, you must understand the principles so well that you can readily adduce the truth for anyone who approaches you from some esoteric aspect of diet.

People are very little impressed by facts, unfortunately. Nevertheless, you should be cognizant of the facts! You should also learn emotional approaches which have a profound and abiding effect upon the client. Remember that the nature of your emotional approaches should be gentle, not hostile. Remain alert to the emotional state of your client. Help the client to remain comfortable by addressing him/her as a spectator to third party practice rather than as a guilty participant.

In the latter part of this lesson, some emotional approaches are suggested. Should you wish to impress your client with the correctness of the dietary you will guide him or her to, you might embody the emotional approach in a narrative around your own experiences with others. Most Americans have addictions to pathogenic fare, i.e., cooked and fried dishes, condiments, fermented foods, etc. Americans are "hooked" on so many abominable dietary practices that we can marvel only that they survive as well as they do.

Today's "nutritionists" are subservient to the "basic four" food concepts. While this concept may look good on paper, it is a disaster in practice, because most of America's health problems stem largely from its observance. According to these nutritionists, we do not have any fixed dietary as have most animals in nature. Rather, humans are considered to be some sort of omnivorous creature above all the laws of nature. Many assert we have definite carnivorous leanings. Quite a few nutrition experts have termed our incisor teeth "fangs," in defense of the erroneous position that humans are meat eaters.

To term our incisor teeth fangs or even to liken them to Tangs is an outrage even to the most superficial observer.

Humans are well-equipped in all their anatomical features to gather fruits, but most unsuited to capture animals and rend them. Fangs and pointed teeth that penetrate and kill, rip and tear are a feature of all carnivores except birds.

Let's put this matter of human carnivorism on a personal level. Can you picture yourself quietly stalking a rabbit and pouncing upon it? If it should slip away, can you picture yourself exploding with a blinding burst of speed that may be 30 to 50 miles per hour for the short distance needed to overtake your prey? Can you picture yourself catching the rabbit in your mouth, and then sinking your fangs deeply into its vitals, crushing and killing it? Can you picture yourself ripping the animal to shreds and swallowing it in bloody bits and chunks without thorough mastication? Can you savor the animal's blood, guts, bones and organs? If you cannot carry out this practice with gusto and delight, you are not of a meat-eating disposition.

You must admit that we are not anatomically equipped as carnivores. You must also admit that the idea of attacking, killing and rending animals on the spot does not appeal to humans psychologically—we are not natural killers. What most of us do not realize is that we are not only psychologically but also physiologically unsuited to utilizing meat as a food.

When a natural carnivore swallows hunks of carrion unchewed, the flesh is digested in the stomach of the carnivore with ease and facility. Should we swallow large hunks of flesh without chewing, we'd digest very little of it before putrefaction set in. This putrefactive material would cause us many problems until it could be expelled from the intestinal tract. Why does a carnivore so readily digest something we can handle almost not at all?

Flesh is a proteinaceous food that is digested in an acid medium. Humans, relative to carnivores, secrete a very weak hydrochloric acid and little of the protein-splitting enzyme, pepsin. Carnivorous animals have a concentration of these flesh-digesting media 1100% greater than humans! Should a lion swallow your hand whole he would quite readily digest it. Should a human do the same thing, I leave to your imagination what would happen. Digestion is among the things that wouldn't happen!

There are hundreds of anatomical features that we humans have which place us among frugivorous animals. We are anatomically fruit eaters. Not everyone will admit our lack of claws and fangs and possession of gentle sensitive hands suits us for fruit gathering rather than animal catching. They fail to see that our likeness to fruit-eating creatures places us in the fruit-eating camp. Most people fancy that we're in no animal camp at all—we're humans, gods of a special sort not heir to the principle that apply to animals. They consider us to be not animals at all—just humans!

Aspects of being that disturb most people are best not aroused or discussed. In tutoring people in the ways of health, you must often assume an experienced stance wherein you give guidance. You must exhibit a certainty about the beneficial result that will accrue from the healthful measures you teach. Thus you can adroitly steer clients to our correct dietary and related health practices by tactfully and confidently suggesting a regime that will enable them to become healthy in short order. When it comes to diet you'll develop your own operating methods for effectively teaching it to others and inspiring them to adopt it.

Let's return to our consideration of humans as meat-eaters. Natural meat eaters have built-in equipment with which to apprehend, capture, kill and rend their quarry. Claws and fangs are very much a part of a carnivore's equipment. Let's consider the human mouth. We couldn't catch an animal in our mouth or dispatch it that way if we tried. Two witnessed dogs catch other animals many times by charging them and snapping their powerful jaws on them at a vital spot. I've seen these dogs sink their fangs deep into the throat of animals must larger than themselves and inflict fatal wounds. A human could not grab an animal in its mouth as does a dog, coyote, wolf or cat. Even biting a live animal with our teeth and mouth opened to the fullest would not permit for the insertion of any animal other than very small ones. And, if the animal was alive, we might have more damage inflicted upon us than we could inflict except with the brute strength of our hands and arms. On the contrary, the human mouth is excellent for biting into fruits or the insertion of fruits and chewing. Obviously we are adapted for eating small items. Lesson Seven has demonstrated that our diet naturally consists of fruits.

The anatomical features that distinguish humans from carnivores such as cats, dogs, eagles, jackals and other carnivorous animals are many. There are few features wherein we are alike. Humans are also very dissimilar to omnivorous animals such as hogs, bears, and the like. Almost everything about these animals is different from humans.

We are also very dissimilar anatomically to grass-eaters. We all know we are not grass-eaters. We reject the idea of eating grass and weeds, the natural dietary of cattle and other herbivora. It's completely contrary to our nature to do so. Eating animal carcasses in their freshly killed or putrefied state is equally contrary to our nature. Psychologically, such actions do not appeal to us. Practically, such a way of life is impossible. We are unique as humans. Nevertheless, we are remarkably like apes in our anatomical features and our physiological processes. Apes are primarily fruit-eaters. Could it not be that we are similarly developed because of similar dietary adaptations? Do not dietary adaptations, more than anything else, determine the features and characteristics of all creatures? Are humans really an exception?

Keep in mind that our mental disposition matches our anatomical and physiological disposition. What we admire naturally (as contrary to acquired perversions) is in accord with our dietary. Our aesthetic standards attribute beauty to fruit trees, and fruit but not to dying and bleeding animals. We savor fruit and are repulsed by blood. We do not savor grass or insects.

Probing this subject narrows our natural dietary down to fruits. In ascertaining our natural dietary you must envision us in a state of nature. Cookstoves were not furnished as part of our natural equipment!

Neither were the many tools and devices we now use. We were once like the apes today—tree-dwellers who lived upon the fruit of the trees, namely fruits and nuts. We functioned totally with our natural equipment for acquiring and eating foods.

Most of the anatomical features that differentiate us from carnivores, omnivores and herbivores have little meaning to people who have been steeped in meat-eating, as most Americans have been. But it takes on meaning when we can relate it to our attitude to. meat-eating on the natural level. Most people cannot stomach the idea of eating animals in the way that natural carrion-eaters do. The idea of raw blood, offal, bones and flesh is repulsive, especially if the eater must apprehend, capture and rend the flesh.

Simple facts about our physiology may impress people who suffer the results of meat-eating. For instance, osteoporosis, which nearly 100% of Americans suffer in some form, may be due in large part to meat-eating. The body must draw base minerals from bones and teeth with which to neutralize the acid end-products of meat-eating.

One of the most telling facts is rather simple. About 5% of the flesh volume of all animals consists of waste materials that are normally eliminated by the kidneys—uric acid, a precursor to urine. Uric acid is a poison to humans, not only because it is a toxic waste product but because it is non-metabolizable.

All carnivorous animals secrete the enzyme uricase. Uricase breaks down uric acid so that it can be eliminated quite readily. Unfortunately, humans absorb uric acid when meat is eaten. The uric acid stimulates the body like caffeine or other drugs until the body neutralizes it by drawing upon alkaline reserves. In the absence of such reserves, the body draws upon bones and teeth.

What happens to the calcium urate crystals that are formed as a result of this neutralization? For the most part, the body excretes them. Inasmuch as they're in the circulating media of blood and lymph, the body does not eliminate them with dispatch, especially in view of the enormity of the eliminative tasks of most people. Hence the body "buries" the crystals "under the rug," that is, it shunts them aside to areas in which they do the least physiological harm. The body has a tendency to concentrate neutralized uric acid as calcium urates in the joints, lower back and the feet. These deposits lead to arthritis, bursitis, lower back pains, gout, rheumatism, etc. Once an arthritic sufferer recognizes this bodily process as the cause of his suffering, he is usually quite willing to give up meat-eating. Fasting will, in most cases, enable the body to slowly autolyze these deposits and return to normal. A proper diet will not cause such a condition in the first place nor after correction has been realized.

All transgressions of our natural diet have pathological results whether evident or not. The body functions perfectly within the context of its natural dietary and other healthful practices.

Be forewarned that many people are difficult to persuade. They will not believe you against all the dead weight of habituation and wrong practices. But our natural dietary is not a matter of belief. It is a matter of knowledge—of being armed with the truth about our dietary character. This lesson and the next will yield many nuggets with which you can arm yourself.

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2. Necessity Of Different Approaches To Nutritional Science

These classes in nutritional science will approach the subject from many interesting aspects. The aim is to make you an expert in matters of nutrition. This involves a great depth of understanding as well as knowledge. This lesson will endeavor to supply both understanding and knowledge.

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3. Understanding The Role Of Foods In Nutrition

In understanding the role foods play in the nutritive processes we must establish criteria for the efficiency with which we can handle different types of foods and the needs they meet. To simplify your understanding of the value different foods have, we have signed numerical ratings to the various food properties, mastering an understanding of the properties of foods that make them proper raw materials for our bodies we so easily gain the knowledge we need for nutritional expertise.

I could tell you that by weight of intake, we should eat 97% luscious ripe fruits (including tomatoes, peppers, cumbers and avocados), 1% nuts (which are also fruits) and 2% vegetables (leaves, stems and stalks). Then I could say that is all that you need to know about our dietary. In truth that statement does effectively summarize our dietary. However, you'll still be learning about the intricacies and subtleties of diet and human nutrition long after having completed this course and having studied such conventional and unconventional literature on the subject. Nutrition is still a formative and exploratory science.

With this lesson we're going to approach the subject in such a way that we can utilize a rating chart and determine whether a food is good or poor in the diet, and readily determine why it is a good or poor food.

Naturally these things are based very much on subjective experience. They are also based on studies and familiarity with the experience of others as well as on the infant science of nutrition.

You will not have to look very closely to see that those foods which our other lessons have pointed out as those of biological adaptation receive the very highest ratings, being, quite literally, perfect foods. The criteria which foods must meet to be beneficial in human dietary include the food's edibility, aesthetic and physiological conditions, and nutritive factors.

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4. Edibility Of Foods

4.1 Negative Considerations

Foods that contain antivital or harmful factors will be rated according to our body's ability to deal with these factors. These factors merit minus ratings on the charts. Obviously, we eat for nutriment and not for poisons. The degree of toxicity is thus rated.

4.2 Aesthetic Considerations

Any food must be relished by the unperverted palate in its natural, raw or living state just as Nature delivers it to us. In Nature we were developed on and thus adapted to a totally living food diet. It is imperative that we observe our adaptations. While we will consider some foods in a cooked state as notated on the listings, the rating reflects the lower nutritive values of cooked foods accordingly.

Delectability of food is also a good guide to its value in human nutrition. We must be able to eat our fill of any single food—to make a meal of the item in and of itself for its own sake—if it is to be considered a proper food in our dietary. Palatability or deliciousness is a very valid guide to a food's fitness. Foods should be a gustatory delight. We call this quality "taste appeal."

4.3 Physiological Considerations

In considering the physiological aspects of food digestion, we must consider two factors: the ease and efficiency of digestion. Ease of digestion refers to the ease with which the body handles a given food without pathogenic factors setting in. Efficiency of digestion means how well the body system obtains its needs from a given food relative to the energy it must expend to obtain its needs. For example, the body easily processes vegetables but does not efficiently make use of their nutritive content.

4.4 Nutritional Factors

The nutrient complement of the food is rated according to how well it furnishes our needs, not according only to its amount of nutrients. The nutrient complement we have considered includes all nutrients except fuel values. The nutrients considered, which are proteins, vitamins, mineral salts and essential fatty acids, are given four categories.

For the purposes of rating, each category is given equal value. I am the first to admit this is an arbitrary system. This system is not reflective of the respective values of the nutrients in any absolute sense.

1. Protein Adequacy. Protein sufficiency is not determined only by what the food contains. Rather it is determined by the ability of the body to digest and make use of the food's protein complement relative to our needs.
2. Vitamin adequacy of a given food is determined by our body's ability to assimilate its needs from that food.
3. Mineral salts are another vital component of foods. We have rated foods for this component based upon each food's content of usable mineral salts. Minerals in a native or inorganic form, rather than being a nutrient, are antivital or toxic to the body. Most stems, stalks and leaves hold some amount of unprocessed mineralized water. These waters are usually heavy in inorganic calcium, phosphates, potassium, magnesium, and other minerals. Without plant elaboration we cannot use these minerals. Instead, they contribute heavily to atherosclerosis and ossification.
4. Essential fatty acids are necessary in the nutrient complement of our diet but need not be in every food. Nevertheless we rate each food for its content of these acids. The three most important essential fatty acids are linoleic, linolenic and arachidonic.
5. Fuel value is perhaps the single most important consideration of a wholesome food. This is because about 95% of our food intake is utilized for "stoking our furnaces" with the fuel required for the body's energy. Thus, in this criterion, we are concerned with the net gain of energy from a given food in the quantities we can and would eat of it in a mono meal.

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5. Other Food Qualities

There are other factors that we could consider in determining suitability of foods in human alimentation. One significant factor is the role of foods in maintaining body pH. Some foods are alkaline-forming (acid-binding) and others are acid-forming in metabolism. Acid-forming foods place a heavy burden on the body. Humans require a diet preponderately of foods that are alkaline-forming in their metabolic reaction.

Let's review the criteria for rating the value of foods. This time we'll append the rating values for foods based on their usefulness in the human dietary.

Water content of foods, while important, does not enter into rating value. We are not natural water drinkers. Water has a neutral value. Nevertheless, most proper foods possess water sufficient to meet our needs. Nuts, seeds and dried fruits are exceptions to this rule. All meals eaten should consist of such foods as will render them water sufficient. Our water needs are ideally supplied by our diet.

6. Summary Of Criteria Relative To Goodness

We have not given any weight to these considerations because the value of a food in the human nutritive processes is not determined by this factor. Because other factors considered herein are congruous to their goodness (alkalinity) or badness (acidity) we have let these other considerations stand.

There are many valuable nutrients in acid-forming foods, particularly in nuts. Conversely, there are many alkaline-forming foods that are of little use in the human diet. Therefore this criterion is ignored in our deliberations and ratings.

Let's review the criteria for rating the value of foods. This time we'll append the rating values for foods based on their usefulness in the human dietary.

ENTRY NUMBER	**CONSIDERATION**	**RATING VALUE**
1.	TOXICITY	Minus (-)0 to 100
2.	EDIBILITY IN THE RAW STATE	Plus 0 to 10
3.	TASTE APPEAL (Deliciousness)	Plus 0 to 10
4.	EASE OF DIGESTION	Plus 0 to 10
5.	EFFICIENCY OF DIGESTION	Plus 0 to 10
6.	PROTEIN ADEQUACY	Plus 0 to 5
7.	VITAMIN ADEQUACY	Plus 0 to 5
8.	MINERAL SALTS ADEQUACY	Plus 0 to 5
9.	ESSENTIAL FATTY ACIDS	Plus 0 to 5
10.	FUEL VALUE	Plus 0 to 40

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7. Ratings Of Generally Available Foods

NAME OF FOOD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	TOTAL RATING
ALMOND	-10	8	5	5	4	10	5	5	5	40	77
APPLE	0	10	10	10	10	3	5	4	3	40	95
APRICOT	0	10	10	10	10	5	5	5	3	40	98
ASPARAGUS	-20	3	3	6	3	5	5	5	3	0	13
AVOCADO	0	10	8	8	7	5	5	5	5	40	93
BANANA	0	10	10	10	10	5	5	5	5	40	100
BARLEY (cooked)	-35	0	5	4	5	3	2	2	3	40	29
BEAN, Green	,5	3	3	7	3	5	5	5	5	15	46
BEAN, Sprouted	-5	3	3	7	3	5	5	5	5	20	51
BEAN, Dried, Cooked	-40	0	5	2	3	5	2	2	5	35	19
BEET, Raw	-20	3	2	4	4	5	5	5	1	5	14
BEET GREENS	-40	2	1	3	3	5	5	5	3	0	-13
BERRIES w/seeds Generally	0	10	8	10	10	5	5	5	5	35	93
BRAZIL NUT	-5	10	5	6	6	5	3	5	5	40	80
BROCCOLI	-5	10	5	7	6	5	5	5	5	10	53
BRUSSELS SPROUTS	-10	10	3	5	4	5	5	5	4	0	31
CABBAGE, Common	-10	10	3	6	4	5	5	5	3	0	31

CANTALOUPE	0	10	10	10	10	5	5	5	3	40	98
CARROT	-5	10	5	7	6	5	5	5	3	30	71
CASHEW (Slightly heated)	-20	5	8	5	6	5	3	5	5	40	62
CAULIFLOWER	-5	10	4	6	5	5	5	5	3	15	53
CELERY	-5	10	5	7	1 5	5	4	5	1	0	36
CHARD, SWISS	-40	2	2	4	3	5	5	5	4	0	-10
CHERIMOYA	0	10	10	10	10	5	4	5	4	40	98
CHERRY, Sweet	0	10	10	10	10	5	5	5	4	40	99
COCONUT (Hardened)	-10	6	4	4	5	5	3	5	5	40	67
COLLARD GREENS	-5	7	4	6	7	5	5	5	5	0	39
CORN, Fresh Sweet	0	10	5	9	9	5	5	5	5	40	93
CUCUMBER	0	10	5	6	6	5	5	5	3	5	50
DANDELION	-40	10	1	3	4	5	5	5	5	0	-2
DATE	0	10	10	10	10	4	3	5	3	40	95
EGGPLANT	-15	10	2	6	5	5	3	5	3	5	29
EGGPLANT, Steamed	-15	0	6	4	3	3	2	3	3	5	14
FIG	0	10	10	10	10	5	4	5	5	40	99
FIG, Dried	0	10	10	10	10	5	2	4	5	40	96
FILBERT (Hazel Nut)	-5	10	6	6	5	5	3	5	5	40	80
GARLIC	-80	0	0	0	2	3	1	3	1	0	-70
GRAPEFRUIT	0	10	9	10	10	3	5	4	2	25	78

GRAPES, Generally	0	10	10	10	10	5	4	4	4	40	97
KALE	-5	10	5	7	7	5	5	5	5	0	44
LETTUCE, Leaf	-5	10	7	8	8	5	5	5	3	0	46
LETTUCE, Iceberg	-5	10	6	7	5	4	5	4	1	0	37
MANGO	0	10	10	10	10	4	5	3	5	40	97
MELONS (See Cantaloupe and Watermelon)											
MILLET, Steamed	-10	0	4	6	7	4	2	3	4	40	60
OKRA	-10	7	5	5	6	5	5	5	5	20	53
ONION	-60	0	0	3	4	5	2	3	1	10	-32
ONION, Cooked	-40	0	5	2	4	3	1	2	0	10	-13
ORANGE, Pulp	0	10	10	10	1.0	5	5	5	2	40	97
PAPAYA	0	10	10	10	10	4	5	4	2	40	95
PEA, Sweet Fresh	0	10	7	9	1 9	4	5	5	4	40	93
PEACH	0	10	10	10	10	4	5	4	2	40	95
PEANUT	-30	7	4	2	4	3	2	5	5	40	42
PEAR	0	10	10	10	10	3	4	3	4	40	94
PECAN	0	10	7	7	5	5	3	5	5	40	87
PEPITAS (Pumpkin and Squash Seeds)	0	10	6	5	5	5	3	5	5	40	84
PEPPER, Sweet	0	10	6	7	8	5	5	4	4	10	59
PERSIMMON	0	10	10	10	10	4	5	4	4	40 .	97
PINEAPPLE	0	10	10	10	10	2	4	3	4	40	93

PLUM	0	10	10	10	10	3	4	3	3	35	88
POPCORN, Dry Popped	-20	0	5	8	8	2	1	3	1	40	48
POTATO, Irish	-10	0	0	2	3	3	5	5	3	20	21
POTATO, Irish, Steamed	-20	0	5	6	7	3	3	4	2	40	50
POTATO, Sweet	0	5	4	4	5	5	5	5	5	40	78
RICE, Brown, Steamed	-20	0	4	5	6	1	1	2	2	40	41
RUTABAGA, Peeled	0	6	4	5	6	5	5	5	2	25	63
SESAME SEEDS	0	8	4	6	4	5	3	5	5	40	80
SPINACH, Raw	-30	7	3	5	7	5	5	5	5	0	2
SPROUTS (Alfalfa, Sunflower)	0	9	5	8	8	5	5	5	5	0	50
SQUASH, Summer Steamed	-20	0	6	6	8	4	3	3	1	20	31
SQUASH, Winter Steamed	-20	0	6	6	8	4	3	3	2	40	52
STRAWBERRY	0	10	10	10	10	4	5	4	5	30	88
SUNFLOWER Seeds	0	8	5	7	7	5	3	5	5	40	85
TANGERINE	0	10	10	10	10	3	5	4	2	40	94
TOMATO	0	10	10	10	10	5	5	5	4	20	94
TOMATO	0	10	10	10	10	5	5	5	4	20	79
TURNIP, Peeled	-10	6	5	5	6	4	4	4	4	20	44
TURNIP GREENS	-30	1	2	3	4	5	5	5	5	0	0
WALNUTS, English	-10	8	6	7	5	5	3	5	5	40	74

WATERMELON	0	10	10	10	10	4	5	4	4	40	97
WHEAT	-30	0	0	1	2	5	2	5	5	20	5
WHEAT, Cooked lightly	-40	0	5	4	5	3	1	3	5	40	26
BREAD, White	-60	0	6	3	3	1	0	1	1	40	-5
EGGS, Cooked	-40	0	2	2	3	3	1	3	1	40	15
HONEY, RAW	-50	10	10	7	6	1	1	1	0	40	16
MEAT, Beef, Cooked	-60	0	0	3	4	4	0	1	1	15	-36
MILK, Pasteurized	-40	0	3	2	3	1	1	3	1	40	14
SALT	-100	0	0	0	0	0	0	0	0	0	-100
SUGAR	-50	0	0	0	0	0	0	0	0	40	-10

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8. Questions & Answers

You have given a very low rating to vegetables and even suggest that we limit our intake to about 2 to 5 %. You've said before we eat vegetables as insurance or protective foods. If they're such good protective foods why not make them half of our food intake? If they really protect us, I think they're good for a bigger share of our dietary intake.

> Vegetables rate much lower since, in examining the charts, it is obvious that they lack many qualities of prime foods. Many vegetables have some toxic factors. They are not savored as are exquisite fruits. They are not digested with the ease and efficiency of fruits. They furnish us no energy at all in most cases. Some actually use more of our energy to process than we can get from them! I calculate that 90% of our eating should be involved in obtaining fuel values. The other 10% should be in association and would be proteins, fat, and minerals with vitamins and other food factors included. Foods such as vegetables fail to furnish caloric values. Nutrient insurance s all they can possibly furnish. Even in this consideration, we really don't need them.

You equate protein with vitamins, minerals and fatty acids. Isn't protein more important than that?

Proteins are the building stones of all living beings. They compose some part of every living cell, fruits included. Yet protein is not more important than other food factors that we ingest, neither relatively nor absolutely, infants thrive on mothers milk which is about 1.2% protein. As long as we get that amount of protein with all essential amino acids amply represented, we're getting as much as we need.

I don't think we need as much protein as a growing baby. If we get 1% protein from a diet that averages seven pounds of food a day we'll be getting 32 grams of protein, though this represents about 50% less than the U.S. RDA, it is still more than a healthy body can make use of. It is wise to point out that the body is capable of meeting about 70% of its protein needs by recycling its own protein wastes. There are thriving pockets of people in the Caribbean who are superb specimens of healthy humans lat have an intake of only 15 to 20 grams of protein daily.

What should we do if a client comes to us who is overly thin and on a protein-deficient diet?

In the field of practice, you'll have many clients that are deficient in many ways, proteins included. One person can have a well rounded diet on a single food and get all he or she needs of every food factor. Another person might subsist on a diet which supplies four or five times our protein needs but, if the diet is cooked or fed to a metabolic cripple, the protein may be largely unavailable. You will not be dealing with deficiencies, per se. In most cases where there are some body reserves you'll advise the client to fast as long as indicated and then realiment the client on a diet of proper foods prepared and served in a manner we have taught you to observe. Your clients' bodies are their sole remedial means. If the conditions for healing and regeneration are established, you must leave them entirely alone. Anything other than this practice will constitute interference. Protein deficiencies are not nearly as likely as other deficiencies and none of these are as likely as toxemia. Toxemia will be the condition of nearly every client you'll get.

How do you determine which nutritive factors a client is deficient in? If most Americans are sick in some way and malnourished, how would I tell what is wrong or what the deficiency is?

In view of my previous response I think the question should be declared already answered. But I bid you, as professional health practitioners, not to get into diagnosing. You don't have to know, in most cases, the particulars of a client's deficiencies. These deficiencies may actually be the result of chronic toxemia that has lowered the person's capacity for assimilation and utilization of foods. If the client is thin, start him out on a diet of easily digested fruits, especially melons, oranges, grapes and other succulent fruit fare. A mono diet of a single fruit would be in order, or at the very least, mono meals. A simple diet of proper foods will give the body some surcease and enable it to purify itself of its toxic burden and to repair damage and rebuild tissues. Don't expect instant results or miracles, because it's often a slow process. The client should take little food while in the eliminative state. When hunger increases, the diet should have its caloric values increased by greater intake or by more concentrated foods such as bananas, figs, dates, or raisins.

Should a client have reserves of fat, and most of your clients will be either normal or overweight, induce them to undertake a fast so the body can eject its toxic load with more facility. Then, after an appropriate period of fasting, start feeding them on a small amount of a single fruit and increase that as indicated.

You'll learn more about these methods in our lessons on fasting as a part of nutrition. Further, you'll learn that your response to all deficiencies, illnesses, and morbid blood and tissues will be much the same. You'll vary your guidance and establish healthful conditions for your client in accord with his physiological circumstances. The variations will be very few. Just a few patterns will emerge that you can master thoroughly.

You've got a great idea about rating foods as you have. But you give some very low ratings to some good things, especially to lettuce and celery, which you praise so much. Below what rating would you refuse to eat a given food?

Keep in mind that this chart is primarily intended to appraise the value of a food in the human diet on its merits when eaten alone. There are some fine complementary foods such as lettuce and celery that may be added to other foods to achieve certain nutritional objectives. For instance, when lettuce and celery are added to an apple meal, the combination supplies needed additional protein and mineral salts. These two vegetables do not interfere significantly in the digestion of many fruits. Ideally, we should eat primarily foods of the highest rating with some secondarily-rated food. A few nuts should be eaten on occasion. The avocado is a fruit of nut-like consistency that is extraordinarily wholesome. I would say that I would refuse to eat anything rated below 30 and I would not eat higher-rated cooked items. Further, I would be cautious about eating some highly rated foods that had toxic materials in them. This especially applies to cooked foods where an inorganic mineral complement has been created, and where food derangements have taken place that will give the body digestive problems additional to those encountered in the finest foods.

I'd like to know more about the unprocessed mineralized water in vegetables. Why is this so harmful?

Our bodies cannot use inorganic minerals. The body treats inorganic minerals as poisons and utilizes its energies in trying to expel them. Whether the raw minerals come from hard water, from fresh leaves, stems and stalks or from the by-products of cooking decomposition, the body cannot use them. Instead, they create an eliminative problem. If uneliminated these minerals are likely to combine with fatty substances and harden, thus ossifying the brain and clogging arteries and veins. It is said that herbivores are short-lived because of the abundance of inorganic minerals in their food.

What do you have against spinach to rate it so low? I'd rather eat raw spinach than a cooked potato, which you rate much higher.

Spinach contains oxalic acid and unprocessed raw minerals, like all other leaves. Fruits, on the other hand, have pure water — they are finished products. Oxalic acid cannot be metabolized with any degree of facility by the body. To neutralize it, the body draws upon calcium supplies, even calcium from the bones if necessary. Oxalic acid gives a peculiar taste that is readily recognized. I know of no normal palate that can abide it. The calcium of spinach is more than offset by its oxalic acid content. Spinach is not a food you can live on. You'd have a calorie deficit with every meal of it. If a few leaves of it were added to a salad or to some starch, fat or protein meal, there is little to object to.

Dr. William Howard Hay said all diseases are the result of acid-alkaline imbalance. Why don't you tell us which foods are acid-forming and which are acid-binding? Think how important that is if a client is suffering acidosis.

If a client suffered true acidosis he would be dead. Over-acidity is readily corrected by fasting or by a simple diet of mono fruit meals. Causes of acid-alkaline imbalance are eating foods that are predominantly acid-forming, notably cereal foods, meats, dairy and poultry products, seafood and even nuts.

Within a day or two of going on a proper diet, the acidotic condition is corrected. Celery happens to be a heavily alkaline food that helps a lot. So, too, are figs which are rich in alkaline salts. The worst thing that can happen is to use drugs or antacids. This does not solve the problem. While relief may ensue, the cause, an acid-forming diet, yet remains. Fruits and vegetables quickly establish an alkaline balance.

I've heard so much about how important salt is in the diet. You give it all zeros and give it a minus 100. Does this apply to sea salt or vegetable salts too?

You can readily determine just how important salt is in the diet when you see physicians in this country putting hundreds of thousands on salt-free diets. If salt were essential, no one could do without it. Salt is not digestible or usable. It stays in our bodies until we can in some way eliminate it. The body takes on extra water to hold it in suspension so it offers less harm to cells. It deserves all zeros for, in addition to rating all zeros, it has harmful effects that create disease, notably congestion, high blood pressure, edema and other conditions that earn it a big minus rating.

Sea salt is equally as poisonous as the refined variety. It is extracted from sea water and, in addition to salt, it contains other minerals that are in an inorganic and unusable state. As you perhaps know, sailors prefer death through dehydration rather than death from drinking sea water.

Vegetable salts are dehydrated vegetables that are ground up and are often mixed with additional salt. These are also unwholesome in the diet.

You gave honey a good rating in every department except nutrient content and toxicity. Why did you do this?

The bee laces its honey with several acids, some for which only the bee has enzymes for reconversion. Such acids are poisonous to bacteria and humans alike. That's one of the bee's ways of preserving its food supply. Those acids earn the toxicity rating even though, of its six acids, about half are metabolizable. If you tried to make a meal of honey only, you'd find it tasty and fully calorie sufficient. But you'd probably get a bellyache unlike any you've ever had in your life. You would probably get other problems too. Honey is very poor in nutrients right down the line. It has practically no protein, vitamins, minerals or essential fatty acids. Only the pollen that is incidentally in the honey has any appreciable amount of nutrients. Honey is, literally, sugar water the bee has obtained from flowers as its reward for performing a service. The sugars in honey are primarily levulose and fructose. The bee dehydrates and thus concentrates them. Honey is developed by bees for bees. Nature did not make us dependent upon the industriousness of bees for our sustenance.

I love turnip greens in my salad. You have given them a zero rating in the diet, which means they're worthless. How do you come to that? There are some northern peoples, especially in Northern Europe, who practically live on turnip greens and turnips.

Turnip greens will not long sustain life. They are one of the richest green leaves in nutrients, yet they furnish no calories. Further, they contain unprocessed mineral water and mustard oil that makes them toxic in the diet. Turnips have relatively little mustard oil and are rather wholesome in the diet. They contain a complex sugar instead of starch as their fuel component. A meal can be made of turnips and relative good health will result compared to a conventional diet. Yet by no means are they an excellent food. There are many other foods that are better.

You gave oranges a nearly perfect rating. As far as I know, oranges are a high water content, low

calorie food. How many oranges would you have to eat a day to live on them?

That is a most appropriate question since we have rated this as a food you could fare well on in and of itself. To illustrate this point, a Florida man lived on oranges and only on oranges without ill effect for six years. In fact he was described as being robust in health all the while. The weight of the oranges you should consume to sustain yourself would have to be about 10 pounds of peeled oranges daily. That is about 20 oranges. That would give you 2,250 calories, 45 grams of protein, 1800 milligrams of calcium, 2,250 milligrams of vitamin C, 9 grams of fats, 18 milligrams of iron—in short, a surfeit of all our needed nutrients. As a great lover of oranges I can't consider such a diet as being unpleasant. I've consumed a mono diet of oranges myself for periods of up to two weeks and find them a most excellent food. I was coming off a fast at the time and gained almost ten pounds of weight on them.

How can you rate fruits so high when it is aid we can't get enough protein, calcium or iron out of them?

I think I just indicated the falsity of your statement by citing oranges as being more than replete with the nutrient needs of life. Oranges furnish about twice our real protein needs, ten times our iron needs, about 100 times our real Vitamin C needs, and about 9 times our calcium needs. Keep in mind that the Recommended Daily Allowance is usually from 100% to 500% higher than our real needs in a healthy condition. Almost any fruit you can name, when eaten in an amount sufficient to supply your caloric needs, also supplies you amply with other nutrient needs.

That is surprising, but my question is along the same lines. Why do you give the same fuel value rating to dates and watermelons? According to my food composition handbook, a 100 gram serving of dates has 274 calories and a 100 gram portion of watermelon contains only 26 calories. How can a 90% difference end up with the same fuel value rating? Also, this same book shows turnip greens as having 28 calories per 100 gram serving, more than watermelon, yet you give turnip greens a zero fuel value rating. Can you explain these discrepancies?

There are reasons that our ratings are more or less correct despite these apparent discrepancies.

Keep in mind that water is a neutral factor in foods. If you took all the water out of watermelon, 100 grams of its residue would contain about 340 calories. This corresponds to the caloric content of 100 grams of dates without water content. Watermelon has about 13 parts water for each part of solid. Five pounds of watermelon contains about 600 calories, which is about the same as eight ounces of dates. Both would be considered ample servings.

In the summer you need more water and less calories. Watermelon fills the bill well in that regard. In the winter, you need more calories and less water. Dates are a valuable addition to the diet at that time.

Turnip greens occasion the use of more body energy in processing and expelling than can be appropriated from them. Most of their calories are in cellulose. True, they yield 28 calories of heat when burned in a firebox. Humans can't get all of that energy out of turnip greens. Watermelon, on the other hand, is composed of simple sugars which we can make 100% use of. There is a greater than 900% energy gain over the energy expended in digestion and appropriation of watermelon.

I hope this response clears up the seeming discrepancies in our ratings chart.

How would you rate brewers yeast as a food?

I'd rate it below zero. It loses out on every count, even though it has lots of protein and nutrients. Unless disguised, brewer's yeast is repulsive stuff. Even if disguised, it is indigestible. When we eat brewer's yeast, bacteria decompose it resulting in the formation of gases and poisonous by-products of protein decomposition. Your urine will turn yellow within an hour of taking it, showing that it has been excreted rather than digested and used. Because it is not digested, it can furnish no nutrients. It gives, instead, drug effects which many mistake for nutrient effects. Keep your clients off this junk the brewers industry has foisted off on health seekers as a food.

Dr. Airola says that garlic is a real miracle food with great healing properties. Many other health authorities say the same thing. You classify it as very toxic from the beginning. In fact you give it ten rating points as a food and 80 demerit points as a poison! Who am I to believe, you or Dr. Airola? He's a well known authority on nutrition and, until my introduction here, I'd never heard of you. I've always heard garlic is a wonderful medicinal food, not a poison. It is usually recommended as one of the first foods to add to the diets of sick people. Can you justify your stand?

I imagine Copernicus had an extremly hard time about his concept that the world was round in an age when all the authorities said it was flat and when everyone believed it was flat. But we know valuable truths arise first in the minds of a few and gradually spread to the masses.

Garlic is treasured for its drug effects, not its nutritional effects. It contains two potent poisons, mustard oil and allicin. These poisons earn garlic its minus rating.

As a food, I doubt that anyone can manage to eat a single bulb of garlic by itself. Consider garlic as a food in itself. If you tried to eat enough to obtain the fuel values you needed, presuming of course an amount of garlic was eaten to represent our caloric needs, you'd probably not survive the ordeal!
When anyone praises the medicinal value of something, they're talking about drug effects, not nutritional effects. It is absurd to speak of anything as having healing properties. Healing is totally, exclusively and only a faculty of the organism and belongs to absolutely nothing outside of the organism. Dr. Airola is praising a drug as a food and in matters of healing, does not seem to understand physiology.

I would advise you to believe no one. Investigate matters for yourself. To believe is to be credulous. To know is to be virtuous. Learn the "nitty-gritty" of everything. Don't rely on so-called authorities. Remember, every wrong system of the past and present had and has its authorities. Don't trade on authority. Trade only on the truth you can ascertain.

I don't ask you to believe me. I ask you to examine everything I say and question it just as you are now doing. Put everything to the test. You'll betray the trust of your clients if you guide them wrongly. Learn the truth so that you may truly help them.

Isn't it possible, in view of our knowledge of nutrients and tasty natural foods that combine well, that we can create meals far more wholesome and delicious than just any single food item? For instance, an avocado with greens and tomatoes really tastes great and gives us a complete range of our needs.

Yes, we can construct meals. The rating charts are based on the outlook that, in nature, we were adapted to certain fare and that we ate primarily or only of that fare during its season as is the case with present day animals. But the fact that we can construct well-rounded meals does not mean they are more wholesome than a single food with a high rating. The meal you suggest is an excellent one. However I would advise not to eat an oil/protein salad meal such as you suggested more often than once every other day. The body is very provident and conserving. It's a lot wiser than our wildest imaginations can lead us to contemplate. For instance, if you're having steamed potatoes, then the addition of such auxiliary fare as cucumbers, bell peppers, broccoli, lettuce, and celery is judicious. If you're having nuts or avocadoes the addition of the same salad fare plus tomatoes is also justified. Our bodies usually handle vegetable fare rather easily. Yet our bodies are inefficient at getting much food value from vegetables other than a goodly part of their rich nutrient load.

Isn't it unhealthy to eat only one food at a meal? The law of the minimum says we must get all our nutritional needs in each meal for that meat to do us good. Why not balance out every meal as recognized nutritionists recommend?

I assure you that our "recognized" nutritionists are about as far off in this matter as in the foods they're placing their stamp of approval on in America today. I presume you've heard of Dr. Frederic Stare who chairs the department of nutrition at Harvard. He claims we should eat for enjoyment. He says such a practice is the healthiest thing to do, and has renamed junk foods joy foods. I hope you aren't giving credence to these "recognized" nutritionists who're busily engaged in selling our health down the river—for a price of course.

The balanced meal concept is based on ignorance and assumptions. The law of the minimum has nothing to do with what we eat at a given meal. I repeat that the body is immensely wise, provident and conservative. Did you know that about 95% of our iron needs can be met from recycled iron? That about 70% of our protein needs can be met from recycled proteins? That the body, contrary to what nutritionists tell you, maintains amino acid pools? That, contrary to what we're told, it stores vitamin C in the adrenales? That the body carries about a five year supply of Vitamin B-12 and receives its supply from bacterial activity in the lower intestine just as is the case with other animals? The law of the minimum applies to the least available needed nutrient at time of synthesis.

When you recognize these factors you begin to realize that the balanced meal concept is incorrect and unnecessary. It gets us into eating protein/carbohydrate/oil and other incompatible combinations at the same meal. Instead of getting a "balanced" meal we get an indigestible mess. In fact, about half of America's meals end up with some degree of indigestion, from mild to severe. That's why the makers of antacids are so many and so rich that they can advertise widely on TV, radio and in other media. If we don't digest our meals, it should be obvious we're not going to get the nutrients we need from them either. Obviously the balanced meal concept is a fallacy.

On the other hand, the foods of our adaptation are the building blocks of balanced meals. These foods give us nutrients in proportion to our ability to handle them. Our development in nature has been built around the foods that best serve us. It might be said we adjusted so as to thrive on them. While the proteins, fats and starches as may exist in fruits are, in a sense, incompatible, they are so organized and our adaptations are so tailored that we handle them with ease and efficiency. Thereby we receive their full goodness while getting our primary need, calorie-rich carbohydrates.

If we get less than our needs of a nutrient at one meal, the body's reserves and providence will carry us on stored past surpluses. Until another meal is indulged that again furnishes us a surfeit of that nutrient, our reserves will cc less, that's all. We'd best eat of foods of our adaptation as do the animals in nature and worry not. That is the message you have to get

> across to your clients as well.
>
> Our nutrient needs are much smaller than the world at large wants to admit. This "the more the better" philosophy has sabotaged our collective health. When we get all we need of anything, that is enough. Enough is all we need. Surpluses of proper foods eaten in the regular course will cause problems. If we overeat on wrong foods and foods incompatible with each other we compound the problem immeasurably. Because this is so often the case, it's no wonder that America is such a sick nation! More than 80% of our ill health is attributable to dietary indiscretions. If we corrected our dietary errors alone the health of this country would improve by more than 80%. That's because our dietary fare represents the ever-whelming burden that breaks the camel's back of health, so to speak.

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Article #1: Are We Vegetarians Or Fruitarians?

At this point in our study of the character of our natural dietary, I feel it is important to address this question: are we vegetarians or fruitarians? The true answer to this question is extremely important. Nothing could possibly contribute more to your success as a health practitioner than the mastery of the knowledge of our dietary character.

There are about twenty million people in this country who call themselves "vegetarians." Most vegetarians fuel their bodies with what is called vegetarian fare. That is, they fancy themselves as a class of herbivores or plant eaters. We Life Scientists contend that we are not ruminants or herbivores.

Why are we delving into such a narrow-ranged inquiry? There are many amongst us, even those who call themselves Hygienists or Life Scientists, who feel that vegetable fare is proper for humans. If I felt that were true, I would not be pursuing this inquiry. Of course, that does not mean, ipso facto, that I'm right. I will nevertheless endeavor to demonstrate that vegetarian fare lacks the most fundamental requirement for human food and that it fails to meet many necessary criteria to be the basis of the human dietary.

In our life practice and those we endeavor to instill in others, we must strive for dietetic perfection. The best diet, as a component of a well-rounded health regime, will yield the greatest measure of health. From that abundant health springs the greatest joys in life. That which is good is also beautiful. That which is wholesome makes us wonderful for ourselves, for others and for society. An ideal diet is the basis for the best possible level of health. Thus this inquiry is conducted for the purpose of ascertaining what constitutes an ideal diet.

Our natural foods must necessarily appeal to ALL our relevant senses. It follows that our natural foods must delight our eyes, be of a fragrance that tantalizes our olfactory senses, and be of such titillating quality to the taste buds as to be ambrosia. Eating should always be a gustatory delight. Our development in nature was such that discomforts and unpleasantness were never a condition of life. Only when we deviate from our natural adaptations do we suffer. Hence it is a truism that our natural foods are enchanting to the eye, captivating to smell, ecstatically delicious to eat and harmonious in the body. This truism invites comparisons based on sensual' involvement in the selection and consumption of foods.

When we were entirely the children of Nature, we did not have utensils or cookstoves as a part of our endowment. We had to eat our foods as we found and gathered them in nature. So the ascertainment of the value of foods is necessarily based on the condition in which foods come to us from nature, in their living or raw state, at the peak of perfection. The comparisons I am about to set forth must be valid for you only if they relate to your preferences.

Which would you prefer? The aromatic sweet flesh of a properly ripened pineapple or a head of broccoli? Would you rather have a delectable sun-ripened peach or a few raw collard greens? Would you prefer a stalk of celery or a bunch of purple concord grapes? Which entices you the most, a colorful juicy orange or spinach greens? Does a head of cabbage attract you as much as a properly ripened, brilliantly yellow and brown speckled banana? Which lures your eye most for beauty, a large red delicious apple or a freshly dug carrot? Does a basket of brussels sprouts turn your head as much as a basket of strawberries? Is the heavenly delicacy of a Cornice pear matched by anything you've ever eaten from the lettuce family?

If you've ever eaten a cherimoya, mango, mangosteen, soursop, sapodilla, fig, date, watermelon, cantaloup, honeydew or other mouthwatering delights, you know well their joys. Can you compare the eating of any single vegetable in its raw state to eating any of these heady delights? Can you not see that, in order for a food to be a natural item of human dietary, we must be capable of relishing that food eaten by itself in the raw state?

Not only must the food be a gourmet experience in its living state but our fill of it must furnish us with most if not all our nutrient needs. This is a most vital consideration.

Can you name a single vegetable that you'd ravish, as a full meal of itself in its raw state? Almost any vegetable that you can name fails in the first prerequisite of a food: it must furnish us amply of our fuel requirements. Almost every vegetable you name does not furnish us with any significant amount of caloric values. All green leaves, regardless of their calorie rating, yield us no net increase in calories. The energy of digestion and assimilation often exceed the calories obtained therefrom. Most of the calories of vegetables are bound in indigestible cellulose. Ruminants with four stomachs, true herbivores, can digest cellulose and thereby obtain fuel and nutrient values. We humans become as thin as a rail if we try to sustain ourselves on vegetable fare.

The potato, a tuber, is regarded as a vegetable. If eaten raw, it cannot be relished. Moreover, its starches cannot be utilized for two reasons. First, most of its food values are inaccessible to us because they are encapsulated in cellulose membranes. Secondly, those values which are freed quickly exhaust our supply of the starch-splitting enzyme, ptyalin (salivary amylase).

Cereal gains, which are popularly regarded as vegetables even though they are not, have the same drawbacks in digestion as does the potato. Grains occur in an edible state but a day or two in their cycles. Otherwise they're inedible except upon heavy soaking or sprouting. Even when soaked or sprouted, every grain is deficient in one or several aspects of its nutrient complement. Most also offer digestive problems. The gluten of wheat, for instance, is indigestible. We simply don't possess the enzymes to break it down. Wheat protein is bound as gluten. Further, most grains contain phytic acid, which we cannot handle. They bind calcium and thus rob us of that mineral salt.

An examination of every vegetable reveals it, when it stands on its own, as unsuited for human sustenance in some significant aspect or other. Fruit, on the other hand, supplies us amply with all our needs including proteins, mineral salts, vitamins, fuel and other vital food components, known and unknown.

We can relish fruits in their raw ripe state without any special preparation beyond pitting and/or peeling. I know of very few vegetables that would even begin to furnish our needs amply that we can make a meal of, even if we did relish them. Turnips, rutabagas, kohlrabi, fresh sweet corn, sprouted legumes and fresh sweet peas (where starch has not set) would be some of the near exceptions.

Without cookery and condiments most vegetables are unappealing. We must jazz up their lack of taste appeal with stimulating herbs or unwholesome flavorings, fats, seasonings, etc. We must deceive our senses in order to consume vegetables. Condiments and cooking are very destructive to our health.

Most vegetarians eat fruits, even a preponderance of fruits, yet call themselves vegetarians. Many vegetarians consume fish, milk and dairy products and eggs and still fancy themselves vegetarians. Of course these products are not even vegetables. Vegetables are plants. But the seeds of plants, the legumes, the grains, certain fruits such as cucumbers, squash, pumpkins, tomatoes, eggplants and peppers are regarded as vegetables though technically they are not.

Not all fruits meet the proper criteria as food for humans. Nuts and avocados are suitable as food but we could not sustain ourselves on them whereas we can sustain ourselves indefinitely on grapes, bananas, oranges, figs, dates and many other fruits. We'd never make it on fruits such as cucumbers, tomatoes, eggplants, peppers and squash any more so than we can make it on cabbage or celery.

A good indication of what our natural foods are can be determined by the natural preferences of a child that has been fed nothing but its mother's milk. Does it like cereals or bananas'? Apples or cabbage? What will a child go for if let to choose its own food? In my experience such a child always has chosen fruits. When served vegetables, my child found them a chore to eat, though he ate them to some extent.

We have considered vegetables and fruits based on aesthetic appeal and fuel requirements. There are other touchstones for consideration which we shall now explore. Humans are classed as frugivora or frugivores or fruit eaters because of their anatomy, their primate character, their digestive faculties, their psychological disposition and their background in nature. Research has shown that we had an arboreal past—that we were once tree dwellers. At that time we depended upon the products of tree, and later upon the fruits of stalk and vine, for our sustenance.

For example, Dr. Alan Walker, an anthropologist of Johns Hopkins University in Maryland, has done research that shows that humans were once exclusively fruit eaters. By careful examination of fossil teeth and fossilized remains of humans with the aid of electron microscopes and other sophisticated tools, Dr. Walker and other researchers are absolutely certain that our ancestors, up to a point in relatively recent history, were total fruitarians. These findings were reported in depth in the May 15, 1979 issue of the New York Times.

These findings complement other findings and verify the consistent scientific classification of humans as frugivora.

Creatures that live in accord with their biological heritage do not develop disease. They live out their normal life spans and die natural deaths. Humans have by and large strayed from their natural dietary and for that reason suffer disease and early death. Humans who undertake to live on their natural dietary and observe other modalities of healthful living also live unto a ripe old age and die a natural death. Although it is a rarity, people who touch base with life's requisites have lived well past 100. In Hunza such a lifespan is a rule rather than the exception, even though their dietary is far from ideal.

Green leaves and stalks contain a greater concentration of vitamins, minerals and other nutrients than fruits. But they also contain, in most cases, compounds we cannot handle well. Lettuce contains minute amounts of a poison called lactucarium, which is a soporific. It is contained in a milk-like substance, just as in the poppy. Large amounts of lactucarium can be gathered and converted to substances resembling opium and heroin.

Celery has bitter properties in the leaves which make them repulsive to the normal palate. Anything that disagrees with our taste buds has, ipso facto, been rejected at that point. That is not to say, on the other side of the ledger, that a pleasant taste is the sole criteria by which to select foods, even with foods as they occur in nature, our taste is the surest guide we have if our taste buds are unperverted.

I deeply believe that we can add certain vegetables to our diet in small quantities with some benefit, most notably lettuce and celery. Their wealth of vitamins and mineral salts as well as their high quality protein amply supplement and insure adequacy of a fruitarian diet. Our bodies handle small amounts of such vegetable fare rather efficiently and without protest. In conjunction with a vegetable meal certain fruits can also be added, especially bell peppers, tomatoes and avocados. Secondarily we can add nuts on occasion or seeds such as pumpkin, sesame id sunflower. These seeds have the same dietetic character as nuts even though humans probably never ate them in nature.

It is well to always keep in mind that we are not naturally herbivores, graminivores, carnivores, insectivores or omnivores. Neither are we oil, protein or starch eaters except incidentally. Our protein needs are met amply from fruits but the occasional addition of nuts, seeds and greens insures dietary protein adequacy. However, we do not handle concentrated foods containing oil, proteins and arches with any great degree of efficiency. They are best eaten infrequently, perhaps two or three times weekly as Proteins require about 70% as much energy to digest and assimilate as they furnish whereas sweet fruits are so efficiently handled that the body is able to utilize over 90% of their caloric energy after deducting energies expended in ingestion and assimilation. Moreover, proteins are not used for energy as long as carbohydrates and fats are available.

That to which we are physiologically adapted is also most effectively and efficiently utilized. Vegetables, I repeat, yield us no calories as a rule though we do obtain from them a plethora of nutrients. Even so, fresh ripe raw fruits furnish us amply of our needs including proteins, vitamins and mineral salts. Even our very small need for essential fatty acids is well met by fruits. When we meet our requirements, that's enough. Enough is all we need. Oversubscription can be like overloading a truck or a mule—it is very taxing and damaging.

Though vegetables are not natural to our dietary I must reiterate this observation: Not all vegetables are bad in our diet for they are consonant with our needs. On the same order, not all fruits are good for us. Many fruits are poisonous. Some, though not poisonous, are not handled well, such as oily fruits like Brazil nuts and pecans, high protein and fat content nuts and seeds such as almonds and sunflower, and starchy fruits such as pumpkins and chestnuts.

No natural food in the world rivals fruits for exquisiteness and wholesomeness. Inasmuch as tables of composition of foods show fruits replete with our needs, and inasmuch as we can more efficiently make use of the nutrients of fruits than any vegetable, legume or grain, we can safely confine ourselves to completely fruitarian fare with great benefit.

While the condition and quality of fruits available in our marketplaces are lamentable, the same goes for everything else sold as foods! So we are still better off with fruits. Some fine quality fruits can be obtained and we should concentrate upon those. Dried fruits have considerable goodness too. We should complement our fruit meals with some dried fruits, especially if we're in need of high caloric intake.

I believe the points made herein support overwhelmingly that we are fruitarians. Thus I rest my case.

THE CARNIVORA	**THE OMNIVORA**	**THE HERBIVORA**	**THE ANTHROPOID APES**	**MAN**
Zonary placenta	Placenta non-acciduate	Placenta non-deciduate	Discoidal placenta	Discoidal placenta
Four Footed	Four Footed	Four footed	Two hands and two feet	Two hands and two feet
Have claws	Have hoofs	Have hoofs (cloven)	Flat nails	Flat nails
Go on all fours	Go on all fours	Go on all fours	Walks upright	Walks upright

Have tails	Have tails	Have tails	Without tails	Without tails
Eyes look sideways	Eyes look sideways	Eyes look sideways	Eyes look forward	Eyes look forward
Skin without pores	Skin with pores	Skin with pores (save with pachyderms as the elephant	Millions of pores	Millions of pores
Slightly developed incisor teeth	Very well-developed incisor teeth		Well-developed incisor teeth	Well-developed incisor teeth
Pointed molar teeth	Molar teeth in folds		Blunt molar teeth	Blunt molar teeth
*Dental formula 5 to 8.1.6.1.5 to 8 5 to 8.1.6.1.5 to 8	Dental formula 8.1.2 to 3.1.8 8.1.2 to 3.1.8	Dental formula 6.0.0.0.6 6.1.6.1.6	Dental formula 5.1.4.1.5. 5.1.4.1.5.	Dental formula 5.1.4.1.5 5.1.4.1.5
Small salivary glands	Well-developed salivary glands	Well-developed salivary glands	Well-developed salivary glands	Well-developed salivary glands
Acid reaction of saliva and urine	Saliva and urine acid	Alkaline reaction, saliva and urine	Alkaline reaction, saliva and urine	Alkaline reaction of saliva and urine
Rasping tongue	Smooth tongue	Smooth tongue	Smooth tongue	Smooth tongue
Teats on abdomen	Teats on abdomen	Teats on abdomen	Miammary glands on breast	Mammary glands on breast
Stomach simple and roundish	Stomach simple and roundish large cul-de-sac	A stomach in three compartments (in camel and some ruminents four)	Stomach with duodenum (as second stomach)	Stomach with duodenum (as second stomach)
Intestinal canal 3 times length of the body	Intestinal canal 10 times length of the body	Length of intestinal canal varies according to species, but is usually 10 times longer than body	Intestinal canal 12 times length of the body	Intestinal canal 12 times length-of the body
Colon Smooth	Intestinal canal smooth and	Intestinal canal smooth and	Colon convoluted	Colon convoluted

	convoluted	convoluted		
Lives on flesh	Lives on flesh, carrion and plants	Lives on grass, herbs and plants	Lives on fruit and nuts	Lives on fruit and nuts

*The figures in the center represent the number of incisors upon each side

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Article #2: Research Yields Bombshell Of A Surprise!

The prestigious New York Times newspaper, in its May 5th issue, surprised your editor more by printing an article than the surprise they express by the findings revealed.

The gist of this article is some research done by an Anthropologist, Dr. Alan Walker of Johns Hopkins University in Maryland.

Dr. Walker has come to the startling conclusion that early humans were fruit eaters—not just fruit eaters but exclusively and only fruit eaters—eaters of nothing but fruit. This comes as quite a bombshell from a noted publication that has a vested interest in a heavy meat-eating society.

By careful examination of fossil teeth and fossilized remains of humans with the aid of electron microscopes and other sophisticated tools, Dr. Walker and other researchers are absolutely certain that our ancestors, up to a point in relatively recent history, were fruitarians.

Hygienists are not necessarily fruitarians but all will tell you that humans are, by physiology and anatomy, Frugivores. A cursory study of biology will reveal this, even if written by meat-eating professors, which most of our Biologists are.

The scope of the article is rather far flung. They trace humans through history as expanding to herbiage and nuts and, finally, to meat as a full-fledged omnivore.

But the essence of the article is that, though we undertook omnivorous eating practices, our anatomy and physiology have not changed—we remain biologically a species of fruit eaters.

Our dietetic character is established by our disposition toward fruits. Our natural diet has great eye and taste appeal. It passes from the stomach in digestible form in from 10 minutes to 30 minutes after ingestion.

Contrast this with concentrated fat and protein foods which take three to five hours to pass out of the stomach.

We do not have the four stomachs that herbivores usually have. This rules out most herbiage.

We have only one starch-splitting enzyme versus a multitude of them in omnivores and starch-eating animals. Our ptyalin is very limited. This rules us out as starch-eaters which includes grains or cereals. We are not graminivores.

Neither are we carnivores. It is repugnant to our thoughts to kill and eat an animal while it is yet warm and bloody, to eat its brains, heart, offal and blood as true carnivores do. True carnivores do not chew meat—they have in their digestive tracts a hydrochloric acid so concentrated, about 1100% more so than ours, that it will digest the flesh from our hands if they swallowed them. But our acids are so weak we digest meat poorly even if we chew it thoroughly. Even then we cannot handle uric acid except at great expense to our vitality and well-being. Cholesterol plays havoc with our circulatory system. So don't think we're natural meat-eaters. We're suffering very dearly for our dietary indiscretions—America has more sick people than any country in the world.

Can you imagine the dismay with which our meat and dairy industry not to mention our extensive junk food industry will view such damaging propaganda? Can you not see how many advertisers will have second thoughts about placing advertising in the New York Times?

Well, it doesn't quite work like that. The junk food advertising in the New York Times amounts to about nil. It is a newspaper that "prints all the news that's fit to print." It serves a cultured, aware audience.

But one of the surprising things that came out of this article is its attribution of the harmfulness of our shift from our natural diet of fruits to other items of food that range from eggs and insects to milk and meats.

I have checked with many Life Scientists in other areas of the country. Not one has seen nary a mention of these universally significant findings. I've examined our local papers. You'd never know about it. After all, our local papers serve the industries that a general knowledge and observance of these findings would destroy outright.

Most Hygienists/Life Scientists do not make sweet fruits their primary item of diet. Few do. Your editor's diet has been only 70% to 80% fruitarian, perhaps more if you consider nuts, tomatoes, bell peppers, cucumbers, avocados, eggplants, and other such items as fruits, which they are. Then your editor's diet might be considered about 95% fruitarian with the balance being the green leaves and stalks of lettuce, celery, kale, collards, Chinese cabbage, sprouts, broccoli and cauliflowers.

Actually we all naturally have a "sweet tooth" and it is with reference to fruit-eating that we are frugivores.

When I was a youngster I was accused of wanting to eat only desserts and leaving the good substantial food to waste. Now I'm sort of intrigued by all-dessert meals in fact I eat so many of them now I sometimes go days with nothing but. Now that the melon season is upon us plus all the other goodies, I'm afraid my vegetable and nonsweet fruit eating are going to take a back seat. In the mulberry season your editor ate only mulberries for two or three days running on several occasions.

The salutary truths contained in these findings will be hedged by most who learn of it. It will be said that fruits do not supply us with sufficient proteins or nutrients or no longer do. Much will be said but this does not negate the truth. It will all be in defense of wrong learning and wrong notions. Even many Hygienists/Life Scientists will pooh-pooh an all-fruit diet.

If you don't go along with an all fruit diet, then why not add some greens, sprouts, nuts and seeds? But you should make your diet of mostly fruit. You'll attain to a high state of health, mental well-being and functional vigor. If you eat a salad every second and third day with a protein, that's often enough to assure more than adequate nutriment.

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Article #3: Are We Meat Eaters?

Almost any argument can be effectively destroyed on the emotional level. When you invoke a picture of realism in the presentation of argument it will either build or destroy your argument. The truth should win out regardless of what side of an argument you're on.

Hygienists have often been taunted with "I don't want any of your rabbit food." An emotional rejoinder that leaves them agag is "I'd prefer it to your buzzard food."

Some folks will tell you humans are meat-eaters and that they personally are meat-eaters. Of course they're not true carnivores. You can create revulsion in them for meat-eating by simply telling them: "When you can take a live rabbit and crush its head in your mouth, start chewing it up and eat it, hair, skin, bones, brain, gristle, guts and all, then you can tell me you're a meat-eater. Until you can do that with relish, get off your phony argument." That will really floor them.

Another sure argument that will floor your detractors or intellectual protagonists is to ask some pertinent but innocent question. You might ask your meat-eating argumentative friend if he or she secretes uricase. Of course few will know what you're talking about. "Uricase? What's that?" they may ask. You counter, "You don't know what uricase is and you're telling me you're a meat-eater? Uricase is an enzyme that is secreted in the intestinal tract of all carnivorous animals! Humans do not secrete this enzyme. Thus, when humans eat meat they cannot break down toxic uric acid. When uric acid is absorbed it creates havoc in the body. To neutralize uric acid the body must draw upon its reserves of valuable alkaline minerals, especially calcium." Because grain and meat-eating humans have a predominantly acid-forming diet, the body must oftentimes get the necessary base minerals from its bones to neutralize the acids. The resulting calcium urates cause kidney stones, accretions in the joints that result in arthritis and, in all events, osteoporosis of both bones and teeth.

You can thoughtfully adduce many arguments when you are "homed in" on the criteria for our natural diet. For instance, you might ask your detractor to picture a three year old child in a playpen. Into the pen we place a rabbit and an apple. Will the child be hostile to the rabbit, kill and eat it and play with the apple? Or will the child eat the apple, and befriend and play with the rabbit?

It is said there is no winning an argument. "Convinced against his will a man remains of the same opinion still." But, if there are spectators who observe out of interest, the arguments are telling. When eating meat in the future it will be difficult for him or her to eat it without conjuring up the picture of blood, offal, bones, hair, etc.

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Article #4: Are We Milk Drinkers?

America's dairy industry has no intention of letting Americans become weaned. We are to remain sucklings all our life.

One of the most telling arguments against milk drinking is to elucidate the realities of milk-drinking. Consider the following statements. Milk would be much fresher and more wholesome if taken directly from the teat of the cow as it is done in nature by calves. The fact that a person suckles vicariously does not make it suckling any the less. It's no different than paying someone to kill your animals for you. When you pay the butcher you pay everyone—and you're a killer by proxy just as much as someone is who buys a contract for someone else's death.

Should anyone argue seriously that milk is the one perfect food you can agree with them that this is true—for a calf. Then you might inquire if their bodies secrete rennin and lactase. These enzymes respectively break down the casein of milk, the calcium/protein component and lactose, the milk sugar. Humans normally cease to secrete these enzymes at about age three, and thereafter can no longer handle milk. It's no accident that our number one "allergy" is milk. The body properly objects to substances it cannot use for food.

Yes, milk may be the one most perfect food but that does us no good if we can't digest and use it. Further, when our bacterial flora decompose it, fermenting part and putrefying part, the by-products of decomposition will cause many problems we didn't bargain for.

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Article #5: Are We Grain Eeaters?

Grains are grass seeds. The grains of today are rather tall, but they're huge compared to the seeds from which they're developed. Grains have been cultivated and eaten humans for only about 8,000 years.

In nature we did not eat grains or grass seeds. We did not develop any gathering or digestive equipment for grains. Natural grain eaters must be able to efficiently gather, grind and digest grains. Humans fail on all counts. Our teeth handle grains poorly. In fact, humans refuse to chew tasteless and hard grains. Even so, humans, not being starch eaters, cannot digest more than a handful of grains, if that much. True starch eaters secrete a plethora of starch-splitting enzymes in copious amounts. Humans secrete one starch-splitting enzyme, salivary amylase (ptyalin) which is quickly exhausted. After a mouthful or two of starch, the eater palls and stops.

Nope, we're not grain eaters. The way we do eat grains by mechanical gathering, refining, cooking, etc. makes them palatable but more pathogenic.

Lesson 19 - Ascertaining The Human Dietetic Character, Part II

- 1. Humans Developed To Their Hight State Entirely On Fruits
- 2. Fruits Still Best Meet Our Needs Despite Their Present Lower Quality
- 3. Some Charges Made Against Fruits And Fruit Eaters
- 4. Questions & Answers
- Article #1: Fruit Eating By Dr. Herbert M. Shelton
- Article #2: Fruit: Best Food Of All By William L. Esser
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1. Humans Developed To Their Hight State Entirely On Fruits

Humans declare themselves to be the highest form of animal life. Paleontology teaches that hominid forms of life appeared on Earth some sixty million years ago. Distinct human forms have been identified from fossil finds dating back about four million years. Pre-hominid beings were insect eaters but, as some types of pre-hominids took to the trees, they gradually became fruit eaters.

Fruit eaters, proving quite harmonious to the needs of fruit-bearing trees, stimulated the growth of better and more nutritious fruits. Evolving trees developed the bearing of fruits as a viable way of existence.

The interplay between fruit-eating animals and fruit-bearing trees begot an ever greater profusion and variety of fruits. Myriads of different fruits were developed to attract fruit eaters. In this symbiotic relationship, trees grew fruits as foods for animals in exchange for a service—the service of seed distribution, thus insuring survival of kind.

On the other hand fruits proved such wonderful fare for fruit eaters that they became the raw materials for superior growth and endowment. Our ancestors of sixty million years ago weighed just a few pounds. They thrived so well on the fruit diet that they became too heavy for tree life. These precocious developers were called primates. The brains of certain branches of primate life, notably those branches which became humans, developed rapidly and became quite large relative to other forms of life.

Let us examine how this symbiosis between humans and fruit trees created the superb creatures which we regard ourselves as being.

1.1 The Evidence of Paleontology

Paleontology is that branch of science which deals with fossil remains. Inasmuch as our objective is to establish that fruits are our natural fare and that we thrive best on an all-fruit diet, we'll refer to fossil evidence that particularly affirms our adaptation to fruit.

Dr. Alan Walker of Johns Hopkins University in Maryland examined the fossil remains of humans. After making detailed examinations, especially of the teeth, he concluded that humans were exclusively and only fruit eaters. Walker's examinations were detailed in the May 15, 1979 issue of *The New York Times*. His findings came like a bombshell into our culture, where fruits are relatively sparse in the diet.

1.2 The Evidence of Anthropology

Anthropology is the study of humans. The study of anthropology involves the origin and development of humans in cultural, social, physical and racial aspects.

Anthropologists have established that human culture, social organization and body adaptations arose from a background in nature as a fruit-feeding animal. Humans, like their primate and simian cousins in nature, are clannish in social organization. Most of their acculturization involves the beauty of their natural foods, fruits, and the trees which produce them. Physically, humans developed on fruits just as our simian and other primate relatives in nature. In consequence anthropologists and biologists have classified humans as frugivores or fruit eaters.

1.3 The Evidence of Archaeology

Archaeology concerns itself with the artifacts of past peoples and civilizations. Archaeology also confirms our fruit growing and consuming past. Archaeological finds show that we've been heavy eaters of fruit from remotest antiquity. On the other hand, we've eaten grains only for the past six to ten thousand years. Our meat-eating past as civilized peoples has been limited to recent times and has usually been confined to those peoples living in the far North. Most of the world's peoples still consume little or no meat. Grains have become a practically universal diet, though there are pockets of tuber, legume and fruit eaters.

Throughout Europe the mounds and great stones attest to fruit cultivation. Much pottery from ancient times has upon it inscriptions and drawings of fruit. Fruit-gathering and storing vessels are found over much of civilized earth. The records left by our ancestors attest to the great role fruits played in our dietary.

1.4 The Evidence of History

Much of our recorded history was destroyed during the destruction of the great libraries of Alexandria and Carthage. What remains tells us of great gardens and orchards. Herodotus, the Greek historian, records that Greeks were heavy eaters of olives, figs, dates, grapes, apples, oranges and other fare. This noted historian wrote: "The oldest inhabitants of Greece, the Pelasgians, who came before the Dorian, Ionian and Elian migrations, inhabited Arcadia and Thessaly, possessing the islands of Lesbos and Lakemanas, which were full of orange groves. The people with their diet of dates and oranges lived on an average of more than 200 years."

Another Greek, the poet Hesiod, said, "The Pelasgians and the people who came after them in Greece, ate fruits of the virgin forest and blackberries from the fields." Plutarch, the Greek biographer, observed: "The ancient Greeks, before the time of Lycurgus, ate nothing but fruits."

Pythagoras, one of the wisest of the ancient sages, is credited with being the father of mathematics, modern astronomy, philosophy and other sciences, and was perhaps the greatest, of all Greeks. His fare was almost entirely fruits. He left his mark on the world as no other man before him did. He was the author of the philosophy of the Essenians from whence originated many of the principles of Christianity as we know it.

Much of our history indicates that our ancestors were fruitarian. But, history books today omit or falsify our past and our fruit-eating nature. Biology and physiology books are also so altered. Even such a simple word as frugivore has been omitted from most current dictionaries and encyclopedias.

1.5 The Evidence of Legends and Traditions

Much of organized religion had its origins in sun and tree worshiping societies. Apollo is a god of the apple tree. His name means apple. Avalon means the fabled island of apples. The Garden of Eden was an orchard. Its walls corresponded with the ancient "para desa" or walled orchards. These walls kept the orchards intact from animals and retained the day's heat to protect against the night's chill.

The most fabled land of fruits was Java. After this land was named, Japan, Hawaii and many other countries paid homage to Java as their homeland. Israel was once the land of Yahveh (YHVH), which may be pronounced the same as Java. Such names as valhalla (originally avalhalla) merely means "apple hole" or a place for apple storage. Many places throughout Europe as well as many of the pagan deities have names that correspond with Java and the names of fruits.

Henry Bailey Stevens has created an excellent book, *The Recovery of Culture*, which gives evidence of our fruitarian past as found in lingering legends and beliefs. Sir James G. Fraser's *The Golden Bough* is the most thoroughgoing publication ever on the origins of deities, beliefs and rituals. A reading of *The Golden Bough* will quickly reveal that most systems of reverence were built around climate, the sun, trees and the fruits they produced.

1.6 The Evidence of Anatomy

What we are is attested to by our anatomical makeup. Our physical character has been determined by our arboreal past.

Fruitarians of the mammalian primate order have revolving joints in their shoulder, wrist and elbow joints. These allow for free movement in all directions. They have hands and fingers with apposable first digits (thumb) for grasping and gathering the product of trees. Fruit gatherers and tree dwellers have stereoscopic binocular vision. This makes possible vision that is precise in its ascertainment of positions of limbs and objects. Frugivores developed larger brains than their animal counterparts. All have only two mammary glands and usually have only one offspring per pregnancy. The teeth of humans are identical in almost every respect to our anthropoid relatives in number, kind and usage. We do not here intend to prove the biological relationship of our simian relatives. We only wish to prove that our teeth are practically identical to acknowledged frugivora.

Anatomically, humans are in most particulars unlike herbivores, carnivores and omnivores. Every organ and system differs radically because each is suited to the animal's respective modes of food acquisition, eating and digestion.

1.7 The Evidence of Physiology

The structures of humans attest them to be in every respect fruitarians. This fact is irrevocably confirmed by the functions of the human body. Every alimentary function is geared to a fruitarian dietary.

In keeping with other frugivora, human saliva is alkaline. An alkaline environment of the mouth and, consequently, the stomach, is chemically necessary to handle starches which are sometimes incidental to fruits. Further, it initiates the neutralization of the acids of many fruits.

In contrast, the saliva of meat-eating animals is of an extremely acid character. Proteins such as those found in meats require an acid medium for their digestion. The high acidity of the saliva of carnivora greatly assists in dissolving and digesting flesh with almost no mastication.

The natural food of humans is readily absorbed without any digestion other than the proteins, fats and starches incidentally it. The simple sugars of fruit undergo no change in the stomach or duodenum, being absorbed directly as fructose and glucose as it exists in fruits.

The fare that is recommended by conventional nutritionists is classified into the "basic four food groups." The foods listed under the "basic four" present nearly impossible digestive tasks to the body, especially when combined into a single meal as advocated. Over 50% of the meals eaten in America result in indigestion. The cause for this indigestion is the eating of wrong foods wrongly combined.

Even if eaten alone, legumes result in digestive problems. We are not physiologically equipped to handle the heavy concentration and combinations of fat, starch and protein found in legumes.

Indigestion and gas result from the eating of legumes, especially if they're eaten with foods other than green leaves, stalks and stems.

Even if eaten alone, meats will digest poorly and invariably undergo putrefaction to some extent before absorption. Even if eaten alone, grains and starchy foods stress the human digestive faculties.

Inordinate amounts of mechanical, chemical and nerve energy are required for the digestion of grains, whether eaten raw or cooked.

Physiologically, meats furnish us practically nothing except amino acids. Almost no energy is derived from flesh when man eats it. The amino acids of proteins will be broken down for energy only in the absence of carbohydrates and fats, which are our primary sources of energy. Hence, ingestion of protein foods beyond our small need of 20 to 30 grams daily is without justification and in practice is generative of pathological by-products.

Foods other than those of our biological adaptation usually have some indigestible components that make them toxic in the human body. For instance, milk is pathogenic to humans. We do not have the enzymes rennin and lactase to break down casein and lactose respectively. Wheat is pathogenic because we do not have enzymes to break down phytic acid and gluten. Other grains are similary pathogenic. Vegetables often have toxic substances, notably oxalic acid, mustard oil, allicin, aloin, glycosides, toxic alkaloids, etc.

When we consider human physiology, we must do so within the context of nature rather than in the environment of modern acculturization. Thus, we must consider foods that we would have eaten raw in the natural state in our pristine environment as being consonant with our physiological faculties. All the evidence points to fruits as being the food of our adaptation. The evidence points to nothing else—no insects, no grass, no grain, no leaves, stems or stalks, no animals, no tubers or roots and not even any nuts! The most conclusive evidence submitted has stated that we were exclusively and only fruit eaters.

Humans secrete a paucity of enzymes as compared with meat-eaters, omnivora, starch-eaters, etc. We secrete a very weak solution of hydrochloric acid necessary for meat eaters. We secrete very little of only one starch-splitting enzyme, amylase (ptyalin). And our ability to digest fats is also very poor. We have the ability to efficiently handle only one type of food—foods comprised of monosaccharides or simple sugars. Only fruits meet this requirement.

Fruits are said to be "cleansing" foods. The fruits do, not, of themselves, cleanse the body. The ascription is earned because the body handles fruits so efficiently it can redirect much of the energy that had been expended on wrong foods to the tasks of extraordinary elimination. Further, raw fruits or their juices do not leave any toxic substances in the body.

Fruits are our ideal food and the only foods capable of meeting our physiological capabilities in every respect.

1.8 The Evidence of Psychology

Of all the areas that have been explored as to our dietetic character, this aspect of our being has received scant attention. Fortunately, our psychological disposition has not changed with respect to our dietary nature, just as our physiology and anatomy are the same today as they were millions of years ago.

Imagine yourself in a state of nature today without tools, without any ability to make a fire—with only the resources of your natural equipment in a very food-rich environment. Let us say that, in your immediate area, there are open spaces and trees. Let us presume that a substantial number of these trees bear fruits and nuts. Let us presume that in the open spaces grow grass, tubers and weeds. Let us further presume that the environment has a prolific fauna of birds, rabbits, squirrels, hogs, deer and other creatures.

Picture yourself in this environment. Can you imagine for a moment that you would delight in the capture of a deer with your bare hands under the speed you could develop by running or by surprising the deer and pouncing upon it, then sinking your "fangs" into it and dispatching it by a fatal bite to its jugular vein, heart or other organ? Would you relish a bloody face and body while you feasted upon flesh, offal, bones, blood and organs? Would this delight your palate, or does the very idea repulse you?

Can you imagine gathering the miniscule seeds of grass for hours on end for sufficient calories to meet your bodily needs? And then more hours of laborious chewing a few hard grains at a time to ensalivate and comminute them preparatory to digestion?

Can you imagine digging tubers and eating them as tuber eaters do? Unwashed—with soil and tuber too. With your snout, you'd unearth the tubers and quickly dispatch them, digesting them readily with copious quantities of the four to six starch-splitting enzymes that true starch eaters have. Do you relish this, or does the very idea repulse you?

Do you think you'd relish weed eating? Do you think you could get your requirements from these precursors to today's vegetables?

Or would you warm to the idea of taking ripened bananas directly from the stalk? Of plucking ripe figs and mouthing them in the tree's shade? Of breaking open luscious melons and eating their sweet succulent nectar?

Just think what appeals to you most and what is most repulsive to you. You can readily determine, from your own feelings, our psychological disposition toward improper and proper foods when you consider them and your relationship to them in a totally natural context.

If you see a squirrel, is it your natural disposition to snatch and eat it, or to be kind to it? Do you have the heart to try and kill the charming little creature? Does anyone who has yet within him/herself a streak of humanity have the nerve to do that?

The world has become very much perverted. People actually do relish the sight of packages of beefsteak, chicken legs and breasts and other prepared and embalmed carrion.

Despite these perversions, it is the rare person that does not look with favor upon watermelons, cantaloupes, pineapples, strawberries and other fruits. Despite their eating perversions, most peoples' palates are easily won back to fruits by taking them through a fast and then realimenting them on fruit fare. Fruits are not only our best foods, they are our only biologically-mandated foods.

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2. Fruits Still Best Meet Our Needs Despite Their Present Lower Quality

We often hear the cry today that we cannot subsist on fruitarian or fruitarian/vegetarian fare today because of the lowered quality of this type of foodstuff due to artificial fertilizers and pesticides, among other things. This argument is quickly disposed of in two ways. First, whatever may be said against this kind of fare on this account usually goes double for the fare the eater is partaking of in its stead. Secondly, one may cite the actual components of fruits and demonstrate in a most convincing way that fruits contain all our needs in the quantities determined to be essential in the human dietary.

2.1 Tables of Composition of Fruits Compared to our Recommended Daily Allowances

In support of this lesson's message we are happy to introduce you to the composition of some of our most common fruits. So that this comparison will have meaning for you, we have chosen 1 1/2 lbs. dry weight as the given amount of each food. This amount of food yields, in the case of fruits, about 2,400 calories, more than enough to sustain a very active healthy person even though less than the RDA. Fruit yields far more calories than conventional foods.

The average American eats about seven pounds of food a day. More than 40% of this caloric intake is in the form of fats. The average American has a caloric intake of 3,380 calories per day. We have listed the RDA for various food components as well as our actual needs as determined by realistic norms for fruit-eaters and in light of RDA's of other countries.

It must be distinctly understood that the RDA's listed are for a 150-pound man and that the needs of women and children will vary from this. Heavier men will usually require more than the RDA's listed.

This table of food composition has numbers assigned at the headings. Following is the legend for those numbers.

1. NAME OF FOOD. In its fresh ripe raw condition.
2. WEIGHT IN POUNDS of 1 1/2 pounds (680 grams) of the food, dry weight with natural water content.
3. GROSS CALORIE CONTENT. We obtain about 90% of the energy potential from fruits, whereas from proteins we obtain about 30% of their energy potential. We must actually expend more energy in processing foods such as celery and lettuce than is obtained from the food. Calories are meaningful in the human dietary only from the standpoint of utilization rather than what energy the food will produce in a firebox.
4. PROTEIN CONTENT. Note that the RDA is nearly three times higher than our actual need. All listings are in GRAMS.
5. VITAMIN A. Values are in International Units or I.U.
6. VITAMIN B-1, Thiamine in milligrams.
7. VITAMIN B-2, Riboflavin in milligrams.
8. NIACIN in milligrams.
9. VITAMIN C in milligrams.
10. CALCIUM. Listings are in milligrams.
11. MAGNESIUM. Entries are in milligrams.
12. PHOSPHORUS. Entries are in milligrams.
13. POTASSIUM. Figures indicate milligrams.
14. IRON. Figures indicate milligrams.

1 Food	**2 Wt. Lbs.**	**3 Cal.**	**4 Pro**	**5 Vit.A**	**6 B-1**	**7 B-2**	**8 Nia.**	**9 Vit C**	**10 Calcium**	**11 Mag.**	**12 Pho**	**13 Pot**	**14 Iron**
RDA, 150 lb Man (moderately active)	—	2,700	70	3330	1.4	1.6	15	60	800	300	800	3000	10
Actual Needs	—	1800 to 2,250	25	1,500	1.0	1.0	6	25	200	100	200	1,500	5

One-year Infant Needs	—	1,000	15	1,000	.4	.6	6	25	150	100	200	700	2
Human Milk	3	1,050	15	4000	.5	.8	8"	.60	450	150	190	700	1.5
Apple	9.5	2520	9	4050	1.4	.9	.5	315	315	280	450	4900	13
Apricot	10	2350	46	124,000	1.4	1.8	2.7	460	782	550	1060	12926	23
Avocado	5 1/2	4450	56	7550	2.8	5.0	40	360	260	1170	1100	15700	15
Banana	6	2380	31	5300	1.4	1.6	19	280	224	924	726	10460	20
Cantaloupe	17	2310	54	261,800	3.2	2.4	48	2540	1078	1232	1232	19320	31
Dates, Dried	2	2450	20	450	.8	.9	20	0	530	520	560	5800	27
Figs, Dried	2	2450	38	720	.9	.9	6.3	0	1130	640	690	5760	27
Grapes	8	2440	36	3650	1.8	1.1	11	146	440	220	730	6228	15
Mango	8	2442	26	177600	1.8	1.8	40	1295	370	670	480	6990	15
Orange	11	2450	50	10000	5.0	2.0	20	2500	2050	550	1000	10000	20
Papaya	13 1/2	2340	36	105000	2.4	2.4	18	3360	1200	720	960	14000	18
Peaches	14	2360	38	93000	1.2	3.0	62	434	560	620	1180	12400	31
Pear	9	2440	29	800	.8	1.6	.4	160	328	287	440	5200	12
Persimmon	6	2430	22	79000	.9	.6	.3	410	460	260	780	5700	15
Pineapple	10	2390	18	3200	4.0	1.4	9	785	800	600	370	6700	23
Watermelon	20	2390	46	54280	2.7	2.7	18	640	640	730	920	9200	46

For comparison purposes let's now consider some foods you'd never under any circumstances eat 1 1/2 pounds of (dry weight) but which might be added to the diet on some occasions with advantage insofar as it gives you excellent nutrient insurance.

1 Food	**2 Wt.**	**3 Cal.**	**4 Pro**	**5 Vit.A**	**6 B-1**	**7 B-2**	**8 Nia.**	**9 VitC**	**10 Calcium**	**11 Mag.**	**12 Pho**	**13 Pot**	**14**

	Lbs.												**Iron**
Kale	12	2050 *	225	485000	8	13	105	10100	9800	2000	5040	21000	112
Iceberg Lettuce	33	1960 *	135	49800	9	9	45	905	3020	1660	3320	26425	75
Looseleaf Lettuce	25	2050 *	148	216000	7	7	35	2050	7700	1700	2850	30096	158
Celery	25	1940 *	103	27400	3.5	3.5	35	1025	4250	2510	3190	38870	34
Broccoli	14	1980 *	223	155000	6	15	56	7000	6400	1480	4820	23680	68
Almonds	1 1/2	4200	130	None	1.7	6.3	25	None	1640	1900	3530	5400	33
Pecans	1 1/2	4800	64	900	6	1	. 6	14	510	1000	2030	4220	17
Sunflower Seeds	1 1/2	3950	168	350	14	1.6	38	None	840	270	5250	6400	50

* These items would yield few if any calories. In fact, you'd probably expend more calories in processing most of these foods than you'd obtain from them.

I feel these listings serve as sufficient examples to indicate that fruits, with certain exceptions, meet our needs. Apples may be seen to be the most deficient of the fruits. Yet there were whole cultures of ancient times that subsisted on a diet that was about half apples!

If we eat a *varied* diet of fruits, the excesses of one, in view of the body's ability to husband excesses, compensates the deficiencies of the other. So we might paraphrase an old saying: "Eat and be merry. Eat and don't worry. Eat correctly without sorrow and you'll enjoy many a tomorrow."

2.2 A Brief Note on the Present Theory of Caloric Needs

An examination of the peoples the world over who live active lives and thrive on from 1,200 to 2,000 calories per day affords us grave suspicions as to our supposed calorie requirements. Raw food fruitarians rarely eat more than 2,000 calories per day even if they labor hard and long!

1. Fruit fare yields more calories than conventional American fare. While conventional fare will yield 3,380 calories in the firebox, it does not yield this amount of energy to the human digestive/assimilative system.
2. Cooked foods have some of their caloric values destroyed.
3. Cooked food eaters require more energy for digesting, processing and removing the toxic debris of cooked foods.
4. Cooked foods are usually eaten with condiments which are toxic. More internal energy is required to deal with toxic materials.

5. The average American is toxemic. More energy is required for body maintenance purposes than in non-toxemic persons.
6. Healthy fruitarians, conversely, require less calories for internal maintenance and, because of extraordinary health, make more efficient use of the calories they obtain.
7. Fruit fare yields more than 90% of its calorie potential. Conventional fare yields only about 65% to of its calorie potential. Taking this into account, plus the extra energies involved in maintaining a perpetually pathological condition, it can be seen why fruitarians thrive on about half the calories considered needed.

These considerations, of course, resolve nothing. There are serious discrepancies between what conventional nutritional science says we need and the actual needs of raw-food fruitarians.

2.3 Observations on the Significance of These Charts

These charts have been prepared and presented to establish that fruits, as our natural foods, supply our real needs amply. They often supply many times over what we are said to need by conventional standards such as the Recommended Daily Allowances.

We do not support the idea that "more is better." To have a margin of safety is an excellent practice, but gluttonizing on nutrients overloads and burdens the body unduly. This burdening occasions pathological problems. The body is wise beyond our comprehension and provident beyond our knowledge. It flourishes on fruit fare and will never suffer any of the grave consequences said to result therefrom. Supplying the body with enough, is all that we need concern ourselves with.

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3. Some Charges Made Against Fruits And Fruit Eaters

Most Hygienists/Life Scientists may be called timid fruitarian idealists. They are all too willing to admit, even proclaim, that we are naturally frugivores and that our ancestors lived either on nearly all or completely fruitarian diets. "A fruit meal is the ideal," they espouse. Yet most of these same people are unwilling to try subsisting on fruits! Some Hygienists think we must supplement the fruit diet with some cheese, others think we must have some vegetables. Still others think fruits are great but should be supplemented with nuts (which are also fruits botanically).

The "consensus" diet that we have advocated consists of fruits, vegetables, nuts and seeds.

Nevertheless many Hygienists eat seeds, nuts, sprouts, green leaves, stalks, stems, tubers and grains almost to the exclusion of fruits! These peoples fruit intake largely consists of avocados, tomatoes, peppers, cucumbers and squash.

When asked why they do not eat more fruit despite giving lip service to fruit as the ideal, most Hygienists will tell you that although fruit may be alright for short periods of time as a "cleansing" or "elimination" diet, it is not to be taken except as a luxury. These are the charges made against fruits:

a. Fruits are protein poor;
b. Fruits have too many free acids;
c. Those who subsist on fruits become neurotics;
d. Fruits are too poor in iron and anemia results if only fruits are eaten;
e. Those who eat only fruits will suffer nutritional imbalances and deficiencies;
f. Fruit eaters cannot maintain weight and are too thin;

g. Fruit eaters become over-alkaline and often suffer alkalosis; and
h. Fruits are deficient in calcium as well as protein and results in stunted growth in youngsters.

Taken together, these statements sound like quite an indictment. Yet, almost the same charges were made by the medical profession against both fruits and vegetables 150 years ago. Fruit eating was then said to result in fevers, biliousness and other maladies. Fruit was treated as a dessert or as a decorative accessory.

Of course this indictment has never been heard by tribes and peoples who subsist almost totally on bananas, custardy coconuts (before its fats and fibers form), dates, figs and similar fruits. Orangutans of the East Indies live exclusively on fruit and are the most intelligent and human-like of our primate relatives.

How can one defend the concept of fruit as our natural food? Is this stance hypocritical? Is there substance to the aforementioned charges? Is fruit really our natural food after all? Is it possible that it no longer supplies our needs? Has the human constitution changed? Here we have many questions arise that need answering.

3.1 "Fruits Are Protein-Poor"

The charge is made that fruits are protein poor. It is true that if you compare a banana in the dry state with its 5% protein content to a soy bean in the dry state with 35% protein, the banana is, indeed, protein poor. But the protein content of any food has relevance only to our need of it as an item of diet. So we must understand our need for protein relative to our diet.

A growing human baby gets a mono diet of its mother's milk for many months before it touches any other food. Mother's milk for her rapidly developing infant contains only 1.1% protein. Surely no one can argue that a grown person can require more protein than a growing child relative to its weight or as a percentage of its diet. If anything, the grownup who has attained full development requires less protein than a nursing tot. A grown person might get adequate protein on as little as half a percent of his or her dietary content.

The RDA for protein is said to be 70 grams daily for an average man of 150 pounds. This figure is well over twice the actual human need. In fact, it is about three times the actual need as established by tests by Dr. Chittenden of Yale and Dr. Hinhede in Denmark and many others. Further, there are groups of physically-robust people in the Caribbean who thrive on an average intake of about 15 grams of protein daily. (They eat cassava or manioc.) Keeping in mind that the body can obtain up to 70% of its protein needs by recycling its proteinaceous wastes, it becomes somewhat evident that protein needs in humans have been overblown. The meat, dairy, poultry and fish industries have made their mark, even on those who reject animal products as items of food.

Can we continue to say that fruits are protein poor? In view that, if protein is one per cent of our diet, our protein needs are amply met, then fruits are protein adequate! When we've eaten some 2,250 calories worth of almost any fruit except apples, we've also ingested some 25 to 40 grams of protein. Inasmuch as most fruits do contain all the essential amino acids, I would adjudge that fruits meet human needs for protein amply.

History bears out beyond refutation that humans have been fruit eaters during their entire sojourn on earth excepting a period beginning during the ice ages. Even then, a preponderance of our ancestors still ate fruits. Most migrated south to warmer climes and continued to eat fruits. Grain eating is not more than 10,000 years old. Meat eating, though much older than that, was mostly confined to northerly peoples. Almost all mythology is built around trees and climatic factors that affected trees. Only relatively recent mythologies connect humans to grain culture and animal husbandry.

3.2 "Fruits Have Too Many Free Acids"

The charge that fruits have too many free acids is false and rather pointless. Fruits have no free acid. All are organic. Vinegar, cheese and fermented milk are substances with free acids, namely acetic and lactic acids.

Humans are primarily sweet fruit eaters. Yet even grapefruits, plums, sour cherries, sour grapes, lemons, limes and other acidic fare have no free acids.

The human body metabolizes most acids in fruits very well. Benzoic acid, tannic acid, oxalic acid and prussic acid, none of which are free acids and all of which are rare in fruits, are among those acids that give humans metabolic problems. Humans handle citric, tartaric and malic acids very well. These are the primary fruit acids: Perhaps the occasions when fruit acids give problems occur when acid fruits such as lemons, strawberries, pineapples or grapefruit are eaten along with sweet fruit such as bananas, dates, figs, raisins, persimmons or non-fruit fare.

3.3 Those Who Subsist on Fruits Become Neurotics

The third charge that those who subsist on fruits become neurotics is simply ridiculous. If fruit is, as we contend, a perfectly wholesome food furnishing all the needs of human life, then it will occasion nothing but great health. While we are the first to affirm that nervous malfunctions or neurosis have physiological bases, we also point out that these problems stem from toxemia in almost every such case. They often, but not always, precede neurosis. Most neuroses are complicated by anxieties, insecurities, worries and other emotional disruptions begotten by an inhumane social system. I daresay we have uncounted millions of neurotics and few are fruit eaters. Unfortunately, our psychologists do not recognize the physical basis of neurosis and give credence almost completely to emotional, social, economic and mental factors. Physical derangements often lay the groundwork for mental derangements. Hence the charge that fruits cause neurotics is a charge which I don't think has ever been substantiated.

There are fruit-eating societies of humans in this world and descriptions of them bespeak the most peaceable, congenial and harmonious dispositions of any peoples on earth.

3.4 Fruits Are Too Poor in Iron and Cause Anemia

The charge that fruits are too poor in iron and cause anemia is likewise without foundation. The body can recycle up to about 95% of its iron supply and needs very little from the outside. It is said that our RDA of iron is some 10 milligrams daily. This, like other RDA's, is some two to three times too high. Nevertheless, oranges sufficient to meet our caloric needs supply about twenty milligrams of iron daily. In fact, if you compared all the fruits and their iron content, you'd find every one meeting the RDA for iron with surfeits. A food that might be said to be deficient in iron by these RDA's is, of all things, a mother's milk!

Should fruits be charged as being Vitamin B-12 poor, then the same can be said of all foods, even the foods that animals eat. Only meats and certain kinds of algae have what is termed sufficient Vitamin B-12. But if animal fare such as grasses, leaves, grains, herbs and fruits do not furnish animals with vitamin B-12, how do their organs come to be so rich in it? Why are the organs of fruit-eating primates rich in it? How is it that fruitarian societies are not anemic from lack of Vitamin B-12? The truth is that humans, like all other animals, obtain ample supplies of Vitamin B-12 from bacterial production in their intestines. Even garlic eaters usually do not destroy enough of their symbiotic bacterial flora to deny themselves of an adequate supply of Vitamin B-12.

So I adjudge the charge that fruit eaters are anemic to be without any substantive evidence whatsoever.

3.5 Those Who Eat Only Fruits Suffer Nutritional Imbalance and Deficiencies

The charge that fruit eaters will suffer nutritional imbalances and deficiencies likewise finds no basis in fact. Fruits, eaten judiciously according to their seasons, furnish us with every nutrient factor, known and unknown, in plenteousness. Those ancient Greeks whom we admire so much for their statuesque bodies, were fruit eaters. Most ate heavily of apples, dates, oranges, olives, figs and grapes. The Greek and Roman gods are ascriptions born of reverence for fruit trees and food-bearing plants.

3.6 Fruit Eaters Cannot Maintain Weight and Are Too Thin

The charge that fruit eaters are too thin is not borne out by even the simplest investigation. Personally, I've gone down into the 120-pound range and came back to the 150-pound range with excellent muscular development, on a diet almost entirely of fruits. My wife has to watch her intake of heavy-calorie fruit foods, especially nuts, lest she become too heavy. As previously pointed out, the Greeks thrived on fruitarian diets. Pythagoras, one of the giants of Grecian literature, philosophy and mathematics, was a fruitarian and had a whole school of followers who, likewise, were fruitarians. Actually, the teachings of Pythagoras very much parallel the teachings of Gautama Buddha, whose teachings Pythagoras was conversant with. Buddha was, in essence, a tree worshipper as were fruitarian societies. Bacchus is portrayed as heavily overweight and this is attributed to fig gluttony.

3.7 Fruit Eaters Become Over-Alkaline and Suffer Alkalosis

The charge that fruit eaters are over alkaline and often suffer alkalosis is, likewise, baseless. We humans can harmlessly excrete excess alkaline substances but, if we get excess acid-forming substances as from meats, animal products, cereal foods, etc., we really have problems. The body must rob its bones, teeth and other alkaline structures for the alkalis, mostly calcium, necessary to neutralize the acids generated from acid-forming foods. The maker of this "alkalosis" charge simply ignored physiology. It ill becomes vegetarians or fruitarians to make such a charge.

3.8 Fruits Are Deficient in Calcium as Well as Protein and Results in Stunted Growth in Youngsters

Fruits are said to be deficient in calcium. To investigate this I made charts of a number of fruits and their composition. Our fuel needs can be met amply by fruits. Calcium and a plethora of other nutrients are a component of every gram of fruit food. When we have eaten sufficient fruit to supply our caloric needs, say about 2,250 calories, how much of our RDA for calcium have we met? The RDA is set at 800 milligrams per day for a 150-pound man. This, like other RDA's, is some two to four times too high. Nevertheless, let's look at some fruit foods and their calcium content when 2,250 calories worth have been consumed.

Oranges, a widely-consumed fruit, have about 2,050 milligrams of calcium, 2 1/2 times the RDA. Apples have 315 mg. Apricots have 782 mg. Cantaloupes have 1,078 mg. Figs have 1,130 mg. Bananas have 224 mg. and banana-eating societies have excellent bone formation by all standards. Grapes have 440 mg., dates have 530 mg., mangos 370 mg., pineapples 785 mg., watermelon 640 mg. and so on down the line. Obviously fruits supply us amply with our calcium needs. The saying that fruit eaters suffer stunted growth does not withstand serious inquiry. As previously noted, statuesque Greeks were fruit eaters.

3.9 Build Your Confidence in the Fruitarian Dietary

Fruit eaters are not usually fat, brawny hulks as are grain, milk and meat eaters. The question arises: are these standards forming a criterion of health or pathology?

Let me cite an example. Murray Rose, an Australian who set swimming record after swimming record, was primarily a fruit eater though he partook of some seaweeds and vegetable fare.

Now if we confirmed fruitarians were to start making charges against those who want to eat "exciting" foods such as, cooked dishes, often laden with condiments, vegetables, cereals and even dairy products such as yogurts, and cheeses, many could be well-substantiated. Wrong foods create toxemia.

The illnesses that beset almost all Americans amply attest to this fact. Even those who pride themselves on a vegetarian diet or a "health" diet or even a Hygienic diet often find themselves suffering toxic conditions. Toxemia arises out of practices that cause toxins to be ingested, generated and/or retained. Fruit eating is universally said to be cleansing and promoting the function of elimination, and it is recognized for its non-toxic nature.

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4. Questions & Answers

As far as I'm concerned, you've nailed down the cause for fruitarianism. But isn't it impossible to nourish yourself well with the general low quality of fruit today? With all the artificial fertilizers, insecticides, and depleted soils, how can we hope to be well-nourished on fruits?

> Even with these definite detractions, eating low-quality fruits is still the best we can do if we cannot procure organically grown fruits. Whatever can be said against fruits on this score goes double for everything else other than fruits. This problem does not only exist with fruits!
> Should you have fears in this matter, you can invoke insurance in the form of super nutrient-concentrated foods such as green leafy vegetables and nuts.
>
> Keep in mind that there has been little deterioration in fruit quality since the tables of composition were made that are reproduced herein.

You mentioned that some doctors found we needed about an ounce of protein a day, less than 30 grams. Who are these doctors and how did they prove it?

> One such doctor was Dr. M. Hinhede of Denmark, who was entrusted to the nutritional welfare of that country for the duration of World War I. Having conducted many experiments on a mono-potato diet, among others, he maintained subjects in fine health for protracted periods while doing hard physical labor. (Some oil on the potatoes and green leaves were also eaten.) The protein intake of his subjects was 30 to 40 grams daily. When he took over as the "food czar" of Denmark, he decreed that animals cease to be reared as food and that the land be devoted to vegetarian fare. He effectively put Denmark on a low-protein diet. As a result, the health of Danes greatly improved, the death rate plummeted and there was never a food shortage. He wrote a book, *Protein and Nutrition*, which presents his studies.
> Professor Russell H. Chittenden of Yale University was one of the pioneers of nutritional research. He conducted many varied experiments. These experiments involved diets, restricted diets and limited protein intake. In his *Nutrition of Man* we learn of his experiments with his fellow professors and students on food intake. We learn how he reduced food intake severely yet his subjects still continued to grow and thrive.
>
> Chittenden reduced the protein intake of Yale athletes to a mere 25 grams of protein daily,

yet they continued to gain weight, became more muscular and performed better than before. Among the many experiments he conducted were competition between his vegetarian athletes and meat-eating athletes. The vegetarians, on the average, outperformed the meat eaters by a large margin.

Is there any harm in adding a meal of sunflower seeds and a salad of vegetables to a general fruitarian program?

Having been on fruitarian fare for a long time and then having a meal of sunflower seeds and tomatoes, with some vegetables such as broccoli and celery, I can attest to its tastiness. All tables of composition say I'm getting more than enough of everything I need. They don't tell about the extra sleep required after even a moderate meal of such fare, nor the drowsiness the following morning, nor the mental dullness nor the physical disinclination to activity.

I would say this indicates in part a body that is accommodated to fruitarian fare—in fact, one that has a marked preference for fruitarian fare! It can handle such food, but it greatly burdens the system. Unaccustomed expenditure of energies and nerve force produce what is, in effect, a hangover.

I would say that for one accustomed to fruitarian fare there is some harm in indulging in such a meal. Yet the books show that there is great nutritional gain to be had by eating such a meal. Personally, I find I'm better off without it. The definitive answer remains to be rendered in this matter.

I just love potatoes about any way they're prepared. Are potatoes so terribly bad if eaten with vegetables?

I've just cited what Dr. M. Hinhede of Denmark did for millions of people on a diet heavy in potatoes. He kept one man in good health for 12 years on a mono diet of potatoes.

Potatoes are not our natural foods. The cell coverings of their starches prevent our access to the potato's food value if they're eaten raw. Cooking breaks the cells and releases the starch which, by the heat, has been partially dextrinized. But the heat required to break down cellulose does far more damage than that.

Potatoes are not a wholesome food. However, they are far less harmful than the conventional American diet. Fruits are far superior on every count. When you consider that the body must digest and convert the starchy/dextrinized potato to glucose for body use, does it not seem far better to eat fruits whose sugars are already in the form of glucose (fructose or levelose)? NO digestion is needed for fruits—just eat and appropriate.

What about eating the seeds of fruits? Pumpkin seeds and nuts are actually the seeds of fruits, not the fruit itself. Is it good to eat the seeds of apricots, apples, peaches, grapes, melons and so on?

During our millions of years sojourning in nature, there is evidence that our dietary consisted of some nuts that were primarily oily and proteinaceous and had little or no starch. I want to emphasize that nuts were usually secondary and constituted a very small part of our diet. As fruit eaters, we obtained our water needs from our fare and thus developed no water-drinking equipment as a part of our anatomy. Had we been nut and seed eaters, this would not have been the case. Thus it may be said that we are incidentally nut and seed eaters.

I advise you to limit your and your clients' intake of nuts to small portions on rather infrequent occasions, certainly not more than three or four times weekly. This is meant to apply to an oily fruit, the avocado, as well, because it has the same consistency as some nuts. Apple, peach and apricot seeds are outright poisonous. Melon seeds are not relished, though the melons themselves are great. Pumpkin seeds are of about the same consistency of nuts, as are sunflower and sesame seeds. Grape seeds should not be eaten. In the use of fruits, keep in mind that the fruit adequately supplies our needs. Our symbiotic role in nature—our implied compact with trees—is to eat the fruit as our reward for distributing the seeds.

I feel you've proved your point about fruit being our natural food. But where do you find anyone today who lives on just fruits? Hasn't everyone gotten off base?

Yes, it's true that fruitarians are so rare that they seem nonexistent. I would consider myself fruitarian, though I eat perhaps 2 to 3% vegetable fare such as lettuce, celery, broccoli, sprouts and bok choy.

There are other fruitarians in this country, especially in California, Florida and Hawaii. There are tribes and societies of fruit eaters in the Amazon of Brazil and in the Southwest Pacific. There are some fruit eating societies and groups in Europe and Africa, some in Asia and some in Australia. But, relatively, fruitarians are very rare.

Indeed, almost everyone is off base. Likewise, almost everyone suffers some physical problem.

How do you suppose fruits developed in the first place?

There is symbiosis or mutual cooperation and harmony in nature. It is not a jungle where only the fittest survive its vicissitudes, as is widely thought. There are few vicissitudes in nature.

Trees bearing fruit developed alongside creatures that demanded fruits. Trees responded to this beneficial patronage by developing even more profuse amounts of luscious fruits. Those creatures demanding a variety of fruits fared better and better as they grew and improved, thus demanding even more fruits.

We observe in nature how symbiosis works by noting that bees are specifically provided nectar by flowers. The bees, in gathering this nectar for food, contaminate themselves with pollen from the anthers of the flowers. When they visit other flowers they perform the service of spreading the pollen to the stigma of the flower pistil. This facilitates pollination, a valuable service. As you know, without bees, flowers of trees will not be pollinated to any great extent. Likewise, without fruit-eating animals there would be no fruit trees. The development of fruits and fruit eaters was mutual and parallel.

You've spoken about fruits without their water content. If you don't consider water, what amount of proteins, mineral salts, fatty acids and vitamins should our foods contain to meet our needs?

Let's look at a fine food, bananas. Let us consider 1 1/2 pounds, or 680 grams, of dry weight bananas. The protein content of this amount of bananas is 31 grams, or about 4.5% of total dry weight. Its mineral matter comprises 22 grams, or about 3.3%. Its fats amount to about 5.2 grams or about .8%. Its carbohydrates amount to about 610 grams which is, as you can see, about 90% of the total weight. The rest is unusable cellulose, which is neutral in character in the human body. That is, it is neither harmful or helpful.

Inasmuch as bananas are excellently qualified to meet our needs, you can see that our primary need is for fuel values. Other nutrients, though being equally essential, comprise a small percentage of the whole.

Are dried fruits as good as fresh fruits? Should we eat them at all?

Dried fruits are never as good as fresh ripe fruits. Yes, we should eat dried fruits when the fresh fruits available to us do not meet our caloric needs. Dried fruits have lost a substantial part of their vitamins and some of their minerals due to oxidation. Dried fruits are good primarily for their fuel values. They are usually ultra-sweet and thus serve as wonderful desserts when eaten with other fruits.

If we get all the Vitamin B-12 we need from bacteria in our digestive canal, then why do vegetarians have less B-12 than do meat eaters?

There could be many reasons for the variance in amount of B-12. The body takes up from the ileum the amount it requires for use and storage. While both meat-eaters and vegetarians have about a five-year reserve supply of vitamin B-12, the levels of B-12 in the blood stream of meat-eaters is much higher than that in fruit-eaters and vegetarians, Meat eaters represent a pathological norm. They may have more B-12 in the system because of increased need due to their condition, or it may be that their bloodstream is contaminated by the meats they eat as well as being profusely supplied by intestinal bacterial activity. The higher amount of B-12 may be due to both increased need and increased supply.

We must regard nutrients in regard to our need for them. Getting enough is all that is necessary.

Why are vegetarians warned so much about Vitamin B-12 deficiency? Why do so many use cheese, eggs and other dairy products to get Vitamin B-12?

Many vegetarians fall victim to the propaganda of commerce. Such unsuitable items of diet ruin health—not enhance it.

How does the body rob its bones and teeth of calcium ? Isn't that a ridiculous statement to make?

When the body is in an emergency situation that requires base mineral salts for food metabolization, it does autolyze its teeth and bones for the needed base organic salts. Some such emergency situations include ingesting white sugar, or acid neutralization as in uric acid from meat, or when its supply is exhausted due to an acidotic diet sparse in alkaline minerals. This is how osteoporosis and osteomalacia occur.

If Hygienists and Life Scientists give only lip service to fruit as the ideal, what do they really eat?

They do eat a lot of fruit, but it usually comprises considerably less than half of their intake. Much of their intake is in nuts, salads, steamed potatoes, rice, cheese, steamed squash, steamed sweet potatoes, steamed broccoli and steamed corn. While most eat around 50 to 80% raw, I would regard the 20 to 50% eaten in cooked form far less than ideal.

When I eat fruits, especially bananas, I get gas. Why is this so?

When you get gas, that means you're not properly absorbing the sugars of the bananas. Bacteria are fermenting it. I usually eat bananas alone and do not have this problem. I sometimes eat bananas with other fruits and with celery and lettuce. I still do not have this problem. If your body is not absorbing the sugars available from bananas, there must be some physiological faculty involved that is not functioning properly. I suggest that you fast for a period of time and then try bananas again a day or two after breaking the fast.

Fruits do not cause gas. Failure to absorb their carbohydrates makes them available to our bacterial flora which create gas. Overeating, of course, can cause quite a bit of gas. Eating wrong combinations can cause lots of gas. That food material that is not absorbed will be dealt with by intestinal flora which ferment and/or putrefy it in accord with the character of the food.

I've tried a few fruit meals for a few days running. They don't stay with me very long and I get hungry again very quickly. Is that normal?

It is normal to absorb meals of fruits quickly. But it is abnormal to be hungry again immediately after such a meal has been appropriated, for the body usually shuts down the appestat upon having absorbed its needs of sugars and nutrients.

There exist several possibilities as to why you feel hungry so quickly. Possibly you're mistaking appetancy for hunger. Possibly you have gastric irritation. Possibly your body has not yet accommodated to fruit meals and still has irritations that drive you to yet seek the old satisfactions and stimulations. But it is unlikely that the fruit meals are not supplying your needs or that you are feeling true hunger as a result of your bodily needs.

Demonstrated irrefutably in this lesson is the nutritional adequacy of fruits in supplying human needs.

In the previous lesson we demonstrated that fruits are the only foods that meet, all relevant criteria for a human food. This lesson has shown that specific nutrients for which RDA's have been established are contained amply within the various fruits available to us on our markets.

Further, this lesson has dealt with charges made against fruits as foods and refutes them on a charge-by-charge basis. The lesson shows that the charges are groundless and are of a nature as might be inspired by the meat, grain and dairy industries who have a commercial interest in promoting their products.

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Article #1: Fruit Eating By Dr. Herbert M. Shelton

Fruit is food. Indeed, fruits are among the few substances produced in organic nature that seem to be designed specially to serve as food. The old medical prejudice against fruit, so strong during the last century that cities passed ordinances against bringing fruits into the cities during the summer months, was hammered down by Hygienists, and Americans learned to relish fruits. Unfortunately, in certain Hygienic circles this old anti-fruit prejudice has been revived. Some of our Hygienists have developed a groundless fear of a number of wholesome fruits.

Fruits supply the body with an abundance of minerals, sugars, vitamins and, in the case of some of them, considerable high-grade protein. The sugar in fruit is ideally associated with minerals and vitamins and need not be rejected as one does (or should) refined sugars. Fruit sugar is superior as human nutriment to honey, which is so ludicrously lauded in many quarters. Indeed, honey, when compared with the sugars of fruits, ranks about on the level with white sugar.

Most fruits are abundant in minerals, also containing important trace minerals, so that they form important and vital ingredients in the diet of the growing child. Most of them are deficient in calcium, but this is easily compensated from other wholesome sources. Fruits are commonly rich in vitamin C but contain less of other vitamins. They are, however, on the whole, excellent sources of vitamins.

They are commonly low in protein, rarely containing over two to two and a half percent and many of them containing much less than this. The date, banana, avocado and a few other fruits contain small amounts of excellent proteins. Supplemented with nuts and green leaves, their proteins become valuable additions to the diet. A fruit and nut diet is improved by the addition of green leafy vegetables. A large green salad each day makes such a diet almost ideal.

Most fruits contain more or less acid—such as malic, citric, tartaric, etc., being present. The prejudice that has grown up around fruits is a revival of the medical prejudice against acid fruits. They were declared to cause "acid diseases," and were regarded as especially objectionable in rheumatism.

Fortunately, the body is able to oxidize the organic acids of fruits, at least of those fruits that we commonly use as food. These leave an alkaline ash upon being oxidized. There is often some difficulty with the acid of prunes, but there is no ground for the prejudice that has been revived against oranges, tangerines, lemons, grapefruit, tangelos, tomatoes and similar citric-acid bearing fruits.

The acids of berries are also easily oxidized and these, also, leave an alkaline ash. The acid radical of organic acids is expelled as carbon dioxide through the lungs; the alkaline salts left help to alkalinize the blood. Teeth have been kept uninterruptedly immersed in lemon juice for as long as six months and the acid had no effect on their enamel. There would seem to be no foundation for the idea that eating oranges or drinking orange juice injures the teeth.

It should be generally known that when acids are taken into the mouth there is a copious outpouring of an alkaline saliva, which bathes the membranes of the mouth and the tongue. This secretion of saliva is kept up long after the acid has been swallowed. Any acid left on the teeth or in the mouth is quickly neutralized by the alkaline saliva. We are too prone to overlook the body's own provisions for its safety.

In the late spring and summer, when such fruits as peaches, plums, apricots, nectarines, cherries, the various berries, canteloupes, watermelons, grapes, figs, etc., are plentiful, it is well to make a large part of the diet fruits. In the fall, when pears, apples, persimmons and the citrus fruits come into season, these should constitute a large part of the diet. Certain of these fruits, like the tomato, grapes, oranges, and grapefruits are plentiful throughout most of the year and may be eaten all the time. The avocado is abundant through most of the year, but is best eaten during the cooler periods of the year. Such sundried fruits as figs, dates, raisins, peaches, apricots, pears, etc., may be freely eaten during the winter months.

The melons make an excellent breakfast during the season of the year when they are ripening. They are best eaten alone. A large piece of watermelon makes an adequate breakfast, even for the physical worker. Canteloupe, banana melon, casaba, cranshaw and the Persian melon, in season, make a delightful and satisfying breakfast. If more food is desired for breakfast, it should be taken half an hour after eating the melon.

Nearly all of what we see of so-called allergy to fruits is indigestion resulting from wrongly combining the food eaten. Fruits with starches, fruits with sugar, fruits with proteins, and similar combinations are prone to decompose, producing gas, discomfort, skin eruptions. Melons with other foods may cause marked distress—eaten alone, they digest with the greatest of ease. In very young children there may sometimes be a short period during the development of a child, when its digestive system cannot handle a certain fruit, for example, an apple. It is well to leave some fruits out of a child's diet until its development has progressed to a point where it can easily digest the fruit that gives trouble.

Great improvement in the ability to digest and handle foods follows a fast. It is no uncommon thing to find that an individual who has trouble with a particular article of food, can take it with the greatest of ease after a fast. If we can learn that what is called allergy is not a permanent possession, but that when its causes are removed, it ceases, we can understand that it is possible for us to become able to enjoy any wholesome food. It amazes those who are "allergic" to strawberries, for example, to see no trouble develop if they are placed on a strawberry diet.

When fruit is eaten with a meal of bread, flesh, potatoes, butter and the rest of the usual meal, the fruit usually being taken at the end of the meal, but often at the beginning, the indigestion and discomfort that result from such combining of foods will almost certainly be blamed on the fruit, which may be the only wholesome article of diet in the meal. The discomforts following such a meal may range all the way from a little gas formation that scarcely attracts the attention of the eater, to a painful indigestion accompanied with nausea, vomiting and diarrhea. The fruit, kept away from the other foods, and eaten as a fruit meal will digest easily and result in no discomfort.

Fruits that are peeled and sliced and permitted to stand for long periods of time before eating are hardly wholesome foods. They change color, lose flavor, undergo oxidation with resulting loss of food value and tend to decompose readily. Fruits added to breads, cakes, pies and various other kinds of pastires can also occasion considerable indigestion and distress. In this latter case, not only is the food spoiled in preparation and cooking, but the combination is indigestible. Fresh fruits, with cleaning as the only preparation, are most easily digested. The addition of sugar, syrups, honey and other sweeteners to fruits can also result in indigestion and discomforts.

Fruits have fallen into disrepute with many people for the reason that they find that they suffer with discomfort after eating them. It was Dr. Dewey who said that fruits demoralize digestion. He was especially opposed to eating apples. This trouble with fruits grows out of the practice of wrongly combining them. Strawberries and melons are commonly singled out as fruits that "I am allergic to," and these foods are wholesome and toothsome. If taken alone as in the case of melons, or properly combined as in the case of strawberries, they almost never cause any trouble. Skin rashes and intestinal disturbances that often follow the eatings of fruit or that follow a particular fruit may, almost always, be traced to wrong combining. In the few cases where this is not so, a correction of the way of life, so that normal digestive power is reestablished, soon enables the individual to eat fruit. I do not think that there is anyone who cannot eat freely of fruits if due care is taken in combining them.

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Fruit: Best Food Of All by William L. Esser

Of all the foods that we can eat, fruits are the best in every respect. They are objects which enchant the eye, delight the smell and thrill the normal taste beyond the sensation incited by any other food. In itself, fruit is perfect. It requires no preparation of any kind other than cleansing, coring or peeling. Cooking, seasonings, additions and substractions make it less, not more palatable.

Beyond its appeal to the senses, it possesses most of the essential proteins, minerals and vitamins necessary for maintaining health at its highest level. Obtained in large enough variety, fruits (with the addition of nuts which are also fruits) would be ample for the maintenance of ideal health.

Many facts indicate that humans were originally frugivorous or fruit-eating animals, not omnivorous as we are presently. That humans have strayed from their natural diet for the past few thousand years does not mean that organs have changed so as to be suited to the prevailing diet. The changes that have occurred are the weakening, softening and degeneration of a creature of true grandeur. If any change has occured, it is that we have become diseased creatures. We have lost our physiological excellence. For this reason, it is more important that we adhere more closely to our natural diet. The ruinous habits of eating must be dispensed with entirely. Only pathology has resulted from our unnatural dietary.

Fruits constitute our ideal diet and should comprise most of its bulk. Vegetables, nuts and seeds can be added with great benefit when the rules for food combining are observed. It is never the fault of the fruit. Fruit should be ripe at eating time. Overly-ripe fruits should be shunned. Fruit is most luscious and at the peak of perfection when it is plucked from tree, stalk or vine in a just-ripened condition. No store-bought fruit can approach freshly-picked fruit for quality or flavor.

Whenever possible, fresh fruit should be bought from the grower, rather than at the market which obtains much of its stock from storage houses. Those living in colder climates have little choice during winter time, however. Much care must be exercised in selecting the best available.

Ability to judge various fruits in the market to determine their fitness is an accomplishment which can only come with experience. Most fruits, regardless of whether they belong to the acid, sub-acid or sweet classification, possess an elating sweetness and flavor when they are ripe. Experience will teach you to judge a good apple among a whole bushel of inferior ones at a single glance. Care must be taken to avoid fruits which have been damaged by frost, blight, rot or any other similar influence. Fruits today are sprayed excessively against insects and before they are eaten, they should be carefully washed and brushed, in order to eliminate the poison from them.

Some unripe fruits contain starch and various other carbohydrate substances which are distasteful and unwholesome. On the other hand, decay sets in on over-ripe fruits, and the sugars are changed to carbon dioxide, alcohol, acetic acid and other harmful by-products. Over-ripe fruits deteriorate rapidly in their nutritive values. These changes, plus the loss of water, account for the sponginess and insipidness of fruit which has been stored for long periods of time.

Fruit is potentially alkaline. Alkalinity occurs after it has passed through the processes of digestion. If the fruit is of poor quality, improperly combined or the digestion is weak, it often remains in an acid and its absorption creates many unpleasant symptoms such as nervousness, sleeplessness, frequent urinating from bladder irritation, intestinal gases, mucus in the stools, throat irritation, etc. Most of the time, however, the symptoms which follow the eating of fruit are not the fault of the fruit, but of impaired digestive faculties. There are those who will eruct and experience flatulence and distress in the bowels regardless of what they eat. People so affected are ill and should put a stop to eating until their digestive system has recovered its powers. Fruits should not be haphazardly mixed with other foods, or even other fruits! Even the best digestion cannot successfully cope with indiscrimate and chemically-incompatible mixtures. A good policy is not to eat more than one or two kinds of fruit at a single meal.

Fruits can be divided into three classifications: sweet, sub-acid and acid. Sweet fruits can be combined tolerably well with sub-acid fruits but should not be as a matter of practice. But the combining of sweet fruit with acid fruit can prove quite distressful. For example mixing bananas and grapefruit or dates and oranges is worse than not eating anything. The best plan in combining fruits is to mix only fruits of the same classification. For example bananas, dates, figs and raisins are sweet fruits. Apples, pears, most grapes, mangos and papayas are among the sub-acid fruits. Berries, cherries, peaches, pineapples, etc., are among the acid fruits.

Melons of all kinds should be treated as a fruit category in themselves and should be eaten alone. Nuts may be eaten after the end of a fruit meal, preferably after a fruit meal of acid fruits. Lettuce and celery may be beneficially added to fruit meals in small quantities.

As with any food, chewing plays a vital part in the thorough digestion of fruits. Every particle should be systematically liquified, thereby insuring absorption and assimilation. This is doubly important when you realize that most fruits undergo no digestion in the stomach. The swallowing of carelessly-chewed food is a major reason why food lies in the stomach and ferments. The digestive juices are unable to break down large pieces of food and bacterial decay sets in. Drinking a glass of orange juice or any other fruit juice in one or two gulps does more harm than good. It should be sipped slowly and tasted, if eaten at all, not swallowed as though one were trying to quench a fire. Fruits should never be eaten cold.

Room temperature is ideal.

Fruits should not be considered merely as a dessert or a between-meal refreshment, nor in the same light as the "apple a day keeps the doctor away" philosophy. They are due much higher regard. To take them as a "laxative" or to cleanse the bloodstream, or to take fruits in any way which savors of medicine instead of food is wrong.

Fruits are the finest kind of food. They should be treated as such. Sick people should not be eating. A sick body requires rest and fasting, not food, regardless of the nature of the illness. The major part of one's diet should consist of fruit. It is the most delicious, wholesome and perfect food that can be had.

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Article #3: Proteins In The Fruitarian Diet By Dr. Herbert M. Shelton

Can man get adequate protein from a fruit diet? This is to ask: If a man were to attempt to live as a strict frugivore, could he be adequately nourished? We put this question in relation to the protein of this diet because there is no question about the ability of a fruitarian diet to supply adequacies of fats, carbohydrates, minerals and vitamins.

In an article entitled "Why I don't eat Meat" by Owen S. Parrett, M.D., which has had wide distribution, the author says, "W.C. Rose of the University of Illinois, an authority in the field of protein, says that "less than twenty-five grams a day is all one needs."

"If a man were to eat no meat, eggs or milk he would still get on the average 83 grams of protein a day. A woman would get 61 grams of protein a day. This fact was discovered in a research project made by Dr. Mervyn Hardinge of the College of Medical Evangelists under Dr. Frederick J. Stare of Harvard, well-known authority on nutrition.

"Dr. U. D. Register, leading biochemist, and Dr. Hardinge, both active in the field of human nutrition, said to me that fruit alone, if amply supplied in sufficient variety, would provide people with enough protein to meet the actual body demand."

Many efforts have been made to live upon a diet of fruits only, usually with only marked degree of success. It has usually been found that such diets are improved by the addition of green leafy vegetables. It is probable that this need has resulted from an insufficient variety of fruits. Certainly when we consider the wide range of food substances included under the term fruit, there would seem to be no necessity for inadequacies in the diet of the fruitarian. Nuts, which are fruits, are nearly all rich in protein of high biological value, capable of supplying adequacies of all the amino acids essential to growth and reproduction.

The biologist defines a fruit as "a ripened ovary with or without associated parts." To make this a bit more complete, a fruit is the matured ovary of the flower, its contents and all intimately connected parts. Fruits are often more complicated than this description indicates. In addition to the development of the ovary wall, the calyx may also become fleshy and envelope the ovary as in the apple and pear; or the end of the stem (receptacle) may enlarge and form a part of the fruit, as in the strawberry and blackberry. Tough shells or rinds may form for protection, as in nuts and lemons; or a delicious flesh may envelop a hard inner stone, as in the peach and plum. Some fruits, as the potato and peanut, are matured underground.

All of these developments serve to perform a few simple functions:

1. They protect the ovules and seed while they are maturing
2. They prevent loss of water.
3. They provide for seed dispersal.

An animal eats the fruit and discards the seed at a distance from the parent plant. Edible fruits may thus be said to be the coin with which the plant compensates the animal for services rendered—that of dispersing the seed. A seed is a matured ovule enclosed in the fruit. Many fruits are merely mechanical devices to secure seed dispersal and are not edible. We need not consider these in our discussion of fruits.

A brief glance at the evolution of a fruit may help us in forming a clear picture of a fruit. The ovary grows as the seed develops, giving rise to a fruit. A fruit, in this sense, is not necessarily a fleshy edible product, but the seed-carrying organ of the plant. It is customary to include nuts in the category of fruits, although, it is the seed rather than the seed-carrying organ that we eat.

A fruit may consist of a single ovary with but one seed, as in grains, nuts, cherries, plums and peaches, or it may evolve from a single ovary which has several seeds, as the bean, pea, apple and orange. Then there are flowers which possess several ovaries which combine to form compound fruits like the strawberry or raspberry.

With the foregoing explanation in mind, it should not be difficult for each of my readers to answer himself the question: Is the tomato a fruit or a vegetable? Fruits are all produced by plants and, in this sense, they are all vegetables. But they are special parts of plants and are classed as fruits because of this. The tomato, as the matured ovary of the tomato flower containing seed, is quite obviously as much a fruit as the apple or orange. The cucumber squash, pumpkin and similar foods are fruits.

Confining ourselves, in this discussion to edible fruits, and ignoring those fruits that serve only as seed dispersers and have no food values, fruits are either dry or fleshy, simple or compound, depending on the character and development of the ovary which formed them.

1. Examples of fleshy fruits are the apple, pear, cherry, peach, apricot, plum, nectarine, mango, banana, tomato, and gooseberry.
2. Examples of dry fruits are legumes (beans and peas), acorn, hickory nut, pecan, walnut and almond.

Thus it will be seen that the term fruitarian may be used in a wider sense than is commonly thought. Indeed, in a biological sense, it may be made to include eating practices that probably should be foreign to man. This is to say that there may be more than one fruitarian category in nature. We are justified in classing the grain-eating birds as fruitarian, but it is doubtful that grains should form a part of the normal diet of man.

There are fruits that are poisonous, some of them poisonous before ripening, others poisonous after ripening. These latter should be excluded from man's diet. An excellent example of a fruit of this kind, one that is commonly eaten, is the cranberry. Sumac berries we refrain from eating, because, although tasty, they are toxic. Some plant substances are poisonous to some animals and not to others. An example is belladona, which, highly poisonous to man, is non-toxic to the rabbit after it is six weeks old. After this age the rabbit secretes an enzyme that enables it to digest the two toxins in the plant. Man produces no such enzyme.

In the same manner a fruit that may be poisonous to man may prove to be an excellent food for other animals. Nothing seems to eat the sumac berries. It may be possible that they are toxic to all forms of life. They are regarded as good herbal medicines, precisely because they are toxic. My readers should keep always in mind the rule of medicine: *If the plant is non-toxic, it is food; if it is toxic, it is "medicine."*

Lesson 20 - The Physiology Of Digestion

- 1. Introduction
- 2. The Journey Of Food
- 3. The Physiological Determinants Of The Optimum Diet
- 4. Questions & Answers

1. Introduction

It has often been said: "You are what you eat." More appropriately, this should probably be: "You are what you digest and assimilate."

Man eats everything. He considers himself an omnivore of the first order. Roots, nuts, tubers, seeds, eggs, blood, milk, fish, fowl, and fruit have all appeared on man's plate. One culture eats worms and gnats with relish. Another culture considers decaying animals a delicacy. Man has practiced cannibalism both in the past and in the present.

And so man brags: "I can eat anything. I have an iron stomach."

It is true that man's physiology allows him to eat almost anything that does not immediately kill him. Sometimes even great quantities may be consumed, as witnessed by the champion crayfish eater of Louisiana who ate 63 pounds of crayfish tails at one sitting. It is a mistake to assume, however, that the body can digest and assimilate everything that passes between our teeth, or that foods doing no immediate harm will not eventually cause problems.

Consequently, most of what man eats is for naught, because much of the food eaten by the average human being is totally unsuitable for his digestive physiology. If we want to understand what foods are appropriate for man to eat, we must first understand the physiology of digestion and assimilation. We need to know how our body acts upon the food we eat. When we understand the principles of nutritional physiology, we can then determine the natural diet for man.

1.1 What is Nutrition?

Dr. Herbert M. Shelton gives us this definition of nutrition: "It is the sum of all processes by which raw materials (foodstuffs) are transformed into living structure and prepared for use by the body."

No one understands these processes completely. The transformation of an apple, for example, into the cells that make up the brain, blood and bone is an event that defies scientific duplication. The changing of food into the person that is you could be considered a miracle—yet it is a miracle that happens repeatedly throughout every day.

We can follow food through the body as it undergoes processing by the digestive organs. We can give names to the various enzyme interactions and to the catalysts that accompany food absorption. We cannot, however, tell you how the life force present in a fruit becomes part of the life force that propels your body or awakens your consciousness. These are the limitations of the science of nutritional physiology, and we must keep our discussion within the scope of these boundaries.

From a purely physiological point of view, nutrition can be described by the mechanical and chemical actions of the body upon the food ingested. Notice that the body is active and food is passive; the body acts upon food—food does not act upon the body.

As Dr. Herbert M. Shelton states: "Food is inert substance and, therefore, has no power to make living organisms. It cannot act, but is acted upon. The living organism uses what it can of the food consumed and rejects the rest. A particular food may be good, but to feed more of it than can be utilized...is worse than useless."

The idea that foods have in themselves no power to act upon the body distinguishes Life Science and Natural Hygiene from other traditional schools of nutrition. Many nutritionists still believe in "food therapy"—that is, that certain foods can perform specific actions upon the body to effect a cure or treatment. Life Science decrees that there are no "cures," whether they be in the form of medicines, herbs, foods or juices; instead, the body is a self-healing mechanism. Hopefully, by studying the physiology of nutrition, you will be able to see the fallacy of regarding foods as active healing agents.

Nutrition is the physiological processes the body conducts as it transforms food into material for its own growth and maintenance. This lesson discusses these processes in the order that they occur in the body as food is appropriated, digested, assimilated and finally eliminated from the body.

2. The Journey Of Food

Food enters the body through the mouth and exits through the anus. In between, it undergoes digestion (from the mouth to the stomach), absorption (from the stomach to the small intestines), and elimination (from the large intestine, or colon, to the anus). In most cases, these three stages of food processing take place in a total of about twenty-four hours in a relatively healthy individual. This journey takes place in what is on the average over fifteen feet of a single connected tube from the mouth to the anus.

This fifteen feet of elasticized tubing (which includes the esophagus, stomach and intestines) is said to be continuous with the outside environment. That is, there is one entrance from the outside world to the food tube (the mouth) and one exit (the anus) with no other outlet inside the body proper.

Food in this tube (usually called the gastrointestinal tract) is technically considered to be outside the body. As food passes through this tube, it may be partially absorbed by the body. At any time, the food itself may be rushed back out through the mouth (vomiting) or quickly expelled through the anus (diarrhea).

This is the reason that man can seemingly eat anything. His digestive-absorptive-eliminative tract, or tube, actually holds the ingested food outside of the body proper. If a healthy person should eat harmful foods, they may be carried through the body to the nearest exit without actually being absorbed or entering into the body from this tube.

However, many individuals, through years of improper eating, have degraded the natural power of the body to expel unsuitable foods. Consequently, the body gradually starts to absorb noxious substances from foods which a healthy organism would reject outright.

Consider this example: If a young infant is given a swallow of strong coffee, he or she will probably vomit it back up or experience immediate diarrhea. This is because the gastrointestinal tract of a young child is still sensitive and strong enough to actively inhibit such substances from entering the body.

People who have been vegetarians for several months will often experience this reaction if they, should attempt to eat meat again. A healthy body will try to protect itself from harmful non-food items.

The gastrointestinal tube is the pathway all food must follow in its process of digestion and assimilation. What occurs along this path is discussed in the next sections of this lesson.

2.1 The Appropriation of Food

Appropriation is the making of something into one's own. Appropriating foods, then, is the act of taking food into the body. The first step toward digestion and assimilation of food is the physical selection of food. This selection is guided primarily by visual and olfactory cues.

Our first contact with food is visual. Young children originally try to discover what is good to eat and what is not by sticking everything within their field of vision into their mouths. If it tastes good, it is food and is swallowed. If not, it is spit out. While effective, this is not the best way to choose food. A variety of items such as rocks, dirt, loose coins, and so forth are often swallowed by children in their exploring quest for suitable food.

Gradually, the child learns to recognize food items by sight. An orange is orange and is for eating, and a baseball is white and is for knocking over breakable items. Very quickly, children learn to recognize food by visual cues alone, and adults soon take this aspect of food appropriation for granted.

Visual appearance of food is an important part of the digestive process. People start to salivate at colorful pictures of food dishes. If the food is pretty and served in a visually pleasing manner the amount of digestive juices secreted is greater than if the food appears distasteful or if it is served in unpleasant surroundings.

The visual appeal of an apple hanging on a tree in an orchard is evident; that same apple stuck in the mouth of a roasted pig, however, does not raise the same expectations in the eater.

Food that is simply unfamiliar is often automatically rejected. Some people refuse to eat yellow tomatoes because they "look funny." Thereby they may miss a wonderful taste sensation.

All of this may seem obvious, but it is often overlooked in the physiology of nutrition. The body begins to respond immediately when food is placed within the visual field. If the food itself or the surroundings within which it is presented are unappealing, then actual digestion and assimilation of the blood will be impaired. If, on the other Hand, food is artfully presented in a visually pleasing manner, digestion is enhanced.

This does not mean that a lot of artifice should be used in preparing food. On the contrary, if food is naturally attractive, such as fruits or vegetables, then a minimum of 'stage dressing' is required. Notice that advertisements for steaks and hamburgers prominently feature salad with vegetables, their attractive colors of red, green and yellow to contrast with the distastefully brown or black meat. Digestion, or lack of it, begins with the eyes.

2.2 Olfactory Cues

The nose is the next organ involved in the physiology of digestion. The fragrance of food stimulates the olfactory nerves, which in turn starts the salivation process. This does not mean, however, that food must be overwhelmingly 'fragrant,' as is the usual case with cooked foods and spices and onions.

Smelling food is actually a subtle experience that may require re-educating the sense of smell if it is jaded by over-seasoned cooked food. An apple gives a subtle bouquet of odors to whet the appetite. The smell of ripening bananas or a bowl of strawberries is more enjoyably overwhelming to the healthy individual than is the stench of onions and garlic piled upon burnt meat.

The eyes and the nose, then, are the first organs used in the process of digesting and assimilating food. It is important, therefore, that time be taken to appreciate and select food according to its appearance and smell.

2.3 Alimentation: From the Mouth to the Stomach

After food is chosen according to sight and smell, it is brought towards the mouth and saliva starts to secrete. The mouth is the first step in the digestion of food proper.

The digestion of food can be viewed as two concurrent processes: 1) *Mechanical*, or the actual movement of food as it is broken down into smaller particles; and 2) *Chemical*, or the splitting of food into its simple nutritive components. In the mouth, mechanical digestion is performed by the actions of the teeth and tongue, while the saliva furnishes the first step of chemical digestion.

2.4 The Mouth

The teeth perform the first mechanical operation of digestion. Food is first bitten by the *incisor* teeth at the front of the mouth. Then the *canine* teeth (next to the front teeth) shred the food into smaller parts as it is passed back to the *bicuspids*, which continue tearing it into smaller portions. Finally, the *molar* teeth (in the back of the mouth) finish the grinding and crushing of the food.

Chewing by the teeth increases the surface area of the food so that it may be more easily penetrated by the digestive enzymes. Chewing the food is a very important part of digestion. Not only does it break {he food down into more easily digestible...particles, but it also stimulates nervous impulses that cause the secretion of gastric juices, and thus prepare the digestive system for the food to be swallowed.

The teeth are very powerful. The front teeth, which tear and shred food, can exert a force of up to 80 pounds. while the grinding molars can apply 100 to 250 pounds of force against food particles!

At the same time that the teeth are doing their work, the tongue is performing the other aspect of mechanical digestion in the mouth by moving the food back and forth, from side to side and mixing it with the saliva.

The salivary glands help perform chemical digestion in the mouth. There are three pairs of salivary glands in the mouth. They continuously secrete saliva to keep the mouth from drying out. During the day, these glands produce from 1 to 1 1/2 quarts of saliva.

The saliva prepares the food for swallowing by lubricating it with *mucin*, which gives saliva its slippery characteristic. Imagine how hard it would be to swallow food "dry" without this natural lubrication.

The first digestive enzyme is also contained in the saliva. It is called *ptyalin* or *amylase*. This enzyme starts the digestion of starches in foods, Ptyalin helps convert starch to a sugar called *maltose*.

Since this enzyme is the major factor in starch digestion, all starchy foods should be chewed thoroughly and mixed well with saliva. Human beings, however, are not well adapted to eating starches, so the amount of starches in the diet should be restricted.

Saliva also has a solvent action upon food. It is only after the food is somewhat dissolved that it can be tasted.

In addition to ptyalin, saliva has an enzyme called lysozyme that digests bacterial cell walls, thus killing certain microorganisms. Saliva also has a cleansing action as its constant flow helps to dissolve and remove food particles from the teeth.

After mechanical and chemical digestion has progressed to a certain point in the mouth, the tongue gathers the food together into a small ball and then elevates the mass of food back into the pharynx of the throat. This is the first stage of swallowing and the beginning of the food's journey down to the stomach.

2.5 From Mouth to Stomach

After food rolls off the tongue, it is no longer under voluntary control. It is now moved through the system under the control of the involuntary nervous system. Short of self-induced vomiting, it is now up to the wisdom of the body to move the food as it sees fit.

After leaving the tongue, it will take about 8 seconds for the swallowed food to reach the stomach. Most of this time is spent traveling down a tube called the *esophagus*.

The food passes down this tube in a peristaltic (wave-like) motion. These *peristaltic* waves are strong enough so that even if suspended upside down, a person can swallow about a half-ounce of food and it will work its way against gravity into the stomach. This is why astronauts can eat in "free fall" or zero-gravity. This is also why they must eat in small sips or swallows, being careful not to take in over a half ounce of food per swallow.

Pure liquids can move down the esophagus in only one second, eight times faster than the peristaltic waves move the solid food.

2.6 The Stomach

The food passes from the esophagus into the stomach through an opening called the cardiac orifice. As soon as food enters the stomach, a hormone called *gastrin* is released into the bloodstream.

This hormone is carried to the gastric glands in the stomach which causes them to secrete digestive juices. These gastric juices help in the chemical digestion of the food, while the rhythmic contractions of the stomach contribute to the mechanical process of digestion.

The gastric juices in the stomach are secreted at the rate of two to three quarts per day. These juices contain primarily hydrochloric acid (HCl) and digestive enzymes.

The hydrochloric acid makes the stomach a very acid environment with a pH factor between 1.5 and 3.0 (as compared to pure lemon juice, with a pH factor of 2). This acid environment caused by the HCl secretions serves two, functions: 1) it acts as a denaturant in digestion of proteins; and 2) it kills small parasites that are often found in all foods.

Three primary enzymes are also present in the gastric juices. The first is *pepsin*, which aids in the hydrolysis of proteins. The pepsin enzyme begins breaking down complex proteins into their simpler forms. It does not actually split the proteins into amino acids (the end-product of protein digestion), but it prepares them for that process which occurs in the intestines. The pepsin enzyme works best in a fairly acid environment. An acid environment is also conducive to protein digestion.

The second enzyme is called *lipase*. This aids in the hydrolysis of fats. Lipase starts the digestion of fats by aiding their breakdown into glycerol and fatty acids. The lipase enzyme works best in a more neutral pH environment than does the pepsin enzyme.

The third enzyme, found only in the gastric juices of infants, is called *rennin*. Its primary function is the hydrolysis of milk proteins. Adults do not have the rennin enzyme in sufficient quantity to digest milk products. Consequently, the only time milk should be used in the diet is during infancy and young childhood. Even at these times, the only suitable milk is that from the lactating mother. Milk from cows, goats, etc. is not of the same composition as is mother's milk and should not be consumed by humans of any age.

These three enzymes, along with the gastric juices, are mixed into the food by the mechanical actions of the stomach. The stomach contracts in waves at the rate of three per minute. The stomach has a capacity for holding up to two quarts of food in volume. When a person is fasting, the actual volume of his or her stomach may be less than two ounces.

The gastric juices mixed in by the contracting and relaxing stomach are initially stimulated by the thought, sight, smell and taste of the food. This occurs before any food has actually entered the stomach. These juices are sometimes called the "appetite juices", and they may be suppressed if the food appears unappetizing, smells bad, or is eaten in an unpleasant environment.

Digestive secretions in the stomach are increased by attractive and well-liked foods as well as by a state of contentment and happiness. The secretions are decreased by large meals, large amounts of fat, poor chewing, poor appearance of food and negative emotions.

In the presence of intense pain, fear, or depression, gastric juices may be almost completely suppressed for up to twenty-four hours. This fact alone is reason enough not to eat when upset or feeling out of sorts.

The stomach empties at the slow rate of about 3/100 ounce for each peristaltic wave. At three waves per minute, it can take up to five hours for two pounds of food to leave the stomach.

The emptying time of the stomach also varies with the type of food present. Water and liquids leave the stomach most rapidly. Carbohydrates empty more quickly than proteins; proteins, in turn, leave the stomach more quickly than fats.

Within five minutes after fat enters the stomach, a hormone called *enterogastrone* enters the bloodstream and travels to the stomach, "this hormone inhibits the motion of the stomach and causes it to empty at a much slower rate.

Not all foods undergo the same digestive processes in the stomach, and not all foods leave the stomach at the same rate. Proteins digest in an acid environment, while fats need a neutral environment. Carbohydrates leave the stomach at a faster rate than proteins, and so on.

Even among the carbohydrates (fresh fruits and vegetables), digestion time may vary a great deal. Below is a chart listing the time that various foods remain in the stomach:

Food	Minutes Held In Stomach
Parsley	75
Lemon	90
Grapes	105
Tomato	120
Carrot	135
Almond	150
Apple	165
Banana	180
Peanut	195
Eggplant	210
Persimmon	225

Turnip	240

Since different foods require different sets of environments in the stomach to digest properly, it is reasonable to assume that if these foods are put into the stomach at the same time, difficulties could occur. That is exactly what happens.

Consider the all-American cheeseburger. A bite of it might contain a starch (bread) a protein (meat), a fat (cheese), and an acid (tomato), what happens when a single bite of this hits the stomach?

The starchy bread was probably not chewed very thoroughly in the mouth and the starch-digesting enzyme had little chance to do its work. So, the bread reaches the stomach in an unprepared state. The meat will require a very acid environment to digest. This makes it difficult for the starch to digest, since acids are inimical to starch digestion. The fat in the cheese requires a more neutral environment than the meat protein to digest, and its fat content causes the stomach to slow its digestion. At the same time, the acids in the tomatoes interfere with the starch digestion of the bread.

In this single bite, there are over seven different types of food requiring four different sets of enzymes and digestive conditions, and all digest at different rates!

At best, such a conglomeration of food in the stomach will slow digestion down to the point of fermentation. This will lead to autointoxication. At worst, the food simply becomes half-digested and is pushed sluggishly through the system, releasing its poisons and gases throughout the body.

The same people who would never mix water, kerosene, or oil with their gasoline for their car will sit down to a meal and give their stomachs a mixture of mashed potatoes, steak, butter, and beer.

Fortunately, the stomach does not break down as fast as an abused automobile. But the stomach's resilient quality causes people to think they are getting away with their dietary indiscretions.

If different foods are to be put into the stomach at the same meal, they should at least be of the same type that requires the same set of digestive conditions. Ideally, of course, only one food should be eaten at a meal to insure optimum digestion.

Since food combining is such an important area, it is covered in a separate lesson in this course.

2.7 The Small Intestine

The small intestine consists of about 9 feet of inch tubing coiled in the abdomen. This tubing leads from the stomach to the large intestine. It is in the small intestine that most of the digestion and absorption of food occurs.

Food passes into the small intestine from the stomach by entering the *duodenum*. The duodenum is the smallest segment of the intestine, being only 8 inches long. Food travels through the small intestine by weak contracting waves of motion that propel the food toward the large intestine.

The other two segments of the small intestine are the *jejunum*, which is 3 feet long and connects the duodenum to the *ileum*, the final 3 feet of the small intestine.

The small intestine interior has many folds. Along the surfaces of these folds are tiny finger-like projections called *villi*.

The villi of the intestine move back and forth, like thousands of tiny tentacles, passing through the food as it is moved along the intestinal tract. The villi play an important role in the absorption of food from the small intestine.

Through the center of each villi is one or more fine white vessels called *lacteals*. The lacteals are part of the lymphatic system. Their principal function is probably the absorption of fat.

As food passes through the small intestine, it is taken up, or absorbed, by structures in the wall of the intestines, especially the villi, and is then secreted into the lacteals. Some of the digested food is absorbed by the numerous blood vessels that line the villi. This digested food directly enters the bloodstream.

As digestion progresses in the small intestine, portions of food are moving in large quantities into the capillaries of the intestinal villi. Blood from the intestines containing these products of digestion is collected in the *portal vein*, which is connected to the liver.

The liver removes the excess glucose from the blood (glucose being one of the end-products of digestion) and stores it as glycogen, to be used later in normalizing the blood-sugar level and for supplying energy. It also attempts to detoxify harmful elements in the food (such as pesticides), and regulates the level of nutrients available to the body.

The liver is one of the master organs in the body. It receives all the end-products of digestion. The bulk that remains behind after the vital elements are extracted by the villi in the intestine and sent to the liver is then pushed down toward the large intestine. Normally, most of the contents of the intestines have been absorbed by the time the food reaches the middle of the jejunum segment of the intestine, or about 3 feet along the 9 feet of tubing that makes up the small intestine.

The tone and motility of the small intestine is increased by foods served at room temperature, fibrous foods, and high-carbohydrate, low-fat foods. Movement is slowed by cold, dry, and high-fat foods.

2.8 The Large Intestine or Colon

The small intestine joins the colon in the region of the right groin. At this juncture is the *ileo-cecal* valve whose purpose is to control the speed of passage of substances from the small intestine and to prevent any wastes from returning to it from the large intestine. The ileo-cecal valve opens into the colon into a pouch known as the *cecum*, the first receptacle for waste residue.

At the tip of the cecum is the appendix. Due to the appendix's position near the waste receptacle, toxins from a diet high in meat, heavy starches, etc. can contribute to its inflammation which may result in a condition known as appendicitis.

If a person suffering from appendicitis simply abstains from all food (fasting), then the\body can conduct its housecleaning and clear up the inflammation without removal of the appendix.

From the cecum, the large intestine ascends on the right side to the middle of the abdomen, then crosses to the left side and descends again. These three sections are called the *ascending*, *transverse* and *descending* colons.

One of the chief functions of the colon is the reabsorption of much of the water used in the digestive process. If all the water in which the digestive enzymes were secreted was lost in the feces, man would have to drink liquids continually.

If too much water is expelled with the feces, then a condition known as diarrhea exists. Diarrhea happens because of an irritation in the stomach and small intestine due to unsuitable food or inflammation. In this case, the colon expels all of its waste residue upon entry without holding it for water reabsorption.

On the other hand, if the waste material moves too slowly through the colon, then excessive water is reabsorbed and the feces become hardened. This is called constipation.

Waste material may move too slowly through the colon for a number of reasons. Perhaps the most usual reason is that peristaltic nerves are paralyzed by toxicity from decaying foodstuffs.

Another reason for the slow movement of waste through the colon is that the passageway has become very small due to poor tone or to hardened feces clogging the intestinal walls.

After several years on a conventional low-fiber diet, the average adult continually carries around about ten to twenty pounds of fecal material on the colon walls. In many instances, the distended abdomens in overweight individuals are not due so much to fat as they are to accumulation of feces over a period of years. Autopsies on much individuals have sometimes revealed over fifty pounds of fecal material in the body!

When the body is abused by the modern diet, the colon often suffers the most. Fortunately, a diet high in natural fiber (that is, raw fruits and vegetables) can greatly aid the body in restoring the health of the intestines.

The last portion of the large intestine is the *rectum*. This segment serves as a storage chamber for the feces until defecation. The feces are eliminated from the rectum through an opening called the anus.

And so the journey of food through the body is completed. Many healthy individuals process the food from the mouth to the anus in about sixteen to twenty-four hours. Most adults eating a conventional diet, however, generally take from forty-eight to seventy-two hours for their food to complete its journey. Much of this added delay is due to incompatible food combinations and lack of colon vitality.

Now that we've followed the bodily journey of food from its beginning to end through the gastro-intestinal tract and learned about some of the physiological processes that accompany this journey, we will proceed to determine an optimum diet, one that promotes digestive efficiency and general well-being.

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3. The Physiological Determinants of the Optimum Diet

A wealth of information exists about the physiology of food digestion and absorption. Unfortunately, the science of nutrition has often depended upon "rat experiments" and artificially induced deficiencies, rather than upon the true needs of humans, to determine dietary requirements.

A more reasonable approach to determining the true dietary nature of humans is to study human anatomy and physiology. By studying human physiological nature, certain characteristics of the proper diet can be deduced that are in accordance with the inherent nature and anatomical makeup of humankind. This approach does not depend upon contrived experiments, nor is it already biased by what the majority of people believe a traditional diet should be. Instead, human physical capabilities and predispositions are the chief factors in determining true dietary needs.

3.1 Food Appropriation

The diet of most animals is largely determined by their food-gathering equipment. The long neck of the giraffe enables him to feed upon the foliage of trees. The teeth and claws of the lion are its means of killing and rending animals for its meals. The eagle's eyesight and power of flight make this creature a formidable predator of ground rodents.

So, it is salient to ask, how are you physiologically equipped to obtain your food? You have no sharp claws for tearing, no pointed teeth for slashing, nor are your eyes or sense of smell very well developed for hunting. You cannot run fast enough to chase down your prey nor can you naturally swoop through the sky or dive deep into the ocean.

You do have a marvelous set of fingers with an oposable thumb and limbs for reaching and climbing. Actually your food-gathering capabilities are very similar to the chimpanzee's!

Only man can plant and harvest. He can peel oranges and bananas and pick berries and grapes. He can climb the trees for fruits or gather the vegetables from the ground. Of all the creatures on the earth, man is most ideal for being a gardener and caretaker of the plants and trees.

Man's hands set him apart from the other animals in his food-gathering capabilities. Man appropriates his food by picking fruits from trees or by planting vegetables. It is the hands of man that are used to obtain his food, and the most natural things for such a being to eat are those foods that can be gathered and harvested—the fruits, vegetables and nuts of the earth.

3.2 The Mastication of Food

Man's teeth are not curved or sharpened like those of the wolf or tiger, nor are they wide and flat like those of the grass-and-grain-eating animals. Instead, they are shaped most similar to the fruit-eating monkey's.

The saliva in man's mouth has a different acidity entirely than that of the meat-eating animals; it is much less acidic. Nor is man's saliva as efficacious in digesting starches as is the saliva of grain-and-tuber-eating animals.

Man's mouth is actually best suited for eating succulent vegetables and fruits.

3.3 The Stomach

If a dog swallows a bone and it proceeds to its stomach, it will be completely dissolved by the dog's strong gastric juices. Carnivores may safely gulp hunks of meat whole because of the high acidity of the juices in their stomachs.

Humans have choked to death on similar chunks of meat. It is interesting to note that almost all of the fatal chokings on food have involved pieces of meat (vegetarians, beware: peanut butter is a close second on fatal food chokings).

Unlike the grass-and-grain-eaters (such as cattle), man's stomach cannot process large amounts of cellulose. He cannot regurgitate and re-chew his food as does the cow, for example.

Nor can man's stomach digest a mixture of all different types of food. Each food requires its own special set of digestive conditions in the stomach. Notice too that little or no starch digestion occurs in the stomach, and that fat digestion is a lengthy process that is only successful for small amounts of unheated fats.

Obviously, anything in the world can be put into the stomach, and probably has. However, the physiology of the stomach is such that only foods in compatible combinations can be effectively digested.

3.4 The Intestines

The length of man's intestines is much longer than that. of the carnivore's. This is because meat tends to putrefy rather quickly in the intestines and must be expelled quickly. Man's lengthy intestinal tract cannot handle low-fiber foods such as meat quickly. Consequently, such foods decrease the motility of the intestines and fermentation results, along with eventual constipation.

Cancer of the lower intestines occurs only among populations of meat-eaters. It is virtually unheard of when a diet high in natural fiber (raw fruits and vegetables) is adopted.

Constipation also disappears on a high-fiber diet. Fruit-and-vegetable-eating animals maintain excellent tonality of the intestines and usually experience a natural bowel movement after each feeding.

3.5 The Optimum Diet

Let's review the physiology of digestion so that we may determine the optimum human diet. First, it is obvious that man is built to be a gardener and harvester of fruits, vegetables and nuts. He does not possess the physical apparatus that the carnivorous animals have. Second, the teeth, saliva and digestive enzymes of man point to a diet consisting mainly of fruits and non-starchy, vegetables.

Third, the length of the small intestine is too long to handle putrefying meat and is too short for grasses and grains. Humans should eat a high fiber, high-moisture diet to insure health of the small and large intestines.

From these observations, it is evident that the optimum articles of diet for man are fresh fruits and succulent vegetables. Strictly speaking, based upon man's digestive physiology, the following raw foodstuffs make up the optimum diet, listed in order of preference:

1. Fresh fruits;
2. Succulent fruit-like vegetables;
3. Leafy greens and sprouts;
4. Non-starchy vegetables; and
5. Nuts and seeds.

The following foods, while not optimum, can be handled by man's digestive physiology in small amounts when properly combined:

1. Starchy vegetables;
2. Grains and
3. Legumes.

The next foods, while sometimes eaten on a vegetarian, diet, are not well adopted to man's physiology and place an undue strain on the organism:

1. Free oils; and
2. Dairy products.

These foods are definitely disruptive of man's health and are not compatible with his physiology:

1. Meat;
2. Eggs;
3. Refined starches and sugars;
4. Salt, herbs, spices, etc.;
5. All processed, preserved and artificial foods; and
6. Cooked foods.

The person desiring optimum health should eat exclusively from the first list of foods. These foods are most compatible with human physiology. Within this category, foods should be eaten in moderate amounts and in proper combinations.

The ultimate diet that is most conducive to human physiology and that promotes the highest level of health is the mono-fruit diet; that is, the eating of a single variety of fruit for each meal.

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4. Questions & Answers

I have just started the diet of fresh fruits and vegetables recommended in this lesson, but I'm

experiencing diarrhea. What's wrong?

Nothing, actually. It is perfectly natural to have alternating periods of diarrhea and constipation when you are first changing your diet. Your entire intestinal tract is being swept clean by a high-natural fiber diet and its tone is improving to the point where it can do some much-needed "housecleaning." The diarrhea you are experiencing is probably occurring due to the elimination of very old fecal deposits along the colon walls. Some people, however, have periods of diarrhea because their intestines are very sluggish due to years of abuse. They are not ready for a natural diet high in fiber and roughage. If you feel that this is similar to your case, try eating foods such as bananas, avocadoes, melons, etc. that are low in roughage. Eventually, your intestines will be toned-up enough so that you experience a normal bowel movement after each meal.

I don't really understand this business about putting only one food at a time in my stomach. Seems pretty boring!

Of course, meals should be enjoyable and satisfying. While the mono-diet is the ideal diet, it may be difficult for the person used to the average mixed diet of meat, potatoes and gravy to suddenly eat only grapes or bananas for lunch. If this is the case, continue eating your usual foods, but make sure that they are combined for better digestion. In other words, instead of having mashed potatoes and bread (two heavy starches), try a baked potato and salad for ease of digestion. Gradually, as the diet improves, you will be attracted toward simpler eating without feeling like you are making a "sacrifice."

It makes sense that our anatomy is most like that of the fruit-eating animals. But, it seems like man can adapt to anything. Whatever he wants to eat, he can get away with.

If you are satisfied with the low-level of health "enjoyed" by modern man, then it is difficult to make a complete diet change. Consider this, however: very few individuals have experienced the highest state of well-being that accompanies radiant health. People transgress natural dietary laws almost from birth. Consequently, if you think good health is merely the absence, of painful symptoms, you are missing the point entirely. Optimum health produces such marked improvements in physical, mental and emotional health that it becomes a joy to live according to the laws of nature. True, you can eat anything you want—that is man's free choice. However, you can only achieve perfect health by living in accordance with the innate dictates of your own physiology.

Lesson 21 - Symptoms During Dietary Transition

- 1. Introduction
- 2. Some Unpleasant Symptoms And Their Causes
- 3. The Recovery Of Health
- 4. Questions & Answers
- Article #1: What To Expect When You Improve Your Diet By Stanley S. Bass, D.C.
- Article #2: The Three Phases Of Metabolism

1. Introduction

1.1 "In Sickness and in Health ... "

It was three o'clock in the morning. My wife was not beside me in bed.

From the bathroom came a series of gags, groans and wretching noises. Finally the lavatory was turned on and water was splashed about.

My wife slipped back into bed. "Blah," she moaned, "I didn't know getting healthy made you so sick."

That was several years ago when my wife had changed over from the typical American diet of high-fat and fried foods to a diet centered around fresh fruits and vegetables.

The fatty foods in her old diet had caused her gallbladder to become clogged with noxious bile. Now that she had improved her diet, her body had a chance to clean out the old deposits of bile and pre-gallstone materials.

The old bile salts had been released into her digestive system in an attempt to eliminate them once and forever. The inconvenient time of three A.M. was when her body chose to clean the toxins out by vomiting.

Afterwards, however, she felt very good. Since this time, she has no longer suffered from gallbladder attacks and her digestion of wholesome fats has greatly improved.

At the time of her induced sickness, however, she was confused. Why would she suddenly become violently ill when all she had done was to improve her diet and take better care of herself? This is one of the mysteries of health improvement that needs to be explained fully so that you know what to expect when the body finally gets an opportunity to heal itself.

1.2 The Obstacle To Good Health

Most people do not mind making sacrifices if they feel they will be rewarded eventually for those sacrifices.

People seeking health decide to sacrifice their old comfortable diet patterns and habits from a desire to be rewarded by good health.

Imagine their surprise when they discover that after improving their diet, they sometimes feel much worse (for a temporary period). They feel betrayed and disappointed. "Why do I feel so terrible when I'm trying to do all the right things?" is a common complaint.

Why should the recovery of health and the improvement of the diet cause unpleasant symptoms? Why shouldn't we be rewarded with immediate good health and radiant well-being as soon as we change our "evil ways?"

Unfortunately, good health is not immediate—but then again, neither did poor health occur immediately.

Think about this. Didn't you feel healthy and free from pain as a young child? Have you noticed how small children have an endless supply of energy and are oblivious to physical discomforts, such as cold, that would make an adult suffer? Now look at some of our older citizens. Some of them are so crippled with arthritis they can hardly move. Every day is the discovery of some new pain or some developing crisis in the body.

Poor health and illness is progressive; it does not occur overnight. Good health and well-being is also progressive; It may take weeks, months, or years.

To understand this a little more, let's look at how the body does its work in cycles.

1.3 The Cycles of the Body

Like all aspects of nature, the body has its own individual cycles. There are biological rhythms within the body that dictate periods of tissue repair, tissue growth, waste elimination, and so forth.

We cannot rush the body through its cycles, nor can we expect it to progress in a linear fashion as if racing to a specific goal. Healing occurs in cycles. Some days the body has a high-energy level and it rebuilds damaged tissues. On such days we may feel great. On other days, the body must do its housecleaning and remove accumulated toxins. When this happens, we may experience low levels of energy or even depression.

Most people lead a lifestyle and follow a diet that inhibit the body in its cyclical work. For instance, when the body is trying to clean house via a cold, people become impatient. They try to suppress the cleansing cycles with drugs or food and the body must sometimes abandon its efforts.

The body behaves in a sort of up and down motion as it conducts its healing processes. One day it may cleanse heavily and we feel rotten. The next day, the toxins have been removed and we feel great. We feel so great, in fact, that the body decides to dig a little deeper and remove some of the older toxins, and then we feel worse. This is a continuing cycle in the process of healing, but do not despair: Once a certain level of health has been reached, we do not notice the cycles as much and they cause progressively less discomfort.

Why does the body go through these cycles? How does it know what to do next to promote our healthful recovery? And, still, why do we have to feel bad as we get well?

1.4 The Body As A Healing System

Your body wants to survive forever; it wants to be free from all pain and illness; it actively desires complete healing to take place within it at all times. Your body is your friend and partner in your effort to regain health.

The body has the innate capacity, knowledge and wisdom to heal itself at any time—if it is allowed to do so.

The body possesses its own healing ability and the wisdom to direct this ability. The only thing we must do is to let the body conduct its work with as little interference as possible. We can furnish it with the highest-quality food when it needs it or withhold food when it does not desire it. We can exercise and rest the body, and give it fresh air and sunshine.

Other than that, all we can do is wait intelligently and not become alarmed by the symptoms of its healing or try to suppress those symptoms.

The body will not try to kill itself, nor will it allow healing to progress in such a manner as to cause us serious discomfort. but the body is wise enough to want to accelerate the healing process as rapidly as possible. This may involve major cleansing efforts when literally pounds of old stored toxins are dumped into the system to be eliminated.

If you have faith and trust in your body's ability to heal itself, the unpleasant symptoms which may accompany this healing become more bearable and are not a source of fear or misgiving.

Ultimately, we must let our body perform its health-restoring work at its own pace. We must believe that the body alone is capable of performing all the needed healing functions.

The human body has perfected itself over millions of years and through thousands of generations.

It is the perfect healing system. The cellular intelligence that drives the body is infinite in its capacity. We need not have any fears about its wisdom or ability to restore itself to the highest-possible level of health and well-being.

1.5 Body Awareness

A two hundred and seventy-five pound woman was admitted to the hospital after she complained about "indigestion" pains.

Two hours later, she gave birth to a child. She had no idea that she had been pregnant.

An elderly man complained of a continual dull headache for weeks. He went to a doctor who asked him about his habits, activities, and so on.

Upon repeated questioning, it was determined that the man had not experienced a bowel movement in weeks. He was not even aware that he was constipated and that this might be the source of the headache.

We might find such stories amazing, but to a certain extent they are true for everyone. Most people today have such a low level of body awareness that they do not realize they are suffering from poor health until a severe blow lays them low.

Unless illnesses and disease propagate to a dramatic climax, many people are unaware that anything is even wrong with the body. Modern man has become desensitized and removed from his own body.

A lack of body awareness accompanies a sickened condition. In fact, it is this absence of consciousness that permits the body to degenerate. If a person is attuned to his body's needs, he becomes aware when something is going wrong and he can fast, change his diet, etc.

Increasing good health also increases our awareness of the body. As the major pains and aches disappear, we become more sensitive to all the body's needs. The minor irritations that were not noticed previously may now enter our awareness.

For example, suppose you had a slight headache or an ingrown toenail. At the same time, you were suffering from a violently bleeding ulcer that caused you to vomit every two or three hours.

Do you think you'll notice that headache or sore toe? No, you'll be too busy worrying about the ulcer to pay any attention to the other minor pains.

After the ulcer is gone, however, you might suddenly realize, "My head hurts, and, boy, does my toe feel bad!"

This is exactly what happens when the body goes through its healing process. As you gain health, you become more aware of the minor pains that may have plagued you for years.

In fact, these little aches may have been around so long that you've grown used to them. After the diet is changed and the body improves, these aches may enter your awareness again.

It's not that your increasing health has given you any new pains, but that the new body awareness that accompagnies an improvement, in condition allows you to notice these old problems.

The new sensitivity is a blessing. Now your body can tell you what it needs, what to avoid, and what habits to discontinue. If you have stopped eating meat, for instance, your body will become more sensitive to the harmful effects of such food. If you were to eat that same food again, you might become sick. This is the body's way of saying, "That stuff's no good for me, and I'm strong enough now to let you know."

Body awareness is one of the first gifts of health. This new feeling should not be mistaken for morbid sensitivity. It is your guardian angel that will guide you past the pitfalls of poor foods, unhealthy practices, and other life destroying habits.

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2. Some Unpleasant Symptoms And Their Causes

Suppose you have made the decision to change your diet and improve your health. You understand how the body heals itself and you are more aware of its needs. Yet, you may not have complete faith in your body.

A splitting headache, chills, nausea, a dripping nose, increased body odor, reappearance of old aches and pains, rashes, boils, drastic weight loss—all the symptoms that can shake the faith of the most sincere health seeker.

Without proper understanding or support, you could panic at these symptoms and believe your new diet or way of life is the cause of them. You might revert to your old unhealthy practices because you became afraid.

Thousands of people have experienced the same sort of problems as they improved their health. Books about fasting and dietary changes should be read so that you may feel reassured. Case histories, such as the one below, may help you understand these changes.

2.1 A Case History

Larry was a college junior and had become a vegetarian after graduating from high school. He had tried to improve his diet, but college life put him under stress and so he started drinking coffee in the evening to stay awake and study. After staying up late, he felt tense so he started smoking marijuana for relaxation and to get to sleep.

He also had little time to prepare lunch, so he got in the habit of eating a quart of fruit flavored yogurt for lunch every day.

When the summer came, Larry decided to kick his coffee and marijuana habits. The hot weather was also making him feel uncomfortable eating dairy products, so he gave up his daily yogurt. He had been suffering from sore throats and nasal congestion, and he changed over to a diet of raw fruits and vegetables to allow his body to cleanse itself.

The first day of his new diet Larry felt pretty good. He had distilled water for breakfast instead of the usual two cups of coffee and ate fresh fruits for lunch. He had a salad for supper and went to bed early to get plenty of rest. The next morning he woke up feeling miserable. He had a sharp headache that raced up his neck behind his ears. He could hardly breathe. His sinuses were clogged shut. He felt worse than he had in weeks.

The headache stayed all day and into the next day. Now he noticed he had developed a hacking cough that convulsed him. He started spitting up hardened balls of mucus from this lungs.

The third day his nose was continually draining. As fast as he could blow it, his nose would clog back up. All the time, his headache had never left him, even when he tried to sleep.

By the fourth day, the headache had subsided a little.

His cough had worsened, however, and now pieces of hardened gray material were being expelled from his lungs.

"I can't stand it!" he thought, "Why am I feeling so miserable as soon as I gave up my bad habits?"

Why indeed? First, Larry's headache is a symptom of caffeine withdrawal. Coffee, tea, cola drinks, and other caffeine-containing substances are addictive poisons. When a person drops his caffeine habit, changes occur in the vascular and nervous systems. These changes occur as the body tries to renormalize itself and eliminate the poisons. Headaches often accompany caffeine withdrawal, and some people who give up their coffee habit may experience edginess and irritability for a few days.

Larry's clogged nose and sinuses were related to the consumption of dairy products. Mucus buildup occurs when milk is consumed. After such foods are eliminated, sinus drainage may occur for two weeks or more. The elimination of old mucus is a healthy sign for such deposits may become the breeding places for many diseases.

The coughing and spitting of hardened phlegm resulted from the cleansing of the lungs of the tar deposits which had been caused by smoking. Smokers lungs are often crusted black with tar and chemical deposits. When smoking is stopped, the lungs try to cleanse themselves and the old deposits are expelled by coughing. This is why a cough should never be suppressed. Coughing is one method that the body has of expelling toxic wastes from the system.

After about two weeks, Larry started to feel better than ever. He had plenty of energy without his coffee. His nose, throat, and lungs felt so much cleaner that he had no desire to smoke or eat dairy products. He had suffered for awhile, but now he was reaping the rewards of improved health.

2.2 Some of the Toxins in Your Body

Everybody is a walking time bomb. Each person carries within him the seeds for disease and illness. These seeds are the environmental and dietary toxins that may be stored within the body and which may spring full force into a debilitating disease.

What are some of these toxins, and where do they come from? How can we get rid of them? What symptoms can we expect when they start to leave the body?

2.3 Drug Toxins

Surprisingly enough, one of the largest sources of body toxins is the drugs people take to fight disease (or so they think). Medicinal drugs are very strong—they have to be to overcome the body's natural defense system.

When such drugs are taken, they must either be eliminated from the body or stored within it for later elimination.

As a person's health improves and all such medicines and drugs are discontinued, the old toxins may enter the bloodstream for elimination. The circulation of these old drug toxins in the system may produce bewildering symptoms that could alarm the health seeker.

For example, an elderly man had been taking a form of digitalis (a heart stimulant) for several years. He discontinued the drug as he improved his health through exercise.

After a few days off the drug, he experienced erratic heart beats, a racing pulse and chest pains. He was frightened and wondered if he should take his old drug again.

He was reassured that these symptoms were due to his body trying to renormalize itself and eliminate the old toxins from the heart drug. Sure enough, after a few days his heartbeat became steady and regular as the drug toxins were finally eliminated.

Every drug used, whether legal or illegal, leaves its mark upon the body. As the body regains health, the drug deposits are put into circulation for elimination. Since a combination of past drug deposits may enter the Bloodstream at once disconcerting symptoms may arise. Drug detoxification can be a lengthy process, but it will be aided by fasting and a diet high in fresh fruits.

Be forewarned: Old drugs that were taken even many years ago may reappear in the bloodstream as they leave fatty tissues and the organs. Drug toxin elimination may express itself in a series of rashes as they leave the body through the skin.

2.4 Caffeine and Nicotine

Heavy smokers or coffee drinkers may experience similar symptoms when they withdraw from their drug. Nervous irritability and emotional outbreaks are common symptoms of these drug addicts when they are detoxifying.

Nicotine and caffeine damage the nervous system and upset the vascular system, so symptoms such as headaches, edginess, and extreme lassitude may be expected. Such symptoms from these drugs usually lessen after three to ten days.

2.5 Salt and Other Condiments

Once salt use is stopped and the health improves, old salt deposits in the body exit through the skin and kidneys. Sometimes the elimination is so intense that a person may have a continual salty taste in the mouth for days. The skin may become crusted with salt or it may smell of the particular condiment that is being eliminated (such as onions, peppers, or vinegar).

In Mexico, corpses have been found in the desert that were untouched by buzzards and hyenas. The reason? The people had eaten such large quantities of hot peppers all their lives that their skins were actually too spicy for the scavengers to eat. Condiments can never be used by the body, and so they must either be stored or eliminated when the health is improved.

Salt elimination may also cause a temporary rise in blood pressure. People who go on salt-free diets may actually experience a slight increase in their blood pressure as the heavy elimination of salt begins. Later the blood pressure renormalizes itself and eventually becomes below the norm on a salt-free diet.

2.6 White Sugar Withdrawal

Eliminating sugar from the diet may make a person feel slightly nervous and hyperactive until the energy levels adjust to a sugar-free diet.

Mood changes, however, are usually more noticeable than any physical symptoms when sugar is eliminated. Reformed sugar addicts may feel periods of unaccountable depression as their blood sugar level tries to right itself. Getting off the sugar roller coaster, with its rapid rises and falls in blood sugar levels, is easier when a diet high in raw foods is followed. Such a diet renormalizes blood sugar levels and promotes tranquility of emotions.

2.7 Heavy Metal Elimination

Almost every person is poisoned by deposits of heavy metals in the body. Lead, aluminum, copper and arsenic collect in organs throughout the body. Because of their heavy weight, they are difficult to eliminate, and may cause discomfort as they leave the body.

Lead enters the body through auto exhaust, paints and canned foods. Aluminum may come from preparing or storing food in aluminum containers. Arsenic is present on sprayed foods, and so on.

Since these metals are heavy, they, tend to remain in the body until a cleansing diet or fast is followed. As these metals come out, headaches and a general achiness all through the body may occur. The gums may hurt and the kidneys may throb as these metals leave the organs and bones.

Occasionally, you can actually taste the metal that is being eliminated. Lead, especially often leaves a metallic taste on the tongue when it is leaving the body.

Heavy-metal poisoning can make you feel uncomfortable all over, and it is very common due to all the environmental toxins. As you eliminate these metals, bear the uncomfortable body aches and realize that they are leaving your body forever.

2.8 Meat-Eating and the Acid Body Condition

Meat-eating creates an acid condition in the body. When meat is eliminated, the body tries to reestablish its naturally-healthy, alkaline condition. As the acid condition of the body changes to one of alkalinity, symptoms may arise that may confuse the new vegetarian.

A sour, disagreeable odor may emit from the body as the acids leave or are neutralized. Hair may fall out and the breath may turn foul. Urine may be very dark and a sharp, bitter taste may be in the mouth.

Weakness of the arms and legs may occur. Many people contuse this weakness for protein deficiency. Instead, the weakness has resulted from a consumption of too much acid-forming protein in the past. The body's energies are directed toward neutralizing these old toxins and so you may feel weak for a temporary period. Once the toxins are taken care of and an alkaline condition is reestablished, then strength returns to the limbs.

The discomfort of an over-acid body caused by meat-eating can be quickly overcome by a high-alkaline diet, such as fresh fruits and vegetables.

2.9 Specific Symptoms

Most people who change their diet and improve their health may experience one or more of the symptoms described below. Depending upon your past health, these symptoms may be mild or intense, short-term or long-term, temporary or recurrent.

As you improve your health, however, and stay on an optimum diet, all symptoms will gradually disappear.

Under no circumstances should these symptoms be halted by drugs.

Relief from some of these symptoms may come through fasting and rest primarily.

Moderate exercise is also beneficial, if your strength allows. Sleep and freedom from stress is vital.

Sunshine and fresh air will also aid in detoxification.

2.10 Headaches

A headache is the body's chief warning signal of body toxicity. The toxic load in the body has increased so fast that poisons are circulating in the bloodstream and cause irritation to the brain and nerves.

Aspirin should never be taken for a headache. For some relief, lay down and rest with a cool, damp cloth across the eyes and forehead. Fasting may also help. Have someone massage the neck and temple. Avoid all stress at this time.

2.11 Upset Stomach and Diarrhea

When food is not being digested properly or is passing right through your body, then it is time to stop all food intake. This is your body's way of telling you it doesn't require any nourishment at this time, but instead is busy cleaning.

Careful food combinations and avoiding heavy foods are advised.

Diarrhea should not be halted by medicines. Rest and abstinence from food are your best resorts.

2.12 Constipation

A new diet may occasion temporary constipation. Brisk walking of at least one mile a day will help end this problem.

Eating foods naturally high in water and fiber will eventually remedy this condition. If little food is eaten, drink distilled water whenever thirsty.

On a diet of fruits and vegetables, constipation disappears, never to return.

2.13 Weight Loss

Weight loss is entirely normal when the diet is improved. Some individuals become alarmed when their weight falls rapidly. In most cases, this is not a cause for alarm.

From five to fifteen pounds of water weight alone may be lost when salt is completely eliminated from the diet. In some individuals, five to twenty pounds of old fecal matter may be eliminated from the colon. All of this is useless weight, and you should say, "Good riddance!"

The body will also try to eliminate all diseased tissue in an effort to rebuild a healthy body. It will try to strip itself down to the bare foundations and then begin to add on only healthy tissue.

Weight loss may occur for six months to a year. Exercises for muscle growth, such as weight lifting and swimming, will help rebuild the body with lean, muscular tissue. Be sure that your diet includes sufficient amounts of sweet fruits that are high in calories to balance out the low-calorie salads.

Usually, you can expect to weigh about twenty pounds less after you renormalize your body from the typical high-meat and fat diet of most Americans.

2.14 In General

Almost all the symptoms experienced during a dietary change are due to the body's efforts to detoxify itself as rapidly as possible!

You can help in this process by fasting and getting plenty of rest. Be sure you get all the sleep you want and try to avoid stressful situations. During detoxification, you need as much peace and privacy as possible.

Never halt any symptom with medication. It will only reappear later in greater intensity.

Above all else, cultivate a positive attitude about what you are doing. Do not feel like you are punishing yourself or that you are making any great sacrifices. You are recovering your health, and that is the greatest reward that can be expected.

Realize that your sincere efforts will give you health beyond your expectations. Do not dwell upon your temporary discomforts. Instead, indulge in positive activity, such as exercise, gardening or helping others.

All symptoms will pass in time. The pain today will be a memory tomorrow. The discomforts you endure now mean an absence of suffering, later. You are healing yourself with your courage and wisdom. You have much to be thankful for.

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3. The Recovery Of Health

Now that you have an understanding of the symptoms that may occur when the diet is changed and health improves, you can evaluate the various ways in which the diet may be modified.

The intensity of the symptoms experienced is often related to the method used for the dietary transition, such as fasting, gradual diet improvement, quick diet changeover, and so forth.

3.1 Fasting - The Quick and Easy Way

A prolonged supervised fast is the quickest way to make the transition to health. Dietary changes can be made more easily after a period of fasting. Fasting, however, can be accompanied by intense symptoms, and the reactions experienced while fasting may alarm the first-time faster. For this reason, a lengthy fast should be undertaken in the presence of an experienced practitioner. Unsupervised fasts from three to five days, however, may be safely undertaken by people who are educated in the mechanics of starting and breaking a fast.

Below is a case history of a person who used fasting to make the dietary transition:

3.2 Fasting - A Case History

"I had tried to improve my diet off and on for several years. One day I would eat fresh fruits and salads. The next day it would be ice cream and potato chips.

Or maybe I would last a week on a good diet. Then I'd go out and eat Italian food for a reward. Then I'd eat healthy for a day or two, and the next day I would fix a huge cheese casserole.

I was always seesawing. Finally, I said 'Okay, this is it. No food at all for a few days.'

I went on a seven day fast and drank only distilled water. After the fast, I felt so clean and wonderful that I didn't want to mess up my body with junky foods.

I tremendously enjoyed fruits and unseasoned salads after my fast. I wasn't craving all that cooked food. I made myself a promise that if I ate cooked foods one day, I would fast the next day. This helps me to break the momentum that would otherwise wreck my healthy diet.

Fasting is the easiest way to get back to a healthy diet and stay on it. It's much easier for me to change from a 'no food diet' (fasting) to a 'raw food diet' than it is to start over again from my old cooked food, junk diet."

3.3 Rapid Dietary Change

Some people desire to make as rapid a change as possible in their diet. This is admirable. After all, if your house is on fire, you don't want to linger, but to get out as fast as you can. So it is with an unhealthy diet—you don't want to drag your feet when your health is in question.

You do want to succeed, however. Unfortunately, rapid changes in the diet often fail. Changing the diet overnight is extremely difficult, although a few individuals have done just that.

Caution is advised if you want to make major and sudden changes in your diet. Your mind might be ready, but your body may rebel. After all, you wouldn't expect a lion to suddenly start eating hay for breakfast. True, eventually a carnivorous animal can thrive on vegetarian fare, but it is usually introduced gradually. Man, however, is naturally fruitarian/vegetarian, so he will have an easier time in changing his diet, but still be aware that some people do not take to rapid changes in their diets, habits, living arrangements, or anything else for that matter.

If you want to go from a meat and potatoes diet to a raw fruit diet in a few days, fine; but be aware that your body may react so strongly that you could become discouraged and feel very sick. If such a rapid change is intended, it is best to fast before attempting it.

Remember that your present state of health is the result of years of bad living habits and poor diet choices. It may be unreasonable to expect your body to change completely overnight.

Here is a case history of one person who did make an almost overnight change in his diet:

3.4 A Rapid Change in Diet - A Case History

"I've always been an all-or-nothing person. I'd do something 100 percent or I wouldn't do it at all.

I had been on a conventional diet, eating lots of fast foods, and getting most of my meals out of cans and packages. I didn't pay much attention to what I ate, just so it filled me up.

"Then one summer my brother died from cancer of the colon. It shook me up. I started reading and found out that cancer of the lower intestine usually occurs when a low-fiber diet is eaten, like meat, dairy products, fast foods—in other words, my kind of diet.

That was all it took. One day I had been eating hamburgers, and the next day I was eating only oranges. Pow! I was an overnight fruitarian.

I nearly died. I had diarrhea continually for five days. Everything I ate came right out. I guess I should have fasted, but I didn't know anything about that. I just kept eating fruits.

I weighed 185 pounds. After a few months, I was down to 110 pounds. I was a walking skeleton. People stared at me.

I found myself continually weak. Climbing up a single flight of stairs took several attempts.

There were days when I felt like I was going crazy. All my family and friends looked like strangers. My own face even looked unfamiliar to me.

I had so many toxins circulating in my system that I could not think straight. This lasted about six months? Finally things started to change.

I started gaining weight and getting my strength back. In fact, I had more energy than I ever had in my life. I would wake up before sunrise and run several miles. I became continually happy and was always smiling.

Today I honestly don't know howl went through those six months. I wouldn't recommend that anyone be so radical as I was. I believed I came close to killing myself.

Don't be too tough on yourself; you took this long to get sick, so take your time to get healthy."

3.5 Gradual Dietary Change

This method may take the longest time, but it produces the least intense symptoms. The disadvantage of changing the diet slowly is that people may backslide too easily, or their health may be so poor that they can't afford to wait a long time. Since the symptoms of healing are spread out over a long period of time, it may be years before the person feels truly healthy. Still, this is an easy way to change the diet for those who do not want to experience the strong reactions sudden changes entail.

Symptoms will occur even with a gradual transition. Depending upon how you lived in the past, these symptoms may reoccur for several years or until an optimum diet is strictly followed for a length of time.

Gradual changes in the diet are fine, provided that continued/forward movement toward a goal is maintained. If you take two years, for example, to eliminate all meat from your diet, you might be more susceptible to eating it again after you thought you had given it up. As long as you are definitely improving your diet every week and are not fooling I yourself, then your progress is probably satisfactory.

The best thing about changing the diet over a period of months is that you have the time to educate yourself about the symptoms you may be experiencing. You are also more likely to stick with your improvements if they are implemented over a period of time and are made a part of your lifestyle. Some people change their diet one week, but are back to eating the old foods the next week. Slow, sustained progress is better than fast, erratic changes.

Here is a case history of a person who slowly changed her diet:

3.6 Gradual Diet Change - A Case History

I was fifty-three years old when my husband and I decided to change our diets. We had recently retired to our country home, and we decided it was time to take better care of ourselves.

We became vegetarians almost by accident. We were working hard outside in the summer with our garden, and we would get so hot that we didn't want to eat meat.

Besides we had so many garden vegetables that it was easy to make a meal on them.

The first summer we ate meat maybe twice a week. About the only effect we noticed was a strong desire for afternoon naps.

During the fall and winter, we stayed on our twice-weekly meat diet, and started to eliminate all sugar from our diet. I really noticed an improvement when we stopped using sugar. I also cut back on our salt to help my husband's blood pressure.

When the spring and summer came, we started eating more fresh foods and these took the place of our bread, milk and eggs. Since we never ate out, being away from the city, we avoided most rich foods.

Finally by the following fall, we had just about stopped eating any meat unless guests came by. We eating a salad at about every meal, and I stuck to only cooked food per meal.

We just kept feeling better and better. The bursitis in my shoulder disappeared and my husband lost his pot belly after all these years.

When the next spring and summer came around, we became total vegetarians and started having complete days with only raw foods. Every now and then, we would steam or bake a few vegetables.

Our diet is still not perfect I but all the improvements we've experienced encourages us to continue as far as possible. We're lucky, I guess. We have plenty of homegrown produce and get to stay outside a lot. But I think anybody can start to make improvements in their diet and health—no matter how small."

3.7 What The Future Holds

Body purification is a lifelong process. Your body will always strive to a higher state of health. It will always be eliminating toxins as soon as they become present.

Consequently, you can always expect some cleansing symptoms to occur even after you have achieved a high state of well-being. The symptoms, however, will be of a much shorter duration and of a much lower intensity.

For instance, that cold you used to get each year for a week may only last two days or one day. You may only notice a temporary cleansing lasting only a few hours or overnight instead of the ten-day periods of sickness that used to plague you.

Gradually, all the old symptoms will disappear. Your body will/be in such a high state of health that you will experience little discomfort during its cleansing cycles.

You will have passed through the suffering and pain of toxic elimination. You will have reached the birthright of every human being—perfect health.

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4. Questions & Answers

I've tried to change my diet several times. Each time I would be fine through the day, but by supper time I would feel depressed. What's happening?

> A mild form of depression is very likely to accompany a change in diet. There are two reasons for this. First, by the end of the day during which you ate wholesome foods, the body has had a chance to eliminate a large amount of toxins. These toxins are circulating in the bloodstream before they leave the body, and tend to depress the mind. A little vigorous exercise an hour or so before the evening meal and productive, relaxed pursuits after supper can effectively combat these temporary periods of depression.
>
> The second reason for such mild depression is that you are making a major change in your life, and consequently you are losing a part of your old identity. We often identify with foods we eat and feel that they define who we are (for example, "I'm a meat and potatoes man," or "My family was raised on fresh bread".). As certain foods vanish from our diet, we sense a temporary loss which is overcome by reading inspirational health literature and educating ourselves about the harmfulness of our old foods.

I fasted once for four days and got the worst headache of my life. I could hardly stand up. I got scared and broke my fast. Is that okay?

> Make no mistake—a radical change in the diet or a period of fasting may sometimes give rise to symptoms that can scare you silly. This is especially true if you have had little experience in this area or have no friends or relatives you can talk to. It certainly helps to have a knowledgeable person you can confide in and be reassured by.
>
> Whether or not it was "okay" to break your fast is really up to your body. Perhaps your body was telling you to slow down and to break your fast and continue with a slower cleansing method. More than likely, however, had you continued for another day or two, your headache might have vanished forever.

> Educate yourself and try again. You can do it!

I ate a bunch of mangoes last summer and I got a rash all over my thighs. Is this an allergy symptom?

> It's not an allergy symptom—it's a symptom of an overly toxic body. Mangoes did not cause the rash, but instead allowed the body to get rid of old toxins.
>
> Skin rashes, boils, eruptions, etc., are extremely common as the diet is changed and toxins come out. Do not confuse these skin problems with allergies. People are not allergic to wholesome foods—they are "allergic" to the toxins and poisons in their bodies.

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Article #1: What To Expect When You Improve Your Diet By Stanley S. Bass, D.C.

If I were asked, "which is the area of greatest misunderstanding and confusion in the field of nutrition?", I would immediately be forced to reply, "It is the failure to properly understand and interpret the symptoms and changes which follow the beginning of a better nutritional program."

What is meant by a better nutritional program? It is the introduction of foods of higher quality in place of lower-quality ones. For example—if a person replaces a protein-rich food such as pork with beef, the beef may be considered the superior of the two due to its easier digestibility, lower and less-saturated fat content, etc.,—chicken is superior to beef, and fish is superior to chicken because of its more rapid digestion and lower-saturated fat content. Lima beans, lentils or chick peas which are eaten at the same meal with vegetables are superior in all the nutrients mentioned. Then we ascend to the nuts and seeds which are eaten in the natural state (raw and unsalted). To summarize—the closer the food comes to its raw, unfired form, the higher the quality is. In this condition, all the enzymes are found intact. The amino acids are in their finest form. The minerals, vitamins, trace elements, carbohydrates and life force are present. This life force, in turn, is capable of reproducing tissue which is full of life and longer lasting in structure.

This same classification of quality which we analyzed in relation to protein-rich foods applies to the carbohydrates (the starches and sugar-rich foods), the fats, the mineral-rich foods (vegetables), etc.

The quality of a nutritional program is dramatically improved by *omitting* evil and toxic substances such as coffee, tea, chocolate, tobacco, salt, pepper, etc.

What is the relation of quality of foods to recovery from illness? It is this in a nutshell—the *higher* the quality of food that we eat, the *quicker* we recover from disease—provided we are able to properly digest and assimilate the quality level. To this must be added the knowledge of: (a) proper food-combining, (b) proper order of eating the different kinds of food at a meal (e.g. the most easily digested food should be eaten first, the more complex one second and the most-concentrated item last), (c) the correct quantity of food to be consumed (of each type) in the meal, and (d) the correct time for eating (when hungry, and not by the clock).

When Diet Improves, the Body Casts Out Accumulated Toxins and Unfit Tissues

Now what happens when a person follows these rules and makes a decided improvement in the quality of the food consumed? Remarkable things begin to happen to the body (as well as the mind). The amazing intelligence present in every cell of the body, the wisdom of the body in its operation immediately becomes manifest. The rule may be stated thusly: When the quality of the food coming into the body is of higher quality than the tissues which the body is made of, the body begins to make room for the superior materials which it uses to make new and healthier tissue. This is the plan of Nature—of evolution. The body is very selective and always aims for improvement—for better health. The body *always* tries to produce health and *always* will, unless our interference is too great. Only then do we fail to recover and degenerate further into disease. The remedial nature of many conditions such as colds, fevers, cuts, swellings, and injuries, furnish endless examples of how the body tends toward health—*always*—unless we do something to stop the process.

"Withdrawal" Symptoms Follow Use of Improved Diet

What are the symptoms or signs which become evident when we first begin to omit the lower-grade foods and instead introduce superior foods—those which are more alive, more natural than we are accustomed to? When the use of a toxic stimulant such as coffee, tea, chocolate or cocoa is suddenly stopped, headaches are common and a letdown occurs. This is due to the discard by the body of the toxins called caffeine and theobromine which are removed from the tissues and transported through the bloodstream to the eliminating organs. When the blood coagulates through the brain during its many bodily rounds before the noxious agents reach their final destination for elimination, these irritants register in our consciousness as pain—in other words, headache. The letdown is due to the ower action of the heart—the resting phase which follows the stimulation or more rapid heart action forced upon the body by certain poisons called stimulants. The more rapid heart beat (or pulse) produces a feeling of exhilaration and the slower action produces a depressed state of mind. Usually, within three days, the symptoms vanish and we feel stronger due to the recuperation which follows. To a lesser extent, the same process occurs when we abandon lower-quality foods and replace them with better foods. Lower-quality foods have undergone more reparation. Spices, salt and other ingredients have been added and they tend to be more stimulating than less-prepared and more-natural foods. Animal foods such as meat, fowl and fish are more stimulating than cheese, nuts and vegetable proteins. Consequently, the withdrawal of stimulation which follows the abandonment of animal food produces a slower heart action —a resting base—which registers in the mind as relaxation or a decrease in energy. This initial letdown lasts about ten days or slightly longer and is followed by an increase of strength, a feeling of diminishing stress and greater well-being.

Don't Judge Results Prematurely

Now, let us return to the symptoms which occur in the process of regeneration.

The person who starts a better diet, stays on it for three lays to a week and then quits will say, "Oh! I feel better on the old diet—the new one made me feel weak." He ailed because he didn't give his body a chance to adjust and complete its first phase of action—recuperation. If he lad waited a while longer, he would have begun to feel letter than before he started.

During the initial phase (lasting about ten days on the average to several weeks in some), the vital energies which are usually in the periphery or external part of the body much as the muscles and skin begin to move to the vital internal organs and start reconstruction. This shunting of much of the power to the internal region produces a "feeling of less energy in the muscles which the mind interprets as some weakness. Actually, the power is increased, but most of it is being used for rebuilding the more important organs and less of it is available for muscular work. Any weakness which is felt here is not true weakness, but merely a re-deploying of forces to the more important internal parts. Here it is important for the person to stop wasting energy, and to rest and sleep more. This is a *crucial phase* and if the person resorts to stimulants of any kind, he will abort and defeat the regenerative efforts of the body. It is important that he have patience and faith here and just wait it out, and after a while he will get increasing strength which will exceed by far what he felt before he began the new program. Success in recovery or improvement of health hinges upon the correct understanding of this point—*realizing* that the body is using its main energies in more important internal work and *not* wasting it in external work involving muscle movements. Be wise—take it easy here and relax. Just coast in your work and social obligations until you're out of the woods.

As one continues on the improved dietary and gradually raises the food quality, interesting symptoms begin to appear. The body begins a process called "retracing." The cellular intelligence reasons something like this—"Oh! look at all these fine materials corning in. How wonderful—now we have a chance to get rid of this old garbage and build a beautiful new house. Let's get this excess bile out of the liver and gallbladder and send it to the intestines for elimination. Let's get this sludge moving out of the arteries, veins and capillaries. These smelly, gassy brain-stupefying bowel masses have been here too long—out with them. These arthritic deposits in the joints need cleaning up. Let's get these irritating food preservatives, aspirins, sleeping pills and drugs out of the way, along with these other masses of fat which have made life so burdensome for us so long. Let's get going and keep going till the job is done—till we have a beautiful house and from then on we'll keep it a beautiful, ideal model house."

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Article #2: The Three Phases Of Metabolism

First Phase: Drastic Weight Loss

During the first phase (called *catabolism*), the accent is on elimination, or breaking down of tissue. The body begins to clean house-to remove the garbage deposited in all the tissues-everywhere. During this period the body "removes the ashes from the furnace preparatory to getting a better fire." Here the accentuation is on removal of the gross and immediate body obstructions. Wastes are discarded more rapidly than new tissue is made from the new food. This becomes evident as weight loss. This persists for a while and is then followed by the second phase-called stabilization.

Here the weight remains more or less stable. During this phase the amount of waste material being discarded daily is equal to the amount of tissue which is being formed and replaced by the newer more vital food. This occurs after the excess of obstructing material in the tissues has been removed. This stage persists for a while and is then followed by a third phase-a building-up period (called *anabolism*) wherein weight starts to go up, even though the diet is lower in calories than it was before. At this point, much or most of the interfering wastes have already been discarded-the tissues which have been formed since the diet was raised in quality are more durable and do not break down easily.

Also, new tissues are now being formed faster. This is due to the improved assimilation and increase of enzyme efficiency which resulted from the recuperation of the digestive mechanism-made possible by the ceasing of wrong food combining. The body's need for the usual amounts of food decreases and we are able to maintain our weight and increased energies with less food. Many are able to function very efficiently on two meals a day and eventually even on one meal a day. As the body progressively increases in efficiency and decreases in tissue breakdown under exercise, so do we gradually need less and less food to maintain life. The higher the percentage of raw food one lives on, the slower the rate of tissue degeneration which one evolves into. A sick body requires a gradual, carefully-worked-out entry into this stage- where one is able to live on a 100% unfired (raw) diet.

Returning to the symptoms which occur on a superior nutritional program-people who have had tendencies in the past to recurring skin rashes or eruptions will frequently tend to eliminate poisons and harmful drugs through the skin with new rashes or eruptions. If they go to a physician now who is not familiar with this aspect of nutrition, he will diagnose it as an allergy. They ask, "How come I'm eating better now than I did before and instead I'm getting worse?" They don't understand that the body is "retracing." The skin is getting more alive and active. It's throwing out more poisons more rapidly, now that the body has more power, which is saved by the discontinuation of those hard-to-digest meals. These toxins being discarded are saving you from more serious disease, which will result in-if you keep them in your body too much longer-possible hepatitis, kidney disorder, blood disease, heart disease, arthritis, nerve degenerations or even cancer-depending upon your structural weaknesses. Be happy you're paying your bills now on an easy-payment plan.

With some, colds which haven't appeared for a long time may occur, or even fevers. *This is nature's way of housecleaning*. Understand that these actions are constructive, even though unpleasant at the moment. *Don't*—but *don't* try to stop these symptoms by the use of certain drugs, or even massive doses of vitamins, which will act as drugs in huge concentration. These symptoms are evidence of a remedial process. Don't try to "cure" the remedial process! These are *not* deficiency conditions or allergic manifestations—*not* if you're eating properly in quality, quantity, combination and sequence. Here is where experienced advice is of great value. Unfortunately there are few books present today which give full guidance to the average reader. Try to find guidance through a doctor or teacher who has the requisite experience in this most confusing of all subjects-nutrition in relation to health and disease.

Body Purification Can Be a Long Drawn-Out Process

You may be eating perfectly in quantity, quality and observing all the correct rules, and still symptoms will occur. Those who have lived better lives in the past-who have eaten better foods and who have abused their bodies less with overeating, will have reactions ranging from almost none at all, or very mild, to symptoms which may be uncomfortable or acute. Those who have lived worse lives and poisoned themselves more will experience more severe symptoms if their liver, kidneys or other important eliminating organs have been damaged. When they have been renovated to the point of fair working order, they will no longer produce symptoms.

Headaches may occur at the beginning. Fever, colds, the skin may break out, a short interval of bowel sluggishness, occasional diarrhea, feelings of tiredness or weakness, disinclination to exercise, nervousness, irritability, negativity or feeling mentally depressed, frequent urination, also may occur. However, the great majority of people find their reactions tolerable and are encouraged to bear with them because of the many improvements which have already occurred and are becoming more evident with each day. This acts as an inspirational force to them.

The symptoms will vary according to the materials being discarded, the condition of the organs involved in the elimination and the amount of energy you have available. The more you rest and sleep when symptoms are present, the milder they are and the more quickly they are terminated. Be happy you are having symptoms. *Realize deeply* that your body is becoming younger and healthier every day because you are throwing off more and more wastes which would eventually have brought pain, disease and much suffering. Those who have the worst symptom-reactions and follow through to their successful termination, are thus avoiding some of the worst diseases which would have eventually developed had they continued their careless eating habits.

Blissful State of Health Comes Eventually

Don't expect to go on an ascending scale of quality improvement in the diet and think you will feel better and better each day until you reach perfection. The body is cyclical in nature and health returns in a series of gradually diminishing cycles. For example—you start a better diet and for a while you feel much better. After some time, a symptom occurs, you may feel nauseous for a day and have a diarrhea with a foul-smelling stool. After a day you feel even better than before and all goes fine for a while.

Then you suddenly develop a cold, feel chills and lose your appetite. After about two or three days (assuming you don't take drugs or do anything else about it) you suddenly recover and feel better than you did for years. Let us say this well-being continues for two months, when you suddenly develop an itch or rash. You still don't take anything special for it. This rash flares up, gets worse and continues for ten days and suddenly subsides. Immediately after this you find your hepatitis is gone and your energy has increased more than ever before. The rash became an outlet for the poisons in the liver which produced hepatitis. This is how recovery occurs, like the Dow-Jones Average at the beginning of a bull-market recovery. You feel better, a reaction occurs and you don't feel as well for a short while. You recover and go even higher. And so it goes, each reaction milder than the last as the body becomes purer, each becoming shorter in duration, feeling better than ever before and lasting longer, until you reach a level plateau of vibrant health. Here you become relatively disease-free and are filled with ever-increasing joy, life and the happiness which comes from sheer well-being. The mind opens up and expands to ever-higher horizons and your soul will shout for joy. You begin to love the world, the universe and everything in it. This is the natural state of the mind—blissful, joyful and at peace with the universe—and it can only be attained by alignment with biological laws. The first laws we must learn to obey are the laws of Nature. We must learn to eat simple, pure and natural J foods properly prepared and combined, and our bodies in return will cast off the evil we have taken in during our lives.

Nowhere is the principle of forgiveness of sins more manifest than here—in our own bodies—when we forsake our evil and destructive ways of eating (the defiling of the temple of the soul). God (or Nature, if you please) gives us a whole new chance for a new glorious life. All repentance must begin here in the body, through purer diet and natural foods. Then, just have faith, sit back and watch what happens. Before your own eyes, you will see signs daily that will cause you to wonder at this vast intelligence in operation that staggers the comprehension. The mysteries of the body, the operations of Nature, the vital forces working in Nature and the Cosmos are far beyond what our minds are prepared to understand at present.

Every great physician or scientist who ever lived marvelled in awe and humility at the wonders of Nature. Yes, we are, "Fearfully and Wonderfully Made." Let us give ourselves a chance to experience what it means to be really healthy and fully *alive*—to feel the joy of living by aligning ourselves to (God's) Nature's laws as intended for man, through the eating of natural (normal) foods. This indeed is the prime prerequisite in man's physical, mental and spiritual unfoldment.

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Lesson 22 - The Principles Of Digestive Physiology Which Decree Correct Food Combining

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1. The Basis Of The Food Combining System

The food combining system, as a whole, is simple and easy to understand. It logically evolved from the study of gastric physiology and the actions of enzymes and digestive juices. Hygienic food selection and the principles or food combining are based on the nutritional needs of humans and the limitations of our digestive systems. It is not what we eat, but what we digest and assimilate, that determines the nourishment our bodies receive. Food combining is based on the discovery that certain combinations of food may be digested with greater ease and efficiency than others.

Correct food combinations result in an immediate improvement in health by lightening the load of the digestive organs. Better nutrition is assured, and there is better digestion, less fermentation and putrefaction, more comfort, less distress and less gas. So-called food allergies often disappear as a result of proper food combining. (See article in the Case History section of this lesson. This article was written by Richard Hill, a young man who had to learn the hard way.)

Fermentation causes irritation and poisoning. Proper food combining removes fermentation as a cause of indigestion (though there are many other conditions that can cause digestive problems, such as overeating; eating hurriedly or when tired, worried, angry, fearful, grieved, etc.; or when you are in pain or have a fever or inflammation).

The successful results obtained through the utilization of me food combining rules can be explained and substantiated by the facts of physiological chemistry, particularly the chemistry of digestion.

No food program, nor any food combining program, will cure disease. Healing can be effected only by removal of the causes of disease. Incorrect food combinations can be an important cause.

2. What Is Food?

Food is any substance which is eventually convertible into such end-products as tissues, body fluids, etc., and can be utilized by the organism in the performance of its functions. To be correctly classified as a food, a substance must:

1. Be capable of liberating energy when oxidized;
2. Be capable of being utilized for growth, maintenance and repair;
3. Be capable of being stored within the body and
4. Produce no nutritionally significant toxic effects

For example, some plants contain large amounts of oxalic acid (see definition) and should not be used as food. Many plants which contain smaller (nutritionally insignificant) amounts of oxalic acid are excellent foods. On the other hand, tobacco, which is a plant, contains proteins, carbohydrates, minerals, vitamins and water, which are the constituents of food. But tobacco also contains considerable quantities of poisons. Dr. Shelton says that one of these is one of the most virulent poisons known to science. Therefore, tobacco cannot be a food.

Nutrients in foods are chemical substances of known composition and structure, classified as carbohydrates (such as sugar, starch and glycogen); lipids (fats); proteins (amino acids linked together); salts (minerals); and vitamins, needed in small quantities (or, traces) by the body. In addition, foods contain indigestible materials—cellulose (fiber).

Water, oxygen and vitamins, together with proteins, carbohydrates, fats and minerals, form the constituents of the body—the blood, tissue, bones, organs, muscles and so forth. Foods must be taken into the digestive tract and prepared for use by the organism before their constituents may be used by the body.

2.1 The Best Food Is Raw Food

In our discussion of food combining, cooked foods and flesh foods will be mentioned. Uncooked foods from the plant kingdom constitute the ideal Hygienic diet, for those not yet ready to use exclusively raw plant foods, information on food combining of other foods is included.

People with impaired digestion may have been advised to avoid raw food. If serious pathological conditions exist, or if there are organic limitations caused by surgery, it would probably be advisable for such people to seek the help of a Hygienic doctor. Most such people can be helped by Natural Hygiene, but some of them may need careful supervision in changing from conventional eating and living patterns.

People whose digestive impairments limit the use of uncooked food should utilize raw foods to whatever extent they can while they aim for restoration of as much normal function as possible. The rational approach to such restoration of normal function is not drugs or surgery, but rest and fasting, followed by a gradual implementation of improved eating and living practices, adapted to the limitations of that individual.

The goal should be the gradual achievement of a diet predominating in uncooked foods, because the nutrients available in raw foods are several hundred percent greater than those remaining after food has been cooked or otherwise processed. *More details about the damage done by cutting, cooking, seasoning and flavoring food will be given in future lessons*.

Raw foods improve the total inner environment. Sluggish bowels begin to move, eventually cleaning out waste that may have been lodged in the folds of the intestine for months. The layer of mucus that forms in the intestines when cooked food predominates is removed, greatly increasing efficiency in the absorption of nutrients. Food wastes don't stay in the bowel long enough to putrefy. The transit time of raw food in a healthy body is 20 to 24 hours, while cooked food may take three days or longer.

Many scientific researchers arid medical doctors now, recognize the value of raw food, both in health maintenance and for improvement or remission in chronic illnesses.

John M. Douglass, M.D., internal medicine specialist at the Southern California Permanente Medical Group in Los Angeles says, "It's a sad commentary that we think we can compensate with a pill for all the heat-labile nutrients and enzymes that are lost in cooking." He says also that experience shows that the raw food diet works for many diabetics, although it's not always easy for them to follow and must be planned carefully.

Dr. Paul Kouchakoff, medical researcher of the Institute of Clinical Chemistry, Lausanne, Switzerland, revealed circa 1930 that after eating cooked food, the human body develops leucocytosis, the abnormal proliferation of white blood cells. Leucocytes are created and rushed to the intestine. When he fed patients on an 80 percent raw diet, no leucocytosis developed.

More details about Dr. Kouchakoff's experiments, and other reports about the phenomenally superior value of raw food, will be given in future lessons. The above preliminary information is included in this lesson so the student may, at the outset, be motivated to apply his newly-acquired knowledge of food combining principles to the best food available, which, undeniably, is food that is utilized in its unchanged raw state.

The 80 percent raw food diet: For those who are not yet ready, or willing, to change to an all-raw diet, a good start would be the achievement of an 80 percent raw diet. For most people, this is not difficult to achieve. It can be appetizing, interesting, varied, satisfying and economical. The information in the two lessons on food combining will contain all the details you need about utilizing both raw food and (if you use it) cooked food, so that you may work out your goal of eventually achieving an all-raw diet, even if you must take a roundabout route by first implementing the 80 percent raw diet.

The best and quickest way to achieve an 80 percent raw diet is to never eat cooked food more than once a day, and as part of only one meal. One should try for more and more days on raw food only. Even the people who are coping with digestive problems may eventually achieve these goals as they learn to apply the principles of Natural Hygiene to their own needs.

2.2 Food Classification

Foods vary widely in character and nutritional constituents. In order to intelligently implement the principles of food combining, reference points are necessary. A food classification chart will be included with Lesson No. 23, listing and classifying specific foods. In this current Lesson No. 22, we will classify the broad categories in which foods can be placed. This classification of food categories will provide clarification and greater understanding of our discussion of the principles of digestive physiology and chemistry that decree correct food combining.

Proteins: All foods contain some protein, and the amounts of protein in different foods vary widely. We classify as protein foods those that contain a comparatively high percentage of protein—these are the concentrated protein foods. Such foods include:

1. Nuts and edible seeds
2. Soybeans
3. Animal proteins
4. Cheese
5. Eggs
6. All flesh foods (except fat)

The less concentrated proteins include avocados, olives, coconuts and milk. Combination foods (starchy proteins, to be combined as starch) include legumes, grains, peanuts and chestnuts: Green vegetable proteins (to be combined as starch) include peas in the pod, lima and other beans in the pod, and mature green beans in the pod. Sprouts contain significant amounts of protein, especially in the early stages. (More about sprouts later in this lesson and in Lesson No. 23)

Bananas (1.1 percent) contain almost as much protein as avocados (1.3-2.2 percent) and olives (1.4 percent). Dried fruits (2-5 percent) may contain twice as much protein as avocados. Broccoli (3.6 percent), brussels sprouts (4.9 percent), collards (4.8 percent), sweet corn (3.5 percent), kale (6 percent) and a number of other vegetables contain more protein than avocados. Romaine lettuce (1.3 percent) contains valuable protein. None of these foods are classified in the protein category, but should, nevertheless, be regarded as excellent sources of protein.

Starches: The carbohydrates are the starches and sugars. The combination foods (starchy proteins) referred to under the protein category are classified as starches for purposes of food combining. These include dried and fresh legumes, grains, peanuts and chestnuts. The starchy vegetables are potatoes, mature corn, parsnips and salsify, as well as Jerusalem artichokes; the mildly starchy vegetables are carrots, globe artichokes, beets, winter squash and several others (complete list in the classification charts in Lesson No. 23).

Nonstarchy and green vegetables: Lettuce, celery, cabbage, broccoli, summer squash, turnips, green beans, kale and a long list to be found in the classification charts.

Fats: The recommended fats are nuts, seed and avocados. No other fats are recommended. (See charts)

Fruits: Divided into three categories—sweet fruits, subacid fruits and acid fruits. Bananas, persimmons, sweet grapes and fresh figs, as well as all dried fruit, are in the sweet fruit category. Sweet apples, sweet peaches, pears, sweet cherries, some grapes and several other fruits are subacid fruit. Citrus, pineapples, strawberries and all tart fruits are in the acid fruit category. (See classification charts for complete listings.)

Tomatoes: Acid fruit without the sugar content of other acid fruits. Used with vegetable salad or any green nonstarchy vegetables, but not at a starch meal. May be used with nuts or seeds, as well as with avocados.

Melons: Watermelon, canteloupe, honeydew and many others. (See charts)

Syrups and sugars: All kinds of sugar, syrup and honey—not recommended.

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3. The Chemistry And Physiology Of Digestion

For food to be utilized by the body, it must first undergo a series of processes which we call digestion. After we perform the only really voluntary actions involved in the process of nutrition—putting the food into our mouths, chewing and swallowing—the balance of the digestive process is the function of the autonomic or involuntary nervous system.

The changes which foods undergo are largely effected by enzyme and digestive juices. The conditions under which "such action" can occur are sharply defined, and this is the logical foundation of the food combining system. Physiologists have ascertained the details of the chemistry of digestion through long and painstaking labors. It has remained for the Natural Hygienists to make practical application of this great fund of vital knowledge. Knowledge of the physiology and chemistry of digestion can lead us all to a food program that will insure better digestion and better nutrition.

3.1 Enzymes

Enzymes are proteinaceous organic catalysts in all living organisms, both plant and animal. Our digestive juices contain enzymes that accelerate chemical reaction by catalytic action, without themselves being used up in the process.

Digestive enzymes can be used over and over again but eventually are replaced by the body. There are many different kinds of enzymes, and digestive enzymes are not the same as the enzymes in raw, unprocessed food. Digestive enzymes break down the complex substances we ingest into simple components that can be utilized by the body.

There are five types of digestive enzymes in the human body.

1. *Hydrolases* facilitate hydrolysis, the breakdown of substances in water within the body.
2. *Adding enzymes* build proteins by adding amino acids, one by one.
3. *Transferring* enzymes transfer organic substances from one compound to another so the body may use them in various ways.
4. *Isomerases, or rearranging enzymes*, rearrange molecules in organic substances; they also rearrange amino acid enzymes.
5. *Oxidases, or oxidizing enzymes*, are released in the presence of oxygen and rapidly bring about a change in the color of food. They act on foods in the mouth while one is masticating or whenever the food is exposed to oxygen. These enzymes are also present in apples and other fruits. They are released when the fruit is cut and react so as to rapidly bring about, a change of color to brown.

It is not necessary to memorize the names of these enzymes, but the information about the, action of the different types of digestive enzymes will help you to understand the underlying rationale of food combining.

Each digestive enzyme is specific in its action. It acts only upon one class of food substance. Each stage in the digestion of food requires the action of a different enzyme, and the various enzymes can perform their work efficiently only if the preceding work has been properly performed.

Body chemistry is, to a large extent, determined by the the food we eat. When certain foods are eaten regularly, the digestive enzymes and secretions are of a character to handle those foods. When the diet is altered, more and more of the digestive juices secreted will be of a character to digest the foods in the new diet, and less and less of the digestive juices will be of the character to digest the foods in the old diet.

The type of digestive juice fitted for the digestion of one type of food is of no value in digesting another type of food. Therefore, it is essential that food be taken in combinations that do not interfere with enzymatic action.

3.2 The Process of Digestion

Digestive speed and efficiency vary with individuals and circumstances. However, certain general statements can be made. Fruits pass through the stomach quickly; low-protein and low-starch vegetables also pass through the stomach rapidly, with little change; vegetables containing much starch must be retained in the stomach longer, for more thorough digestion; and proteins require a still longer time »for gastric digestion. Fruits may remain in the stomach for thirty to sixty minutes, low-protein and low-starch vegetables a little longer, concentrated starches about two hours and concentrated proteins approximately four hours. Some foods may take five or six hours or more to leave the stomach. Some examples are combination starch/protein foods like legumes (including beans), grains, cooked cabbage and flesh foods.

Most digestion occurs in the stomach and small intestine. Digestion, especially starch digestion, actually begins in the mouth, with mastication and insalivation of the food. This sends the proper signals for the release of the digestive juices suited to the character of the food eaten. Digestive juices are present in the saliva and in the gastric secretions of about five million microscopic glands in the walls of the stomach.

The digestive glands supply different enzymes and juices of varied strength and character and with specific timing, depending on the different foods ingested. The digestive juices may be more or less liquid, of varying degrees of acidity or alkalinity and with complex and elaborately contrived variations.

After food is masticated, insalivated and swallowed, gastric digestion is initiated. Involuntary movements of the stomach slowly mix the food with gastric juices secreted by the glands in the walls of the stomach. Pepsin, a protein-splitting enzyme, and hydrochloric acid are separated, as well as lipase, a fat-splitting enzyme, mucus and diluting juice, along with other factors needed in the digestive process. An alkaline secretion protects the walls of the stomach from the acids. Mucus is a natural lubricant that is secreted by the cells of the mucous membranes lining all of the hollow organs of the body. It keeps the body tissues moist and prevents them from drying and cracking.

A brief review of the process of digestion will help in understanding the food combining rationale. Gastric secretion is continuous (except during fevers, gastric inflammation, pain or strong emotions; fasting is indicated when any of these conditions are present). Of course, gastric secretion is unnecessary when no food is taken.

Hunger and the sight, smell, taste or thought of food stimulate gastric secretion. Usually about three pints of gastric juice is secreted every twenty-four hours and about half this amount is required to digest a hearty meal. If you eat more than two hearty meals daily, your account will be overdrawn.

As the process of digestion continues in the stomach and the food is mixed with the digestive juices, water (from the body's reserve supply) is added to the mixture in a process called hydrolysis. During hydrolysis, digestive enzymes separate carbohydrates into simple sugars, and proteins into their constituent amino acids.

Since digestion is a mechanical as well as a chemical process, some cellulose is an important part of the diet. Although cellulose cannot be digested by humans (no enzyme secreted by humans is capable of splitting cellulose), it serves as bulk in the propulsion of food through the digestive tract. Cellulose also provides the bulk needed in the efficient elimination of food residues. Juices and refined foods contain little cellulose. However, too large a quantity of cellulose is also undesirable. Therefore, we should use fresh fruits and, when using vegetables, strive to obtain the young, tender vegetables, as these contain smaller amounts of cellulose.

Food residues, fibrous materials and particles not thoroughly masticated proceed on to the colon. Peristalsis (wave-like muscular contractions) propels the food mixture back and forth in the stomach. Periodically, the most liquid portion of the mixture is discharged into the duodenum where it meets a very acid fluid. The resultant semi-liquid mixture, known as chyme, then proceeds further—into the small intestine—where it meets a very alkaline mixture of pancreatic juice, additional digestive enzymes and bile. (Bile is secreted by the liver and stored in the gallbladder to be used when needed, particularly for emulsifying fats).

The intestinal glands secrete a juice containing enzymes similar to pancreatic enzymes. Virtually all absorption should occur by the time the food passes through the small intestine, and the residue proceeds into the large intestine (the colon).

Through all these processes, the peristaltic contractions continue, longitudinally and circularly, and propel the chyme along the alimentary canal. As you can see, foods are not digested when they have passed out of the stomach. A large part of the work of digestion takes place in the small intestine. But the role of gastric digestion is an important one in preparing the food for the next stage in the digestive process.

Coffee, tea and other such toxic infusions cause a premature emptying of the stomach and thus cause foods to leave the stomach before gastric digestion is complete.

Digestion is governed by physiological chemistry, and this must be considered in the planning of meals that are compatible with the physiological limitations of the digestive glands and their secretions. This lesson will help in understanding the principle that the digestion of different foods requires digestive juices of different characters.

The study of the processes of digestion reveals the specific action of the digestive enzymes, the careful timing of their secretion and the adjustment of the strength and character of the digestive secretions to the character of the food upon which they are to act. Carbohydrate foods receive a juice rich in carbohydrate-splitting enzymes, protein foods receive protein-splitting enzymes, and so forth.

3.3 Starch Digestion

Starch digestion begins in the mouth with the action of the enzyme ptyalin (alpha amylase) which converts (or else begins the process of converting) starches into sugar during mastication and insalivation. The salivary secretions accompany the food to the stomach and salivary digestion of starches continues in the stomach for a long time, if the food was eaten under correct conditions.

If ptyalin is the only agent in the body capable of initiating starch digestion (and this is not certain), or whether it is simply the body's first opportunity to initiate starch digestion, we must not disregard its importance. The chewing process in the mouth should mix food with saliva, but people have the tendency to swallow the mass too quickly to permit the enzyme to complete its action. This necessitates the continuation of the salivary action in the stomach.

It is important that starches be eaten dry, not moist. So, you should eat steamed or baked potatoes dry rather than in potato soup. The eating of liquids with starches promotes the tendency to swallow moist starch without thorough mastication, insalivation and emulsification, processes that are particularly needed for the digestion of starches. Drinking liquids or eating liquidy foods softens the food artificially and may also cause you to eat more food than if you had eaten it dry. Drinking at meals dilutes the digestive juices and also prevents thorough mastication and insalivation of the food.

If the ptyalin is destroyed or its action is inhibited and the digestion of starch is interrupted, the partially digested (and probably somewhat fermented) starch proceeds to the duodenum, where further starch-splitting enzymes are secreted. Starch that escapes digestion in the stomach may later be acted upon by pancreatic and intestinal enzymes, provided too much fermentation has not already occurred. It is also very possible that the interrupted gastric digestion may never be completed.

Ptyalin requires either an alkaline or neutral medium. Ptyalin is destroyed by even a mild acid. If fruit acids—or any acids—are taken with carbohydrates, especially with such as potatoes, beans, bananas or dates, digestion will be inhibited or prevented and fermentation may occur. Oxalic acid diluted to one part in 10,000 completely arrests the action of ptyalin. Significant amounts of oxalic acid are contained in rhubarb, spinach, Swiss chard, beet greens and purslane.

The acetic acid in a teaspoonful of vinegar can suspend salivary digestion. Tannic acid (in coffee and tea) inhibits starch digestion, as do drug acids. The combination of citric, malic and oxalic acids in tomatoes (which are released and intensified by cooking) interferes drastically with starch digestion.

People take oranges and grapefruit as part of a meal that includes cereal and/or bread, later complain that they feel great distress after such a meal and conclude that they cannot eat citrus fruit. Such a conclusion is based on their experience of a wrong combination—not of a wrong food. Fermentation frequently does occur as a result of eating acids with carbohydrates. All students of food combining know that this combination produces bad effects such as gas, sour stomach (hyperacidity) and contributes to great difficulty in digesting starches.

When foods are eaten in such incompatible mixtures, and the efficiency of digestive enzymes is inhibited, it is subjected to decomposition in the digestive tract. If the digestive enzymes cannot perform their intended functions of breaking down and hydrolyzing the food (adding water from the body's reserve supply), bacterial decomposition may occur, resulting in fermentation and the production of alcohol and acetic acid. Sugar, particularly, will readily ferment into alcohol, especially when combined with acids or protein. Natural combinations of citric acid or malic acid or other natural fruit acids combined in the whole fruit with fructose (also called levulose or fruit sugar) do not cause fermentation unless eaten with starches.

Alcohol, acetic acids and putrefying substances are byproducts of decomposition.

Putrefaction may be defined as the decomposition (as opposed to digestion) of protein matter by micro-organisms, producing malodorous and toxic substances.

Fermentation is the decomposition of sugar and starch, and their conversion by microorganisms into carbon dioxide, alcohol and acetic acids. Dr. Shelton says that digestion reduces food to the diffusible state without depriving it of its organic qualities, while fermentation renders food diffusible by reducing it to an inorganic and useless state. Digestion puts food in a solution, but fermentation disintegrates it.

A simple way to avoid production of these poisonous substances in the digestive tract is to learn, and implement, the Hygienic rules for food combining. They are perhaps of even greater importance than food selection. Persistent adherence to food combining principles has been known to reduce, or even eliminate, many digestive, nasal, skin and other problems, even in some people who have not changed to the Hygienic diet. It is obvious that elimination of incompatible food combinations is a giant step in the right direction. Efficient digestion and good health can be possible only when we eat in such a way as to offer the least hindrance to the work of digestion.

3.4 Protein Digestion

The digestion of carbohydrates is so different from that of protein that, when they are mixed in the stomach, they interfere with the digestion of each other. Protein digestion starts in the stomach and acid enzymes are secreted when protein is eaten. Proteins require an acid medium for digestion so, upon ingestion, hydrochloric acid is secreted in order to activate pepsinogen; this immediately stops the digestion of starches.

Almost all foods contain some protein but, when we speak of protein foods in our study of food combining, we are referring to concentrated proteins like nuts and seeds, cheese, flesh foods, etc. (See Classification of Foods in Lesson No. 23 for help in identifying concentrated protein foods, concentrated carbohydrate foods, etc.)

The normal digestion, absorption and metabolism of protein requires thorough mastication of food, in order to break it down for propulsion through the digestive tract, and for action by the digestive enzymes. As previously indicated, hydrochloric acid and pepsin (and other acid gastric juices) are secreted for the initial phases of protein digestion in the stomach, and other enzymes, such as trypsin, continue the digestion in the small intestine in a slightly alkaline medium. Protein-digesting enzymes are also secreted by the pancreas.

Before the body can use proteins, they must be reduced to their constituent amino acids (the building blocks of protein). The body must break down the complex proteins in foods and synthesize its own protein out of the amino acids. Food combining rules are of major importance in the consumption of protein, since the complexity of this food element would seem to suggest that it be eaten only under ideal conditions.

Free hydrochloric acid to the extent of only 0.003 percent is sufficient to suspend the starch-splitting action of ptyalin. Only a slight further increase in acidity not only stops the action, but destroys the enzyme. All physiologists agree that even a mild acid destroys ptyalin. It has never been shown that saliva is capable of digesting starch without the presence of ptyalin.

The function of the gastric protein-splitting enzymes, such as pepsin, are prevented by an alkali. The physiologist Stiles says, "The acid which is highly favorable to gastric digestion is quite prohibitive to salivary digestion. The power to digest proteins is manifested only with an acid reaction and is permanently lost when the mixture is made distinctly alkaline. The conditions which permit peptic digestion to take place are, therefore, precisely those which exclude the action of saliva."

The presence of undigested starch in the stomach interferes with the digestion of protein. Physiologists have shown that undigested starch absorbs pepsin, which is necessary for the digestion of protein.

Dr. Richard C. Cabot of Harvard wrote: "When we eat carbohydrates, the stomach secretes an appropriate juice, a gastric juice of different composition from that which it secretes if it finds proteins coming down."

3.5 Combination Foods

Single articles of food that contain starch-protein combinations (grains, legumes, and a few others) are less difficult for the body to handle than when two foods are eaten with opposite digestive needs. The body is able to adjust its juices, both as to strength and timing, to the digestive requirements of combination foods. The first response by the body is the releasing of an almost-neutral juice for digestion of the starch. After gastric digestion of starch is completed (about two hours), hydrochloric acid is secreted for digestion of the protein. The two processes do not go on simultaneously—rather, the secretions are minutely adjusted, in both character and timing, to the varying needs of the body to digest the complex food substance.

Such complex food substances are not ideal foods. They are usually cooked, and the fact that they require such complicated adjustments puts an additional strain on the body. Simple uncooked foods are easier for the body to process and offer the least hindrance to the work of digestion.

Beans: "Because of their complex character, beans, a protein-starch combination, tax the digestive powers more than simpler foods, but the gas, discomfort and other trouble that so commonly follow, eating them is not due so much to the beans themselves as to the company they keep. Baked beans are preferable to beans that are boiled and taken saturated with water. If taken thus relatively dry, well chewed and eaten in proper combinations, beans are readily digestible." This article about beans, which was published by Dr. Shelton in 1971, is evidently a somewhat revised opinion. In his Volume II of *The Hygienic System*, published in 1935, he suggested that beans should not be used.

I personally was formerly unable to tolerate lentils or beans of any kind, even when sprouted. I eliminated all legumes from my diet for about six months, after which I carefully experimented with small amounts, properly combined, until I seemed to build up my ability to digest them. Today I can eat sizeable servings of cooked or sprouted legumes (which I seldom do) and I have no problem with them.

3.6 Foods with Different Digestive Requirements

When two foods are eaten that have different or even opposite, digestive needs, the precise adjustment of digestive juices to meet requirements becomes impossible. Eating proteins with carbohydrates (sugar or starch) produces the same abortive situation as combining acids with carbohydrates, since protein digestion requires the secretion of acid enzymes and juices. All acids, including those in food and the acid protein-digesting juices, destroy ptyalin, the starch-digesting enzyme.

Arther Cason, M.D., D.P.H., F.R.S.A. (London), writing in the April, 1945 issue of Physical Culture, mentions two groups of experiments made by him and his aides which showed that eating protein and carbohydrate at the same meal retards and even prevents digestion. He made control tests in which digestive rates were recorded, and a final analysis of the feces was made. He says, "Such tests always reveal that the digestion of proteins when mixed with starches is retarded in the stomach; the degree varying in different individuals, and also in the particular protein or starch ingested. An examination of the fecal matter reveals both undigested starch granules and protein shreds and fibers, whereas, when ingested separately, each goes to a conclusion."

As indicated by Dr. Cason, there is an individual variation in the response to certain food combinations. This would seem to account for the fact that certain people exhibit overt symptoms from the use of certain food combinations, while others do not. However, the mere fact that overt symptoms are not observed is not proof, per se, that the food is being properly utilized.

Potatoes are said to be the least objectionable of any starch to be used with protein. Dr. Shelton is of the opinion that it is the rapidity with which potato starch digests that makes its combination with protein less objectionable than the combination of other starches with protein. Potato starch digests in ten minutes under ideal conditions and it would seem that the potato starch digests before the gastric juice can accumulate in quantity sufficient to interfere.

Even so, Hygienists have rarely been observed to use potatoes with nuts—either potatoes or nuts are so satisfactory as, an accompaniment to a salad that most of us would ask, "Why would we need both?"

4. Food Combining Rules

4.1 Acid-Starch Combinations and Protein-Carbohydrate Combinations

The preceding discussion leads up to the presentation of the first two food combining rules, which I consider to be by far the most important of all these rules and the ones which should be thoroughly understood and implemented at all possible times.

1. *Never eat carbohydrate foods and acid foods at the same meal.*
2. *Never eat a concentrated protein and a concentrated carbohydrate at the same meal.*

The purpose of this lesson is to help you to understand the reasons for these rules; Lesson No. 23 will help you to learn to implement them.

4.2 Protein-Protein Combinations

3. *Never consume two concentrated proteins at the same meal.*

Two concentrated proteins of different character and composition (such as nuts and cheese) should not be combined. Gastric acidity, type, strength and timing of secretions for various proteins are not uniform. Since concentrated protein is more difficult to digest than other food elements, incompatible combinations of two different concentrated proteins should be avoided. Some people with impaired digestions find it necessary to limit themselves to only one variety of nuts/and or seeds at a sitting, but other people may find, upon experimentation, that two or three varieties of nuts or seeds may be used at the same meal, if desired.

4.3 Protein-Fat Combinations

4. *Do not consume fats with proteins.*

Our need for concentrated fat is small and moil protein foods already contain a good deal of fat. Most nuts contain about 10 percent to 20 percent protein, and about 45 percent to 70 percent fat. Avocados contain about 1.3 percent protein (Florida varieties) to about 2.2 percent or a little more (California varieties) and 11 percent to 17 percent fat. Most other protein foods are high in fat, including cheese, eggs and flesh foods. The only protein foods not high in lat are legumes, skim milk cheese and lean meat.

Fat has an inhibiting influence on digestive secretion and lessen the amount and activity of pepsin and hydrochloric acid, necessary for the digestion of protein. The fat may lower the entire digestive tone more than 50 percent. Since most proteins already contain a good deal of fat, it would certainly be contraindicated to add more to the meal.

4.4 Fats in Combination with Other Foods

5. *Use fats sparingly.*

Fats also delay the digestion of other foods and, if used with starch, it will delay the passage of the starch from the stomach into the intestine. Fat not only inhibits the secretion of gastric juice—it also inhibits the physical actions of the stomach. Too much fat taken with a meal results in acid eructations and a burning sensation in the throat. When fats (avocados or nuts) are eaten with green vegetables, preferably raw, the inhibiting effect of fats on gastric secretion is counteracted and digestion proceeds quite normally. The use of fat (avocados) with starch is considered acceptable, provided a green salad is included in the meal.

Avocados: Though not a high-protein food, avocados contain more protein than milk. They are high in fat and the small percentage of protein they do contain is of high biological value. They are best used with a salad meal. Since they are so high in fat that they tend to slow down the digestion of foods normally requiring a shorter digestion time, they are perhaps only a fair combination with subacid and acid fruit. They are usually considered a poor combination with sweet fruit, especially *dried* sweet fruit. However, let us consider some recent work on this subject.

In an article on this topic, Dr. Vetrano says that exceptions may sometimes be made in combining avocados with fresh sweet fruit, such as bananas, but that avocados should not be combined with dried sweet fruit, unless it has been soaked overnight. She also says, "Eating avocados with salad enhances their digestion. The next best combination for the avocado is taking it with subacid or acid fruit. The fat in the food does not seem to interfere with the emptying time of the stomach and we have excellent results with this combination. The protein, which is about 2.1 to 2.5 percent, is not sufficient to interfere with the digestion of fruit. It is even better when lettuce leaves and celery are eaten with the fruit and avocado. By diluting the fats and the sugars with the lettuce, the emptying time of the stomach is not depressed.

Those who have weak stomachs with poor muscle tone would probably do better by taking avocado only with vegetable salads. If lettuce is taken with a sweet fresh fruit and avocado, even these digest well. It is probably best to never combine avocado with sweet dried fruit unless it is just a small amount of both eaten with a great deal of vegetables."

Since the avocado is low in protein, it may also be used with potatoes or other starch foods. Some people like to use avocado with the potato instead of using butter. However, I must reiterate, the best way to use avocado is with the salad.

Avocados should never be used with nuts, which are also high in fat, nor should they be used with melons.

The only fats we have considered here are nuts (a protein/fat food) and avocados (a low-protein/fat food). Other fats will be listed in the food classification chart in Lesson 23, but they are not recommended for regular use. Most of them should never be used.

4.5 Acid-Protein Combinations

6. *Do not eat acid fruits with proteins.*

Citrus, (tomatoes: see discussion), pineapple, strawberries and other acid fruits should not be eaten with nuts, cheese, eggs or meat. Acid fruits inhibit the flow of gastric juice. The digestion of protein requires an unhampered flow.

This is one rule that has given rise to some disagreement and controversy. Although Dr. Shelton includes in this rule the prohibition of citrus and tomatoes with nuts and cheese, he goes on to say that nuts and fresh cheese do not decompose when used with acids, but have their digestion delayed. He also says that acids do not inhibit the flow of gastric juice any more than does the oil of nuts or the cream of cheese.

Many Hygienists use tomatoes with nuts and believe they cause no problem. Citrus fruits present a different situation, due to the sugar in the fruit, which can ferment if its digestion is delayed by the nuts. Various experiments with the use of citrus fruits combined with nuts have produced differing results. Some Hygienists continue to use citrus with nuts.

If sweet oranges are used at the same meal with nuts, the precaution of waiting thirty to sixty minutes after eating the citrus is sometimes observed. Grapefruit might be better suited to combining with nuts, since it usually has a much lower sugar content.

Citrus fruit is best used alone but may be combined with other acid fruits; nuts are best used with salad.

Dr. Shelton modified this rule somewhat on Page 52 of *Food Combining Made Easy*: "Although green vegetables form the ideal combination with nuts, acid fruits form a fair combination with these foods and may be taken with them."

Dr. Percy Howe, of Harvard, says: "Many people who cannot eat oranges at a meal derive great benefit from eating them fifteen to thirty minutes before the meal."

Dr. Vetrano is convinced from her experience at the Health School that nuts should not be used with citrus fruit and she discontinued this practice some years ago.

A corollary of this same subject is the use of some subacid fruits with nuts or cheese-primarily tart or semi-sweet apples, although some other fruits which are usually considered subacid are sometimes used in this way. The same principles would apply as with the use of oranges with nuts, provided the sweeter subacid fruits, such as Delicious apples, are not used.

Such acid-protein combinations as sour salad dressings and acid fruit drinks used at conventional meals serve as a check to hydrochloric secretion.

4.6 Sugar with Starch, Protein and Acid Fruit

7. *Do not combine sweet fruits with foods that require a long digestive time-foods such as proteins, starches and acid fruits.*

The sugars in sweet fruit should be tree to leave the stomach quickly, in perhaps fifteen or twenty minutes, and are apt to ferment if digestion is delayed by mixture with other foods.

Sugar-starch combinations cause additional problems.

When sugar is taken, the mouth quickly fills with saliva, but no ptyalin is present. Ptyalin is essential for starch digestion. If starch is disguised by sugar, honey, molasses, syrup or sweet fruit, the signals are scrambled and digestion is impaired.

Monosaccharides and disaccharides ferment more quickly than polysaccharides. (See definitions) No digestion of sugars takes place in the mouth or stomach; fermentation is inevitable if sugars of any kind are delayed in the stomach awaiting the digestion of starch, protein or acid fruit.

Sugar also has a marked inhibiting effect on the flow of gastric juice and on gastric motility. No other food depresses the action of the stomach and the desire for food as does sugar.

4.7 Starch-Starch Combinations

8. *Eat but one concentrated starch at a meal.*

This rule is probably more important as a means of avoiding the overeating of starches than as a means of avoiding bad combinations. But it is true that starch foods may differ greatly. If two different starches are eaten together in small quantities, this is thought to not cause problems.

Slightly starchy vegetables may be combined with more starchy vegetables (e.g. carrots with potatoes), but not with combination foods (starch/protein foods) such as grains and legumes.

4.8 Acid Fruits, Subacid Fruits, Sweet Fruits

9. *Acid fruits may be used with subacid fruits.*

This is an acceptable combination, though some subacid fruits are rather high in sugar and the acid fruit may delay the sugar's normally quick exit from the stomach. However, there is no sharp line of division between the acid and subacid fruits. If combining subacid fruit with acid fruit, it is better to use only the less subacid fruit.

The acid fruits are those with the tart flavors, for example, citrus, pineapple, strawberries, and certain varieties of apples and other fruits. Tomatoes are also considered acid fruit (without the sugar content of other acid fruit). Tomatoes should not be combined with subacid fruit, nor any other kinds of fruit.

They are best combined with the salad at a meal at which no starchy foods are served. Do not use acid fruits with sweet fruits, as previously indicated.

Acid fruits are best used alone (a single variety), but if used in combination with other acid fruits, this is considered an acceptable combination.

10. *Subacid fruits may be used with sweet fruits.*

There is no sharp line of division between subacid fruits and sweet fruits. When using subacid fruits with sweet fruits, it is best to use the sweeter varieties of subacid fruit. The subacid fruits are those that possess a slightly acid flavor (but not tart), such as pears, certain apples, grapes, etc. Grapes, for example, can be acid, subacid or sweet. The sweet fruits are those that are rich in sugar and taste sweet-bananas, persimmons, sweet grapes, and so forth, and all dried fruit.

Some people prefer to eat bananas alone, but most people have no difficulty in combining them with subacid and other sweet fruit at a fruit meal. Dr. Shelton says, "While I have found that bananas combine fairly well with dates, raisins, grapes and a few other sweet fruits and with green leafy vegetables, such as lettuce and celery, I have noted that they digest best if eaten alone. This calls, to mind the fact that Tilden, also, after much testing of the matter, reached the conclusion that bananas are best eaten alone."

Dried sweet fruits should be used sparingly. Use but one kind at a meal, in small amounts, combined only with subacid fruit and/or fresh sweet fruit and/or with lettuce and/or celery. Overeating of dried fruits .will often bring on symptoms similar to a "cold". The sugar concentration is naturally greater in fruits which have been dried. Some dried fruits, esp. dried apricots, should be soaked overnight to replenish the missing water. Dates are usually used without soaking, figs or raisins can be used either way. If they are rather hard, soaking will soften and improve them.

Dr. Vetrano recommends using as little soaking water as possible, soaking one side at a time, so all water will be absorbed, thus avoiding loosing flavor and nutrients. It is important that the water used for soaking be distilled water.

Sweet fruits combine fairly well with subacid fruits, provided the subacid fruits are on the "sweet side," for example, use Delicious apples, not Macintosh or Jonathans, with sweet fruit.

It is best to have these fruits at a fruit meal combining only with lettuce and/or celery. Since fruits are usually high in acids or sugars, they do not combine well with other foods.

4.9 Fruits with Vegetables

11.*Do not combine fruit with any vegetables except lettuce and celery.*

It is best not to combine fruits with vegetables (especially cooked vegetables), proteins or starches because if such a combination of food is eaten, the digestion of the fruit will be delayed and subject to fermentation. Lettuce and celery, however, may be combined with any fruit except melon, and will cause no problem.

Dr. Vetrano says, "Taking green uncooked vegetables with a fruit meal is perfectly all right. Even though some charts state that subacid and sweet fruits combine fair to poorly with green uncooked vegetables, the feeding practices at the Health School indicate that these are good combinations, indeed, even enhancing digestion of the fruit in some conditions of impaired digestion."

4.10 Salads

12.*Salads combine very well with proteins or starches.*

Any nonstarchy vegetables may be combined with proteins or starch, except tomatoes, which should especially not be used with starches. The green leafy vegetables combine very well with most other foods. They are excellent food and should be used in the diet.

Lettuce and other green and nonstarchy vegetables leave the stomach with little change—they pass through the stomach rapidly unless delayed by oily dressings or foods that require a more thorough gastric digestion. Lettuce and celery are good combination with fruit because all of these foods require little gastric digestion.

However, even if these vegetables are held up in the stomach with other foods, as when using salad with nuts, there is no fermentation.

Eating a large salad of fresh raw vegetables (three or four varieties) daily is an excellent practice. Dr. Shelton says, "A large bowl of salad each day is required by everyone."

4.11 Take Melons Alone

13.*Do not consume melons with any other foods.*

This rule has been somewhat under question in recent years. I personally have found that eating melons alone is an excellent practice, and have even found it advisable not to mix two different varieties of melon at the same meal.

Many people who have complained that melons did not agree with them have no trouble handling them when eating only melon at a meal. Yet, certain Hygienic professionals are offering some post-fasting people more than one variety of melon at a meal (even melons in combination with grapes or other subacid fruit) and some Hygienists follow this practice. If you want to experiment with these combinations, do it sparingly and carefully. But if you have a history of digestive problems, don't do it at all.

Melons are more than 90 percent liquid and leave the stomach quickly if not delayed and fermented by combining with other foods. Dr. Vetrano says, "Melons are best taken alone because the sugar and other nutriments are in a less stable form than the nutrients of other fruits. Orange juice may be kept in the refrigerator for an hour with little change in flavor, but if you refrigerate watermelon juice for only ten minutes, its flavor, color and composition markedly change. It decomposes much more quickly than other fruits. Consequently, if it is held in the stomach awaiting the digestion of other foods, it will decompose (ferment) and cause a great deal of gastric distress. Eating watermelon with nuts can really be troublesome."

Dr. Shelton says, "Because of the ease with which melons decompose, they do not combine with any food, except, perhaps, with certain fruits. We always feed them alone, not between meals, but at meal time."

He also says, "It is probably a great misfortune that we do not always feel the direct effects of imprudent eating immediately following a meal. For example, there are large numbers of people who have discomfort, even great discomfort following a meal in which melons are eaten with other foods, but there are many others who do not. This latter group can see no connection between their life of imprudent eating and the breakdown of their health in later years. Their apparent impunity prompts them to defy all the same rules of life."

4.12 Sprouts

14.*Alfalfa sprouts may be combined as a green vegetable.*

Other sprouts should properly be classified in the same category as the original seed, even though the sprouting process has somewhat lowered the protein and carbohydrate content.

During the sprouting process, the carbohydrate and protein components of the sprouting seed tend to diminish, and the composition becomes more like a green vegetable instead of a legume, grain or seed. However, this is not uniformly the case. Sprouts which progress to the green leaf stage, such as alfalfa and mung beans, are high in chlorophyll, and alfalfa sprouts, particularly, may be freely combined as a green vegetable. Mung bean sprouts still retain enough of the property of legumes so that they are best eaten without other proteins or starches. These sprouts may be included in the low protein/starch category.

Lentils, soybeans, garbanzos and other miscellaneous beans and grains should be allowed to sprout only very briefly, until just a small sprout is showing—no longer than the seed, at most. The change in character is therefore much less than for those sprouts which are sprouted to the green leaf stage. Sprouts are high in protein in these early stages. They should therefore be classified, with some expectations, according to their original food categories, namely, as protein or combination protein/starch foods.

Sprouted sunflower seeds may, of course, continue to be classified as protein. In the case of lentil, soybean and garbanzo sprouts, they could be classified as low protein, since the starch tends to diminish and the protein remains in significant amounts in the early stages of sprouting.

I would classify sprouted grains as combination foods, their original category, to be combined as starch.

My experimentation with these sprouts, and my research on the subject, leads me to these conclusions as the best way to classify and combine them. More detailed information about sprouts and sprouting will be given in a future lesson.

4.13 Milk, Yogurt and Clabber

15.*Milk is best taken alone.*

This rule is included because it is one of Dr. Shelton's food combining rules, and because this lesson on food combining may be helpful to those still on a mixed diet. Hygienists do not drink milk. Adults do not need any kind of milk. Infants need their mother's milk; if this is not available, they need a substitute. (More about this in a future lesson.)

Dr. Shelton says that the use of acid fruits with milk does not cause any trouble and apparently does not conflict with its digestion. This would also apply to clabber (sour milk) or yogurt, which may be preferable to milk for adults.

Many adults (and some children) lack the enzymes lactase and rennin necessary for the digestion of milk. Lactase catalyzes the conversion of lactose (milk sugar) to the glucose and galactose which can be utilized by the body. Rennin is a milk-coagulating enzyme, which many adults no longer secrete.

This is also the reason that cheese is considered preferable to milk, although no dairy products are recommended for regular use.

The thymus gland, which also has a function involved in the digestion of dairy products, reaches its maximum development during early childhood, and usually degenerates and becomes vestigial in adults.

None of these products are recommended. If any milk products are used, they should be raw (unpasteurized) and should not be used on a regular basis. Yogurt cultures, particularly, can inhibit the body's own natural production of beneficial intestinal flora.

Dr. Shelton says that either sweet milk or sour milk (clabber) is a fair combination with acid fruit or subacid fruit, and that clabber is even a fair combination with dried sweet fruit.

Dr. Vetrano says that occasionally there are sick people with gastrointestinal problems who must temporarily be placed on milk, if they cannot take a fast of sufficient length for complete healing.

More information about the inadvisability of using fermented foods like yogurt, clabber or cheese will be included in a future lesson.

4.14 Good, Fair, Poor and Bad Combinations

When we say that foods are fair combinations, this means that they are permissible for those with unimpaired digestions. Good combinations are good for the weakest digestion.

Poor combinations should never be employed, unless, perhaps, they are used occasionally by people with the best digestions. Some combinations are so bad that no one should ever use them.

Examples of these precepts will be given in Lesson No. 23.

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5. The Crux Of Food Combining

If we want to eat several foods at the same meal, it would seem logical that trouble could be avoided, or at least minimized, by ingesting together those foods which are compatible; that is, those which require approximately the same conditions for digestion—including length of time, type of enzymes and digestive juices, and degrees of alkalinity or acidity.

When foods are eaten in incompatible combinations and fermentation results, alcohol is produced in the digestive tract, with the same consequences as imbibing it and with the same potential for liver damage.

The existence of such a still in your body may not be illegal, but it is certainly contrary to the laws of nature!

It is important to remember that all of the senses have a role in digestion. Seeing, smelling, touching, tasting—and even thinking about food—all help in sending the proper signals for the secretion of the digestive juices and their adaptation to the character of the food.

Complicated mixtures of food interfere with this process of digestion, make it less efficient and may cause digestive problems. When we compound the problem by adding seasonings, the true taste of the individual foods is further disguised. This makes it extremely difficult for the digestive system to supply secretions that can cope with such meals and digestion is inhibited and impaired.

The glands react to the foods eaten to the best of their ability. They interpret the signals they receive and supply the best secretions they can muster to preserve the health and the integrity of the organism. When a saturation point is reached, due to continuous bombardment from intolerable food combinations, the ability of the overworked digestive system to make the necessary adaptations is reduced or destroyed, and disease is the result.

Optimal digestion requires that we eat in such a way as to offer the least hindrance to the work of digestion by making the best use of our knowledge of the chemistry and physiology of digestion and of the limitations of the human digestive system.

Raw, fresh, whole, ripe fruit; chlorophyll-, vitamin- and mineral-rich raw, leafy green vegetable, sprouted seeds and raw, unsalted nuts and seeds are essential and valuable—they are the best of foods. Eat them in accordance with food-combining rules, masticate them thoroughly, don't complicate them with oily dressings, and your body will easily accommodate this food program and progress toward optimal health.

People with serious digestive problems should consult a Hygienic professional and probably undertake the healing that only a prolonged, supervised fast can produce. Afterwards, they too can look forward to utilization of the Hygienic food program on their way to better health.

5.1 Dr. Shelton's Original 9 Food Combining Rules

1. Never eat carbohydrate foods and acid foods at the same meal.
2. Never eat a concentrated protein and a concentrated carbohydrate at the same meal.
3. Never consume two concentrated proteins at the same meal.
4. Do not consume fats with proteins.
5. Do not eat acid fruits with proteins.
6. Do not consume starches and sugars together.
7. Eat but one concentrated starch at a meal.
8. Do not consume melons with any other foods.
9. Milk is best taken alone or let alone.

5.2 Food Combinations Discussed in This Lesson

1. Acid-carbohydrate combinations.
2. Protein-carbohydrate combinations.
3. Protein-protein combinations.
4. Protein-fat combinations.
5. Fats in combination with other foods.
6. Acid-protein combinations.
7. Sugar with starch, protein and acid fruit.
8. Starch-starch combinations.
9. Acid fruits with subacid fruits.
10. Subacid fruits with sweet fruits.
11. Fruits with vegetables.
12. Salads with most foods.
13. Melons best used alone.
14. Sprouts—Combinations.
15. Milk, Yogurt, Clabber—Combinations.

6. Question & Answers

I've heard that food combining is an individual matter. Why can't I ignore it unless and until I have symptoms?

That's the rationale of many people, especially people who stay on conventional diets and eat junk foods. Is it better to avoid damage to your body, or would you rather wait until damage is done, and then try to correct it? Most people already have damaged their bodies long before symptoms appear. It would be much more prudent and sensible to take the best possible care, as soon as you can, of the only body you will ever have in this life, rather than to wait until the road back is long and arduous, and when you would probably have to start with a prolonged fast.

You say an occasional deviation is not too important. How often is occasional?

"Occasional", or infrequent, means different things to different people. A man once said to me, "I eat meat occasionally," and when I asked him how often, he said he eats it once a day. If you do something unwise even once a week, I would call that regularly rather than infrequently. Once a month is less frequently, of course, and might be tolerated fairly well by a healthy body. Actually, the degree of harmfulness of a dietary indiscretion depends on the extent of your deviation and the state of your health. Are you speaking of bending the food combining rules, or do you mean going to a restaurant and gorging on a conventional meal? And, what is even more important, can you afford to deviate? If you are having problems, you would be foolish to do things that can only make those problems worse. For most people who feel they can "afford" to "deviate" "occasionally", it would be best to save such deviations for occasions when they find themselves in unusual situations when such a choice is the lesser evil.

You say not to have more than one concentrated food (protein, starch, sweet fruit) at a meal. Is it all right to have some meals without any concentrated food?

Yes, an excellent choice for the first meal of the day (for most people) is melon or juicy fruit only. Yet, some concentrated foods, especially concentrated proteins, have a place in the food program (See Mono Diets, Lesson No. 23). Starch meals are less important, and dried sweet fruit should be used sparingly. Including concentrated protein foods (usually nuts and seeds) in some of the meals enables the body to obtain a balance of the nutrients it needs. (See sample menus, Lesson No. 23)

I seem to lose weight on an all-raw-food diet, but hold a better weight if I eat some cooked food.

Usually, persistent adherence to an all-raw-food diet eventually results in improvement of assimilation, and one gradually puts on, and retains, more weight. However, if you have a tendency to be thin, or if some impairments cannot be completely overcome, you may have to settle for a leveling off at a weight lower than you prefer. If you feel well, the best thing to do is ignore your weight. In some instances, for emotional or physical reasons, it may be advisable to use a small percentage of cooked food. But most people will be much better off if they can decide to stay with an all-raw-food diet. Those who are convinced that they maintain better weight, feel better or have more energy if they use some cooked starches, legumes or grains, will probably be happier on an 80-90 percent raw-food diet.

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Article #1: Skin problems? Tell me about them! By Richard Hill

Perhaps I was vain, but having my face covered with red, or red and yellow oozing lumps made me a little self-conscious and depressed. The old platitude, "Beauty comes from the inside" sounded nice, but talking with people and FEELING their eyes on the big "honker" on my nose or that "headlight" on my chin didn't do much for my self-confidence, especially if I was talking to a girl I was hoping to impress. All this may sound like teenage trauma. But I was almost 27 years old and things were worse than ever. This wasn't my only problem. I was plagued with hay fever, migraine headaches, prostate trouble, poor vision and several other complaints. But my pizza-like complexion was my main concern and secret shame.

After 14 years of this "teenage" malady I was depressed and baffled. There was nothing I (or anyone else) could do for me. The slow but sure disfigurement I was stuck with was something I couldn't accept. Only fellow acne sufferers will understand my desperation and secret anguish. I've talked with many grossly fat people, asking if they would trade their excess weight for a chronic skin condition. So far not any would even consider it. And many of these people had contemplated suicide over their weight.

I really had given it my best shot. I had applied gallons of Clearasil, Oxy 5, 10 and 15, washed with Stridex, alcohol, witch hazel, distilled water and special skin soaps and cleansers. I washed many times a day. I was a voracious reader and tried every method and treatment I could find in those 14 long years. I was given various prescription drugs by dermatologists. The labels warned of dangerous side effects. Sometimes I would get temporary relief, usually not.

Next I tried health food store "cures." I developed a library and gathered glib knowledge from all the "experts" and their methods. I hunted down all the herbs (red clover, golden seal, cayenne, etc.) supposed to cleanse the system. I drank them from morning 'til night. I drank a half-gallon of carrot juice each day. It turned my palms orange, but did nothing for my skin. I did various other juice combinations. They did nothing. I stopped eating chocolate, nuts, fried foods, white sugar, white flour. I even gave up all fruits for a year.

I graduated from Clearasil and smeared my face with green, red and yellow clays, separately and in combinations. I took activated yeast every morning just before my vitamin ritual. I was assured my problem was a vitamin/mineral deficiency as well as an unclean system. I took megadoses of A, B complex, C (with bio-flavonoids and Rutin), D, E, folic acid, K, multi-minerals, chlorophyll, wheat germ oil, brewer's yeast, lecithin and protein powders, using my handy pocket pack. The few times I forgot caused me as much anxiety as the heart patient who forgets his nitro-glycerine.

Then I began to "fast." I took so-called "juice fasts," ones with products designed to clean out my colon. I took enemas of warm watery cold water, herb water and distilled water. I drank gallons of water to flush out my system. I tried "organic blood salts" and several other surefire cures. I was getting plenty of fresh, Los Angeles air and sunshine.

Next I got serious. I had said I'd pay a million dollars to solve my problem. Now I began to pay it on the installment plan to a young chiropractor into "natural healing." I got adjusted, x-rayed, diagnosed as having adrenal stress, given new vitamin/diet combinations. I took the glucose tolerance test and was diagnosed a hypoglycemic. (Since then I've never met anyone who took the test that was not so diagnosed!) This was the time I went on my no-sugar, no-nuts and no-fruit diet for a year.

I was as bad off as ever and switched to an older naturopath/chiropractor. He put me back on fruit, different vitamins and juices. When this didn't work he hit the problem with everything he had—more adjustments, x-rays, ultrasound, cold packs, hot packs and, finally, colonic irrigations with and without oxygen! I took these three times a week. It was expensive and embarrassing. But I was determined to get well or die trying. I was that desperate. After all the discomfort and expense my complexion was worse than ever.

I didn't give up hope. I returned to my library and came across a little book I hadn't paid too much attention to. It had seemed technical and too different. It was called *Food Combining Made Easy* by Dr. Herbert M. Shelton. Having nothing to lose, I tried this silly thing. Within a week my face started to clear up. It continued to get better. I stopped the colonics, adjustments, ultrasound and all the other things. Looking for more books by Dr. Shelton, I found *Fasting Can Save Your Life* at a health food store. I ordered more Shelton books from Natural Hygiene Press. I began to understand the basic ideas of Natural Hygiene and dove in with both feet. It was working where nothing else had. I gave away my vitamins and herbs, got back to 2 or 3 meals a day (from 5 and 6). I washed only with warm water.

I knew I had stumbled onto a new way of life and found people with no cures to sell. They had an understanding of the laws of life. They had a system where one can return to harmony with these laws and achieve total health. I made arrangements to fast under the supervision of Dr. Virginia Vetrano. I fasted at the Chateau Des Sages for 14 days. I listened to lectures and tapes and I learned more about Natural Hygiene. I wanted what these people had. I returned home with my skin more clear than it had been in 14 years. My hay fever and migraine headaches also were gone. At last my search was over and I reached the happy-ending.

I wish I could stop here saying everything was fine. But, I had more learning to do! I stayed with the Hygienic program for three months with never a pimple or sniffle. I thought I was "cured." I began to stay up late and "just this once" eat wrong food combinations. Within five months I was living worse than before I had discovered Natural Hygiene, junk foods and all. "Clear Skin!

Anything Goes!" I was headed for a fall and I fell hard. It wasn't easy to start back. But after some bad acne days, I was able to get back on the Hygienic Path. This was, in part, with the help of a certain anonymous group of overeaters. They gave me the tools to deal with the mental blank spot that preceeds that first compulsive bite. Thanks to them I found my way back and everything cleared up again. I learned that I'm never "cured," but only healthy so long as I obey those Unbending Laws of Life.

I hope anyone with a similar, or any, health problem will take time to look into Natural Hygiene. I had to try everything else first. Maybe someone out there, who reads this, will be able to skip some disappointments and start in on a new, healthy life. I'll be glad to talk and write and answer questions for anyone who asks for help. This way, by passing the word along, I hope to pay back a little of the joy I have received through Natural Hygiene.

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Article #2: The Hygienic Diet By Dr. Alec Burton

I have never liked the term "The Hygienic Diet." It implicitly suggests a diet designed for everyone which is specific, inflexible and stereotyped. Hygienically, diet represents a means of affording the organism adequate nourishment and, in order to accomplish this, there may be a thousand different diets which will provide the necessary materials of use in adequate proportions. Diet is merely a vehicle that provides the nutrients the body requires for the maintenance of its health and life. Diet does not cure disease. Diet per se does nothing. It is passive. It is acted upon by the organism. The purpose is to secure from it the necessary nutrients the body needs for growth, development, repair of wear and tear, reproduction and the maintenance of its functions. To speak as though diet performs some function by itself is erroneous. There is no such thing as an eliminating diet, implying in some way that diet is responsible for elimination. Elimination is a physiological process; it is performed by the organism, not by the food it consumes.

A diet should consist of those materials that are essential to the organism's survival. These may be broadly classified into proteins, carbohydrates, fats, minerals and vitamins. Providing that all of these are secured in adequate amounts, in a form which is usable, the organism will have the necessary materials to work with. If they are supplied deficiently or excessively, nutritional stresses will be incurred. To the extent that they are excessive or deficient, consequences will accrue depending upon the activity of the individual organism. Obviously there are considerable limits of toleration, varying from one individual to another. The organism can tolerate slight excesses and occasional deficiencies, at these times drawing upon its own nutritional reserves, but prolonged deficiencies and substantial excesses will incur consequences of malfunction.

The means whereby the various materials that the organism requires for its health and life are supplied are not of prime importance. Of first importance is the fact they are supplied. This does not mean that we can take refined and processed foods as being good sources of the materials that we require. What it does mean is that, providing the necessary materials are available to the organism in the diet consumed, free from noxious extraneous substances, in a form which naturally occurs, not tampered with by the food refiner and processor, the organism will be securing the necessary nourishment. It is important that we get away from the idea that specific foods and specific diets have healing properties or have special properties other than the mere presence of nutrients needed by the organism. The idea that we should take beet juice for anemia, cabbage juice for ulcers or parsley for the kidneys is a vicious reactionary hangover from the medicating superstition. Nor is it desirable that we study the analyses of various foods and select our diet according to some chart which indicates that a particular food is rich in a particular nutrient. This is not good nutrition. From this practice we may learn that wholegrain cereals are rich in iron but we may not discover that the presence of phytates renders the iron unavailable to the organism.

We should attempt to secure our nutrients from a wide variety of foods although obviously not at the same meal. Over a period of time, eat as wide a variety of foods as is practicable. Introduce new foods into the diet. I am speaking here of course of natural foods and by that I mean foods that are provided by the plant or tree in nature, i.e. fresh fruit and vegetables. In fresh fruits and vegetables, I also include nuts which are botanically classified as fruits. Some of the nuts which are in common use are not, strictly speaking, nuts. The peanut is a legume. However, if we select our protein from almonds, brazils, hazels, macadamias, pecans, pine nuts, pistachios, walnuts, etc., these will supply the essential amino acids required for growth, development, repair and reproduction. To avoid any argument about the importance of taking all of the necessary amino acids at the same meal, eat a variety of nuts, but be careful not to overeat. An amount of 3 to 4 ozs. daily is quite adequate. Some additional protein will be taken in the small quantities present in fruits and vegetables. In some cases this might be quite significant. It is desirable to keep one's diet simple, not to have a wide variety of foods at a single meal, but to limit the variety to perhaps four different types together with some concentrated food such as nuts for protein.

Many people can survive quite well on two meals a day. One fruit meal and one somewhat large salad meal together with protein. This does not mean, however, that one cannot have two fruit meals or two salad meals. It may be varied as desired. Two fruit meals may be taken one day and two salad meals may be taken another day. If one is on a 3-meal-a-day program, a fruit breakfast is usually the most desirable, but there is no real objection to a salad breakfast; For the remaining two meals, these may comprise a further two fruit meals or two salad meals, or one fruit and one salad meal. Some protein with one of the meals is desirable and I usually recommend 3 to 4 ozs. of nuts. Basically the Hygienist is arguing that the natural diet of man is comprised of fresh uncooked fruits and vegetables (which includes nuts) and insofar as he deviates from this, he increases his chances of incurring trouble. Dairy products, cheese, yogurt, milk, eggs, butter, represent compromises and if taken at all should be used sparingly. Flesh such as meat, fish and fowl represent a departure from food normal to man. The arguments in support of this are involved and extensive and it is not appropriate for me to discuss them here, but it is incumbent upon me to state categorically that flesh foods do not constitute a part of the normal diet of man. Their use then represents a compromise. The extent to which one compromises, and by this I mean the extent to which one consciously and volitionally departs from what is accepted as the ideal, is the extent to which consequences will and must follow.

Among the most dangerous and health-impairing nutritional habits, I consider the following:

- Overeating
- Eating refined and processed food
- Eating foods that have been significantly chemically manipulated
- Excessive consumption of concentrated food

I personally view the diet containing a large proportion of fresh raw fruits and vegetables accompanied by 3 to 4 ozs. of concentrated protein as being the most satisfactory. The diet may have to be manipulated in various ways, in disease and during the process of recovery. What I am here discussing represents certain basic principles of dietetics which are generally applicable to the sound and healthy. The diet of the invalid may have to be modified considerably and frequently as their strength and weakness alternate, as the energy ebbs and flows, as the needs fluctuate from day to day. Considerable knowledge and skill is required in order to feed the sick adequately without imposing nutritional burdens which prove enervating and contribute to the misery of the sufferer. In acute disease it is relatively simple: abstain from food, i.e. fast. But in the case of the chronic sufferer, the problem is far more complex. Fasting may be employed, but there are limits to its practical nutritional reserves, and the extent of the toxemic load. Very few chronic sufferers are likely to recover during a fast. The fast merely provides a foundation for the reconstruction of health and in some cases it may require several fasts to provide this foundation, and the periods of feeding in between are most crucial. Progress may be inhibited if mistakes are frequent and serious. Correct feeding after the fast in recovery from chronic disease is an extremely critical and sensitive process requiring an accurate assessment of the nutritional needs and capacities of the invalid, and whilst there can be no mathematical accuracy applied to the provision of nutrients, it must always be kept clearly in mind that we do not nourish the organism by providing nutrients but by providing foods. The organism is constructed to ingest and digest foods and thereby assimilate nutrients. We do not secure health by feeding nutrients but by providing foods which contain nutrients. The difficulty is encountered in providing the right food in the proper proportion under the correct conditions, at a time when the organism is capable of using them.

People phone me and ask "Can I eat fried potatoes? Fat and starch are all right together?" Now there are two points I wish to stress here:

1. Combinations are a refinement of food reform, not a basic principle. The rules of food combining are subordinate to eating the right food, and
2. I did not make the laws of life and I cannot make any special dispensations.

Even if I say you can eat something does not make it either good or right. Some people try to persuade me to let them eat certain foods as though I am in some way responsible for physiological processes in relation to food. When I am asked these questions I often reply "What do you think?" Then they are forced to refer to their knowledge of Hygiene which usually compels them to accept the facts of reality.

People will argue that they are in some way special, the usual laws of life have to be "bent" a little in their case. These are all the subterfuges of compromise. There are only two types which are special, male and female. There are special periods such as infancy, pregnancy and lactation, but this does not mean that lettuce and apples are good at one time and fish and chips at another. Such periods require modifications of feeding but not of food. The exception is infancy when the infant secures his fruits, vegetables and nuts through his mother. He is eating them indirectly instead of directly.

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Article #3: Food Combining By Dr. Herbert M. Shelton

Instead of confining himself to the compounds or combinations that are turned out by nature, man turns out compounds and combinations of his own, a thing that no other animal in nature does. The animal makes a meal on whatever his instincts demand at the time and does not fill up on many kinds of food at a meal. The general rule, to which there may be an occasional exception (I have failed to find one), is for them to get but one food at a meal. Even the most simple things mixed together are not as good as they would be if taken separately. For it is only thus that we can eat as little or as much of a particular food as the body demands.

We are prone to follow custom and acquired habits in our eating practices and to ignore (commonly we do not know) the inhibiting effects of a variety of conditions and circumstances upon the process of digestion. Much of the alleged scientific defense of customary eating practices is but a lingering survival of ideas formed when little was known of the process of digestion.

It was long thought that the gastric juice was the only solvent of aliment. The office of the saliva was unknown and the other digestive juices with their several enzymes were unknown long after Beaumont discovered the work of the gastric juice. Thus it came to be held that the action of the gastric juice was the same on all articles of diet. It was thought that in some manner, not then understood, bile did aid in the digestion of fats and oils.

The British health reformer, Andrew Combe, accepted the view of Beaumont that saliva is lacking in alimentary solvent. (These solvents are today called enzymes). "The agent of chymification," said Combe, "is the gastric juice." It should be noted at this point that Graham took the opposite view. He held that saliva does contain a ferment or solvent. It is a strange thing that at this late date when the importance of the work of the salivary amylase, *ptyalin*, in the digestion of starch is well known, medical writers, in attempting to discredit Graham, list his differences with Beaumont as one of his mistakes. They are determined not only to discredit Graham, but also to discount the importance of salivary digestion. Recently I read the statement that "digestion begins when food has been swallowed." Physiologists, physicians and gum-willies all seem to be determined to minimize the importance of salivary digestion. Even the importance of chewing of food in the mouth, which is a part of the digestive process, is negated.

In the effort to defend modern eating customs a number of imaginary activities are pictured as going on in the stomach. Beaumont showed long ago that the gastric juice quickly becomes intimately mixed and blended with the food in the stomach by the motions of the stomach. These continuous motions are in two directions—*transversely* and *longitudinally*. It is now customary to deny that the gastric secretion is quickly mixed with the food ingested. This denial is necessary if food combining is to be discredited. Indeed, all enzymic limitations are ignored in the effort to combat the Hygienic heresy that certain combinations of foods may be digested with greater ease and efficiency than others.

In his *Air, Food and Exercise*, Rabagliati tells of witnessing the vomiting of a salad at 5 A.M. in about the same condition it was eaten at 7:30 the preceding evening. He mentions that the salad "had rather too much vinegar on it." Acids not only destroy ptyalin and thus stop starch digestion, but they also inhibit the secretion of gastric juice and retard protein digestion. It is the part of dietetic wisdom to avoid eating acid foods (vinegar is not a food, but a poison), with protein. Because acids destroy ptyalin, it is well to avoid eating acid foods with starches.

An acid gastric juice is required to digest proteins. An alkaline medium is required for the work of ptyalin. For these reasons, protein foods and starch foods should not be eaten together. If a natural protein-starch combination, such as beans or cereals, is eaten, the body can so adapt its digestive juices to the digestive requirements of such a food that it is digested without too much trouble. If an artificial protein-starch combination is eaten, this adaptation cannot take place. Because of their complex character, beans, a protein-starch combination, tax the digestive powers more than simpler foods, but the gas, discomfort and other trouble that so commonly follow eating them, is not due so much to the beans themselves as to the company they keep. Baked beans are, of course, preferable to beans that are boiled and taken thoroughly saturated with water. If taken thus relatively dry, well chewed and eaten in proper combinations, beans will be found to be readily digestible.

A test meal of soup, beef-steak and potatoes remained in the stomach for three hours. The same meal with sugar remained for five hours. Sugar, like acids, has a marked inhibiting effect upon the flow of gastric juice and upon gastric motility. The meal of soup, potatoes and steak was sufficiently difficult of digestion, but when the sugar was added, it became more so. In our regular eating habits we ignore, or do not know these simple facts. We tend to eat as those around us eat and we refuse to listen to the voice of those who seek to instruct us in the art of better eating. Perhaps this is the reason that it has been said that our people's favorite dessert is baking soda. I think that Alkaseltzer has now supplanted baking soda as an after-meal tid-bit, largely due, no doubt, to the fact that few homes use soda any more, since little home baking is now done.

When we were children, our mothers would not permit us to eat sugar, candy or cookies before a meal. As she expressed it, "it spoils the appetite." The fact is that no other food depresses the stomach and the desire for food as sugar does. The so-called "energy break" in mid-morning and mid-afternoon, when sugar or candy is taken to renew lagging energies, is no different from taking a coffee-break for the same purpose. This practice of taking sugar has been dignified with the high-sounding title: "The Scientific Nibble," but it is a fallacy. It is certainly a mistake to eat sugar, syrups, cakes, candies, pies, sweet fruits or honey with proteins.

Fat, like sugar and acid, also inhibits the secretion of gastric juice and the physical actions of the stomach. Too much fat taken with the meal results in acid eructations which leave a pungent, burning sensation in the throat. Fat inhibits gastric secretion. We have a great army of gastric invalids who overeat on butter and other fat, take sugar or acids with proteins and then are told by their physician that they do not have sufficient hydrochloric acid. The physician gives them hydrochloric acid to take and tells them that once this acid has been "lost" it cannot be regained. How does the physician know? Has he ever tried removing the cause of gastric hypo-secretion? Has he ever tried restoring the patient to health to see if his glands will function normally? Has he ever tried correcting the patient's eating and living habits? The answer to all of these questions is the same. He has never made such attempts. He has been content to palliate the symptoms of his patient and leave causes untouched.

People often consult us who are taking hydrochloric acid upon the advice of a physician, who has explained that there is no possibility of them ever regaining the tone of the stomach and that they will have to take the acid the rest of their lives. They are fully convinced that this is true and it is no easy task to disabuse them of the fallacy. It is true, of course, that if they have taken the acid for a prolonged period, the practice itself has resulted in so much deterioration of the gastric glands that secrete hydrochloric acid, that the chances of full recovery are greatly reduced. The practice should never be started in the first place and only the grossest kind of ignorance or criminal indifference to a sick person's welfare will ever prescribe such a treatment for the sick.

Fruits, because of their peculiar combinations, are best eaten at a fruit meal and not combined with starches, fats or proteins. As a rule they are abundant in either acids or sugars, hence do not combine well with other foods. As they undergo very little digestion in the mouth and stomach they should not be held up in the stomach awaiting the completion of gastric digestion of other foods.

There is no sharp line of division between the acid and subacid fruits. Neither is there a sharp line of demarkation between sub-acid fruits and sweet fruits. The gradations between these classes of foods are almost imperceptible. The acid fruits are those with the most tart flavors—lemons, grapefruit, oranges, pineapple, sour apples, tomatoes, and similar fruits rich in acid. The sub-acid fruits are those that possess less acid flavors-pears, sweet apples, apricots, fresh figs, some grapes, sweet peaches, cherries and nectarines. The sweet fruits are those that are rich in sugar (sweet in taste)—persimmons, bananas, figs, dates, raisins, sweet grapes, mangoes and papayas. The avocado is a fat.

Tilden recommended eating the banana alone. He especially enjoined milk with this fruit, but said that it does not seem to go well with any other food. Although bananas do not give any special difficulty in digestion, if eaten with other sweet fruits, such as dates or sweet grapes, the same cannot be said for melons, which should be eaten alone. It is probably a great misfortune that we do not always feel the direct effects of imprudent eating immediately following a meal. For example, there are large numbers of people who have discomfort, even great discomfort following a meal in which melons are eaten with other foods; but there are many others who do not. This latter group can see no connection between their life of imprudent eating and the breakdown of their health in years. Their apparent impunity prompts them to defy all the same rules of life.

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Article #4: Protein-Starch Combinations by Dr. Herbert M. Shelton

At frequent intervals, some chemist or physician comes forward with the announcement that there is nothing to the idea that people have better health if they do not combine starch and protein foods in the same meal. They are sure to tell us that laboratory experiments show that digestion is carried out almost as quickly where these foods are combined as where only one is taken at a time. They are likely to add that experiments with certain patients verify this opinion of theirs.

We have in these announcements, two groups of men invading a field and posing as authorities therein, to which they are alien. Chemists know nothing of feeding man or animal. They should stick to chemistry. Physicians are not trained in dietetics. They know nothing of feeding the well and the sick. They are trained in the black art of poisoning the sick. I will not say that they should stick to this practice, but I will say that they should cease trying to pass themselves off on the public as authorities in fields outside their own.

Of what value are their laboratory experiments? Very little. A laboratory is not a human being. It is not a human digestive tract. The laboratory experiment cannot be substituted for the actual work of digesting a meal. Even feeding test meals and pumping out the stomach contents, or viewing the stomach through the X-ray is not a satisfactory approach to the solution of the problems involved in the heterogeneous and haphazard mixtures of foods commonly consumed at a meal.

What can be learned from feeding one meal to a subject, or even from feeding a few such meals to a few subjects? One such meal may not bring any distress to the subject. Indeed, we see many people eating such meals regularly for years before they develop discomforts therefrom. But the constant repetition of heavy protein-starch meals taxes their digestion to the limit and, sooner or later, results in discomforts and diseases galore.

Dr. Tilden once pointed out that nearly all such experiments are carried out by physicians and chemists who use the potato as the starchy part of the diet, and, he adds, "I have often stated, the potato is the least objectionable of any starch to be used with protein, on account of its potash content." My own view is that the potash content of the potato is not concerned in the matter at all. Potato starch digests in ten minutes under ideal conditions. I am of the opinion that it is the rapidity with which the potato starch digests that makes its combination with protein less objectionable than the combination of other starches with protein. It seems to be that the potato starch digests before the gastric juice of the stomach can accumulate in such quantity as to materially interfere with the digestion of the starch. Whatever the true explanation, the fact still remains that potato with protein, though objectionable, is less so than some other starchy foods with protein.

The man who has fed thousands of patients, old and young, and has had an opportunity to study the effects of diets and food combinations upon the health and diseases of these people is in a far better position to judge the accuracy of the contention that protein-starch combinations are not conducive to good digestion and good health, than are the chemists who feed nobody and the physicians whose great work is that of poisoning the sick.

Those of us who have made these observations know well that correct food combinations result in an immediate improvement in health by lightening the load the digestive organs have to carry. We know that we see better digestion and less fermentation and putrefaction. We see more comfort and less distress. There is less gas and little or no odor to the gas.

I do not believe that such experiences are worth anything if they cannot be explained by correct principles. Unless they can be explained by the facts of physiological chemistry, particularly the chemistry of digestion, we may be only deluding ourselves. On the other hand, if our rules of food combining are soundly rooted in physiology, they are worthy of more than a passing notice.

It is frequently objected that nature, herself, combines starches and proteins and if nature does, we may do so also. This objection is not valid. It is based on the untenable assumption that everything in nature is *designed* or *intended* for food. The great representative examples of protein-starch combinations in nature are cereals and legumes. These are the very foods that are most prone to decompose in the digestive tract when eaten. Neither of them constitute the best of foods and neither of them is readily digested. While a diet of cereals or a diet of legumes is inadequate in several ways, there is reason to believe that some of the inadequacies that result from such dietaries are results of the failure of digestion, a failure that is probably the result of the protein-starch combination.

Physiologically, the first steps in the digestion of starches and proteins take place in opposite media—starch requiring an alkaline medium, protein requiring an acid medium in which to digest. The enzyme *ptyalin* (salivary amylase) that initiates starch digestion is active in an alkaline medium only and is destroyed by a mild acid. On the other hand, *pepsin*, the enzyme that initiates protein digestion is active only in an acid medium. If starches and proteins are eaten together, the acid gastric juice destroys the ptyalin and puts an end to salivary digestion of starch. That the presence of the undigested starch in the stomach interferes with the digestion of protein is shown by the presence of undigested protein in the stools. Physiologists have shown that undigested starch absorbs pepsin and this will surely interfere with digestion of protein.

If a food that is a natural protein-starch combination is eaten alone, the body is capable of modifying its digestive juices and timing their secretions in such ways that digestion can go on with a fair degree of efficiency. But when a starch food and a protein food are eaten at the same meal this precise adaptation of the digestive secretions to the character and digestive requirements of the food is not possible. There is a marked and important difference between eating a food that is a natural protein-starch combination and eating two foods, one a protein, the other starch.

When starches and proteins are eaten together, there is a fermentation and this results in fouling the whole digestive tract. Fermentation means irritation and poisoning. If starch is eaten without protein, the gastric (stomach) secretions will not be acid, or will be so weakly acid that they will not interfere with salivary digestion. In this case here will be no fermentation, except from other causes, such as overeating, hurried eating, other wrong combinations, eating when fatigued, worried, angry, fearful, grieved, etc., eating immediately before beginning work, eating when in pain, fever or when there is inflammation, etc. The causes of indigestion are legion.

When the artificial protein-starch combination is eaten, not only undigested starch, but undigested protein will be found in the stools. The presence of undigested starch and protein in the stools is of far greater importance in determining the digestibility or indigestibility of a food combination than is the emptying time of the stomach. "Research" workers have found that the protein-starch combination delays the digestion of protein four to six minutes. This would seem to be unimportant, and I believe it is unimportant. If this brief delay in protein digestion represented all there is to the matter, we could forget the whole thing and continue to eat haphazardly. But starch digestion is important, also. Then there is the fact that the delay in emptying time of the stomach is no criterion of the completeness with which gastric digestion of protein has been done.

Physiologists resort to a number of "dodges" to escape the obvious implications of the facts of the physiology of digestion. A fine example of this is contained in *Physiology* by V.H. Mottram, professor of physiology at the University of London. He says that when the food in the stomach comes in contact with the gastric juice no salivary action is possible. He says: "Now gastric juice digests protein and saliva digests starch. Therefore it is obvious that for efficient digestion the meat (protein) part of a meal should come first and the starchy part second—just indeed as by instinct is usually the case. Meat precedes pudding as being the most economical procedure."

Why should it make any difference what order in which we consume the various foods at a meal? Mottram explains it in this way: "the distal end of the stomach is that in which the churning movement that mixes the food with gastric juice takes place ... But the food in the quiescent end is still under the influence of the saliva, while the food in the motile end comes into contact with the acid gastric juice and no salivary action is possible."

This means that if you eat your protein first so that it will be down in the lower end of the stomach and consume your starch last so that it will be in the upper part of the stomach, the protein will be digested below while the starch is digested above.

Assuming that there is any absolute demarkation between the food in the different parts of the stomach, and this assumption would be false, it is still not true that people in general, either instinctively or otherwise, consume their proteins and starches in this manner. Perhaps in England it is customary to eat meat at the beginning of a meal and pudding at the end, just as we have a similar practice of taking a dessert at the end of a meal in this country; but it is likely to be the practice there as here of eating bread and meat together. When the average man and woman eats flesh or eggs, or cheese, he or she takes bread with the protein. In eating hamburgers, sandwiches, hot dogs and similar dietetic abominations, it is certainly not the custom to consume the protein first and then, at the end of the "meal" eat the bun or other bread. The protein and starch are eaten together and are thoroughly mixed in the mouth in the process of chewing before they are swallowed.

For good digestion, let us eat our proteins and starches at separate meals.

Article #5: Basic Considerations In Food Combining By Virginia Vetrano, B.Sc.

The Hygienic rules of food combining are based on certain facts of the physiology of digestion that are well-known to the orthodox biologist and physiologist. Although these specialists in science never make any effort to make a practical application of their knowledge to the everyday task of living, the known limitations of the digestive enzymes make it important that some consideration be given to these in our eating habits. What I have to say in the remainder of this article is based squarely upon the current teachings of standard physiologies, as I learned them in my studies of science prior to my graduation, but a few weeks ago, from the University.

The human digestive tract is divided into three cavities: the mouth, the stomach and the intestines. Each of these cavities possesses its own characteristic digestive juice or juices with which to do the digestive work of the particular cavity. Thus the work of digestion may be divided into three steps or stages, the work of each cavity preparing the food for the advanced work of the next. Although physiologists and biologists tend to think of salivary and gastric digestion as relatively unimportant, many facts, which I shall discuss in a future article, indicate that the efficiency and satisfactoriness of intestinal digestion depend upon the thoroughness with which salivary and gastric digestion have been carried out. With this thought in mind we shall begin our studies of the digestive processes.

Digestion is essentially a process whereby large molecules are broken down into smaller molecules by the process of *enzymatic hydrolysis*. Hydro (water) lysis (to loosen), means to loosen up by water, or to cleave large molecules into smaller ones by adding water. The organic catalysts (enzymes) are necessary to speed up hydrolysis. Without enzymes, very high temperatures and strong chemicals are necessary to produce hydrolysis, but these destroy food values. In the stomach hydrolysis occurs in comparatively low temperatures and in a short while. The thesis is that it takes a year or more to hydrolyze foods without enzymes. Unfortunately the end-products are never really the same. Thus we see that enzymes are of primary importance in digestion.

Without chemical digestion, the animal organism would derive no benefit from foods. The food must be reduced to the size necessary to pass through the mucous membrane of the intestine and it must be changed into substances that can be assimilated and used by the organism, such as simple sugar, resulting from carbohydrate digestion; glycerol and fatty acids, derived from the fats of our diet; and amino acids, derived from proteins. Without good digestion we rob ourselves of many important elements and permit decomposition and putrefaction which cause various and sundry troubles.

Enzymes are organic catalysts composed of complex protein; hence, the requirement of amino acids for their synthesis. (A catalyst is a chemical agent that, when added to reacting chemicals, greatly speeds up their reaction and may be recovered practically unchanged at the end of the reaction.) The vitamin molecule is also said to form part of the enzyme molecule. There are extracellular enzymes (exoenzymes), such as the digestive enzymes, and glycogenase, found in the liver, is an example. Exoenzymes are secreted from the cells that produce them, and they perform their activities outside the cell. Endoenzymes do their work inside the cells that produce them.

Each enzyme is specific in its action; by this is meant that it acts upon one class of food only (fats, carbohydrates or proteins) and upon no other, or upon one class of products of previous enzymic activity. Indeed, each one of the different sugars requires its own specific enzyme. They perform their work best at body temperature.

Each enzyme is capable of acting only in a medium of a certain pH. The pH of a substance is the measure of its acidity or alkalinity. An alkaline substance is one in which the hydroxyl ions (OH) are in excess of the hydrogen ion (H). If the hydrogen ions are in excess, the substance is acid. If the hydroxyl and hydrogen ions exist in equal concentrations, the substance is neutral. For convenience, the physiologist expresses the concentration of hydrogen ions with the chemical symbol pH. Measuring the relative concentration of hydrogen and hydroxyl ions with the potentiometer, substances with a pH of seven are neutral, becoming increasingly acid as the pH falls from seven to one and increasingly alkaline as the pH rises from seven to fourteen.

Enzymes exist in an inactive form designated as proferment or zymogen, within the cells that produce them. Some may remain inactive until activated by *activators* (an inorganic activator) and *kinases* (organic activators). Others are converted into active enzymes at the moment of secretion. There are also coenzymes, where the action of an enzyme is dependent upon the presence of another substance as in the case of the dependence of pancreatic lipase upon bile salts. It was formerly thought that bile has an antiputrefactive action, but it is now thought that the greater amount of putrefaction of proteins and carbohydrates in the absence of bile is due to the fact that fats are not digested off the food, thus protecting them from the digestive juices. This allows the foods to undergo bacterial decomposition, the end-products of which are toxic. The above should indicate the importance of not eating fried foods and of not saturating your bread, potatoes, and other starch with butter, margarine, oil or other fat.

Food, upon being received in the mouth, is subjected to communition and insalivation and is thus reduced to a soft mass known as a bolus. The first enzyme with which the bolus comes in contact is *ptyalin* or salivary amylase. This enzyme begins starch digestion, changing the starches to dextrine and maltose, if given sufficient time to continue its action in the stomach. I shall speak more of this later. The bolus acquires a neutral or slightly alkaline reaction that is essential to the continued action of the salivary amylase. If the saliva is distinctly acid, it immediately stops salivary digestion and the first step in converting starch into usable sugars is arrested.

After food has been masticated and insalivated, the bolus is sent through the esophagus to the stomach where gastric juice is poured out in large quantities (an average of 1.5 to 2.5 liters a day). It is a thin, colorless fluid with a definite acid reaction (pH of 0.9 to 1.7), containing protein, mucin, inorganic salts, about five percent hydrochloric acid, and the enzymes pepsin and gastric lipase. If no protein is eaten, the juice is almost neutral in reaction.

Shortly after food enters the stomach, contractions begin in the middle region, passing down to the lower end called the *pyloris*. These actions thoroughly macerate the food with the gastric juice, forming the thin liquid mass now called *chyme*. The fundus or upper end of the stomach exerts pressure on the food in it so that it constantly pushes the food further into the more active or prepyloric and pyloric end of the stomach. In thin way, all the contents of the stomach become a liquid chyme and are thoroughly mixed together. There can be no separation in the stomach of one part of the meal from the other. A blender also has the churning action only at the bottom but shortly after the motor is turned on all the contents are thoroughly and evenly mixed. The churning motion in the lower part of the stomach, the addition of an enormous amount of fluid, plus the constant pressure of the fundus, (which the blender lacks) upon the food is more than enough to ensure the thorough maceration of the food.

As previously stated, the enzymes of the stomach are pepsin, and gastric lipase. Pepsin, which initiates protein digestion, requires an acid medium in which to work. It is secreted as the zymogen pepsinogen and rendered active by the hydrochloric acid of the gastric juice. Pepsin is active only in the presence of hydrochloric acid and the hydrochloric acid may be destroyed by alkali such as baking soda, etc. Pepsin hydrolyzes proteins through several stages into proteoses and peptones, which are inabsorbable and must undergo further hydrolysis in the intestine by other proteolytic (protein splitting) enzymes.

The stomach enzyme, gastric lipase, asserts its activity upon fats, breaking them up into fatty acids and glycerols, but the action of this enzyme is inhibited by an acid medium. Physiologists believe that fats undergo little or no digestion in the stomach because of the acid gastric juice, but Hygienists have shown that, with proper combinations, fats can be digested in the stomach. The very fact that a fat-splitting enzyme is contained in the gastric juice, indicates that it is there for a purpose and, if in a medium of the right pH, it will exercise its properties. Fats and proteins are a very bad combination since proteins require a very acid medium for digestion and this would inactivate gastric lipase. Fats also inhibit gastric secretion, it is thought possibly by the production of a hormone called enterogastrone. But where fats are eaten with green vegetables, preferably raw, the inhibiting effect of fats on gastric secretion is counteracted and protein digestion proceeds quite normally.

Salivary digestion or the action of ptyalin or salivary amylase upon starches occurs while chewing and swallowing food and for a brief time after it gets into the stomach. This is not sufficient time to complete salivary digestion. Unless starch-protein combinations are avoided, salivary digestion of starch is not completed. We have learned that pepsin, that acts on proteins, needs an acid medium in which to work, and salivary amylase, that digests starches, needs an alkaline medium. Then, if protein foods, such as nuts, cheese, etc., are eaten with starches, such as potatoes or bread, the gastric secretion will be acid because of the presence of the protein food, and will speedily bring to a halt all starch digestion in the stomach. The starchy food will be left incompletely digested until it reaches the small intestine for further hydrolysis, providing it has not undergone fermentation and decomposition. It must be remembered that it is during this waiting period, because of the temperature of the stomach, that fermentation and decomposition are most likely to occur. The end-products of bacterial decomposition are always poisonous.

When a starch is eaten alone, that is without protein, as for example, a potato, a gastric secretion, the pH of which is practically neutral, is poured into the stomach, and salivary digestion will combine in the stomach uninhibited. Other acids besides hydrochloric acid destroy salivary amylase. Free acids of fruits, such as those of oranges, grapefruit, pineapples, tomatoes, lemons, limes, sour apples, sour grapes, sour berries, etc., and the acid of vinegar as well as drug acids, destroy salivary amylase. The eating of acid fruits and the taking of vinegar-containing dressings suspends salivary digestion. The drinking of orange or tomato juice with the starchy breakfast cereals that conventional eaters consume, is hazardous.

Salivary and gastric (stomach) digestion, if carried out properly, prepares the food for intestinal digestion, where enzymes of the *succus entericus* (the secretion of the intestinal glands) and the pancreatic juice and the coenzymes of the bile take over. In the intestine, the end-products of hydrolysis are reached and the food is ready for absorption, which also takes place in the intestine.

Succus entericus, the intestinal secretion, contains four or five enzymes and has a marked alkaline reaction. The enzymes are as follows: *enterokynase*, which activates *trypsin* (the protein-splitting enzyme of the pancreatic juice); *erepsin*, which completes the work of *pepsin* and *trypsin*, hydrolyzing peptides to their constituent amino acids. The hydrolyzing enzymes of the succus entericus hydrolyze disaccharides, which are double sugars, into monosaccharides, which are simple sugars such as *glucose* and *fructose*. Without the hydrolyzing enzymes, to convert disaccharides to monosaccharides, the disaccharides would be eliminated by the kidneys because as such they are non-usable by the tissues.

Maltase acts upon maltose, and dextrine, which are products of the salivary digestion of starches. Two other hydrolyzing enzymes are *sucrase*, which hydrolyzes *sucrose* to *glucose*, and *fructose*, and *lactase*, the milk sugar enzyme. *Sucrose* is cane sugar, but it is also found in vegetables, the juices of many plants and some fruits. Most fruits contain the monosaccharides glucose and fructose. (If combined properly, fruits are the easiest of foods to digest, because their sugars are already in an assimilable form, needing no further hydrolysis. They need only to be absorbed and used.) *Lactase* acts upon milk sugar (lactose), hydrolyzing it to *glucose* and *galactose*.

Other constituents of the *succus entericus* are *nuclease*, which hydrolyzes the nucleic acid components of neucloproteins and *secretin*, which is a hormone that I need not discuss in this short article.

Bile serves many important functions in the small intestine. It is an alkaline fluid, pH about 6.8 to 7.7, consisting of water, bile pigments, bile acids, bile salts, cholesterol, lecithin and neutral fats. Secretion of bile in the liver is continuous but it enters the duodenum only when chyme is present. Bile may be considered a coenzyme of pancreatic lipase as pancreatic lipase combined with bile splits fats more rapidly than it does alone. Bile helps in the absorption of fatty acids by combining with them, making them more soluble, hence more easily absorbed. Bile is needed in facilitating absorption of many fat soluble vitamins, especially vitamins D, E and K. Bile has many other functions not concerned with digestion.

The pancreatic fluid enzymes are *trypsis*, pancreatic *amylase* and pancreatic *lipase*. *Trypsin* hydrolyzes proteins into proteoses, peptones and polypeptids and, given enough time, under favorable conditions, will continue its action until the necessary amino acids are reached. The more efficient and complete peptic digestion has been in the stomach, the more likely will *trypsin* and *erepsin* be able to complete the hydrolysis of proteins. Normally, proteins should be hydrolyzed into proteoses and peptones by gastric digestion. Under favorable conditions, proteins may be passed into the intestine without peptic digestion. Physiologists think that the enzyme trypsin of the pancreatic juice can initiate protein digestion and may reduce these proteins to proteoses and peptones, polypeptids, dipeptids and, finally, amino acids. It is reasonable, however, to think that thorough peptic digestion of proteins before they are expelled from the stomach assures the completion of their hydrolysis in the intestine, thus avoiding putrefaction.

The Hygienist does not agree with the thought of physiologists that salivary and gastric digestion are unimportant. The thoroughness with which enzymes do their work depends upon the amount of time they have in which to work. Obviously, therefore, thorough peptic digestion of protein will shorten the time required for the completion of protein hydrolysis in the intestine.

The several enzymes of the pancreatic and intestinal juices that complete the digestion of proteins, carbohydrates and fats in the intestine, function only in an alkaline medium. The chyme from the stomach is acid, but bile from the liver and the pancreatic juice, both of which are alkaline, quickly provide an alkaline environment for the action of the enzymes in the intestine. We need not concern ourselves with combinations, as they relate to intestinal digestion, except to point out that the best preparation for intestinal digestion is good salivary and gastric digestion. Food combining is, therefore, of greatest importance as it relates to salivary and gastric digestion.

Dr. Vetrano recommends using as little soaking water as possible, soaking one side at a time, so all water will be absorbed, thus avoiding losing flavor and nutrients. It is important that the water used for soaking be distilled water. If any water remains after soaking the fruit, you can drink the water.

Sweet fruits combine fairly well with subacid fruits, provided the subacid fruits are on the "sweet side," for example, use Delicious apples, not Macintosh, or Jonathans, with sweet fruit.

It is best to have these fruits at a fruit meal combining only with lettuce and/or celery. Since fruits are usually high in acids or sugars, they do not combine well with other foods.

Lesson 23 - Application Of Food Combining Principles

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1. The Food Combining System

Most of the food combining rules were first set down long ago by such Hygienic pioneers as Doctors John H. Tilden and William Howard Hay, and they have been tested in practice by modern Hygienic doctors and many thousands of lay people. This empirical testing has resulted in some modifications of the original food combining principles. Other modifications continue to be evaluated as "gray" areas and are studied and tested.

What is needed by neophytes and old-timers alike is accurate, up-to-date information, clarification, simplification and a common-sense approach—a way to eliminate confusion and anxiety.

This lesson discusses meal-planning principles and their application. You will be given all the details you will need in order to learn to apply these principles. This lesson will also lead you through numerous examples of the correct application of each of the food combining rules that were discussed in Lesson 22.

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2. Planning Meals

Meal planning advice is intended merely as a guide to enable the individual to work out his own menus. The object is to understand the principles of food combining so that you (and your students) will be independent and never at a loss, no matter where, in preparing meals from the foods at hand.

Food availability varies with location, season, climate, altitude, soil and market factors. If you know how to combine your foods correctly, you may usually select compatible combinations anywhere—at the market, at the home of a friend or relative, or even at a public eating place. An intelligent adult should learn these principles and learn to apply them. Soon the practice becomes habitual—almost automatic.

We will start with an outline of how to plan your daily food program.

If you have Dr. Shelton's book, *Food Combining Made Easy*, you will notice (pp. 55-57) that his daily menus usually include a breakfast of fruit, a starch meal for lunch, and a protein meal for dinner. He even includes such items as lamb chops and eggs on some of the menus (simply to show how to combine animal products, if you use them).

My daily menus (in this lesson) will also include three meals, even though it is best to eat only two meals on most (days. Many people do better with two meals daily, some do better alternating between two and three meals (two meals one day, three meals the next, etc.).

On days that you eat two meals, you may use the menus as a guide, selecting two meals each day from the variety offered. I would suggest selecting one fruit meal and one salad meal, being sure to include enough protein foods, according to your needs.

My menus will not advocate the use of a starch *and* a protein every day. My recommendation is to have some concentrated protein most days, and salad every day. Some people get along quite well with concentrated protein every other day, others need some every day. The amount of concentrated protein you need depends on how much you take at each sitting, your tolerance, and the efficiency of your assimilation. How much concentrated protein you need also depends on whether you are eating all raw food.

The proteins to be found in almost all vegetables and many fruits, though usually not concentrated, are of high biological value when eaten unchanged (without cooking), and are an important source of dietary protein. People on all-raw-food diets may need less concentrated protein, but it is an individual matter. Your own needs may best be ascertained through personal experimentation.

On the other hand, people who eat some cooked starches and cooked combination foods should realize that these are supplementary sources of dietary protein, and that it may not be necessary to also use concentrated proteins on every day when concentrated starches or combination foods are used. Again, this is an individual matter.

But four ounces of nuts or seeds at one meal, a serving of brown rice at another meal, and a serving of dates at a third meal on the same day, may easily result in overburdening the body with too many concentrated foods, and too much protein.

How much concentrated protein you need is also dependent on another extremely important factor. How active are you? How much regular vigorous exercise are you getting? Everyone should make it a point to use the body energetically every day. People who engage in little physical exertion need less food, particularly less protein. Sedentary people who consume more food, especially more protein, than their bodies are capable of metabolizing efficiently, are incubating future serious pathological problems.

I find that I personally need to take some concentrated protein almost every day. I usually can eat only two ounces of nuts and/or seeds at a sitting, supplementing my protein needs at other meals with other lower protein foods, such as large green salads and avocados. I use alfalfa sprouts with almost every salad meal, and sometimes use lentil and mung bean sprouts.

My recommendation includes a program that does not utilize concentrated starches or combination foods (whether raw, sprouted or cooked) more than four or five times weekly. You will note that the menus which include some cooked food indicate cooked foods not more than four times weekly. It is hoped that cooked foods will gradually be de-emphasized even more.

I am not, by any means, saying that Dr. Shelton's fruit-starch-protein daily menus may not be applicable to some people, nor am I saying that some people may not use more fruit and less concentrated foods than are included in these menus. I am simply offering suggested alternatives, determined through research and practical experience of many years and by many people.

Study the daily menus in this lesson, compare them with Dr. Shelton's and others, if you wish and determine, by experimentation, which daily meal plan is best for you.

2.1 Your Daily Food Program

Breakfast: Starting with breakfast, you have three ways to go, with many variations of these three basic choices. The first choice—the best choice for most people—is the "no-breakfast plan." That would mean you would be eating only twice daily.

The second choice is a light breakfast of one kind of juicy fruit—citrus or melon or any subacid fruit, such as grapes—no dried fruit. *Fresh fruits are the best choice for the first food of the day*—one or two varieties. They should be eaten whole, uncooked and unjuiced. Eat until pleasantly satisfied, not stuffed. Three to five oranges, or a grapefruit and two oranges, or one-eighth of a medium watermelon, or a medium cantaloupe or honeydew melon, or one pound of grapes, should be maximum amounts for an all-fruit first meal of the day. Most people would want less.

The third breakfast choice is for people who find that they do better with a more substantial breakfast. This is preferred by some men (and also a few women), and especially by individuals who will be away from home during the day and will perhaps be unable to obtain good food conveniently. This plan might also be preferred by those who find that they feel better if they eat some protein early in the day—notably, people who might have the problem of low blood sugar (hypoglycemia). However, many people who have had hypoglycemia (or have been diagnosed as hypoglycemics) have successfully progressed to the two-meal-a-day plan.

This more substantial breakfast might consist of citrus or other acid fruit, such as pineapple or strawberries followed by raw, unsalted nuts and/or seeds. It might be advisable to wait thirty minutes or longer before eating the nuts, to allow the sugars in the fruit a chance to leave the stomach. This is a precaution often taken by people with impaired digestions. Maximum amounts of fruit in such a meal should be about half the quantities used when eating only the fruit. Two to four ounces of nuts and/or seeds may be used. Lettuce and/or celery would be an excellent addition to this meal.

This type of more substantial breakfast, or brunch, might be more advantageously used around noon, rather than early in the morning, if the circumstances permit, and if you are willing to postpone eating until after you have done something to "earn" your meal.

Luncheon: Now we get to luncheon, where we again have multiple choices. Even if you have not eaten breakfast, you might prefer to have a lunch of juicy fruit or melon. If you choose melon (most people do better with melon only, only one kind) eat as much as you want, but stop before you are uncomfortably full. Some people have no problem when combining more than one kind of melon, or combining melon with certain subacid fruits. (See Lesson 22.)

If you decide on a mixed fruit lunch, this is an excellent and satisfying meal, if you are careful about the combinations. You should not use acid fruit with sweet fruit; for example, don't use oranges and bananas at the same meal. Your mixed fruit lunch could consist of grapes, peaches, apples or other fresh subacid fruit—one or two varieties (two or three pieces)—plus one or two bananas and/or one-half of a medium avocado. It is better to choose either the bananas or the avocado. Lettuce and celery also make an excellent addition to this meal, especially if you are including avocado.

If desired, you could also have a small serving of figs, dates, raisins, soaked dried apricots, or other dried fruit, *if you have not had avocado*. Or you could occasionally have acid or subacid fruit, lettuce and celery, and four ounces of cheese, if you use it. If you do use cheese, use it sparingly and rarely. Actually, lettuce and celery may be used with almost any fruit meal, but I would not recommend their use with melon.

Another type of luncheon, especially if you have had a fruit or melon breakfast, would be a salad meal. You could have as much salad as you want, consisting of one or more dark green varieties of lettuce: Romaine, Boston, Bibb, leaf, or any garden lettuce (not pale iceberg head lettuce), plus tomatoes, cucumber, celery, or any nonstarchy vegetables, along with or followed by avocado or nuts or seeds.

The Evening Meal: New we get to the evening meal, where the choices are almost infinite. Much depends on what you have already eaten. If you have already eaten your fill at breakfast and lunch, you need very little additional food, perhaps none.

If you ate a citrus and nuts breakfast, and a salad and avocado lunch, you might want a mixed fruit supper. If you had a fruit or melon breakfast and a salad and nuts lunch, you might want a salad and avocado supper. If you have not yet had any nuts that day, you could have salad and nuts for supper.

If you are still using cooked food, it is better to eat it in the evening, after the day's work is done, when you may rest and relax, and accomplish better digestion. Many people have a tendency to overeat of the cooked food—so eat a large salad first; this may help you to eat more conservative amounts of cooked food. Try to avoid second helpings, and stop before you feel stuffed. In any event, it is preferable to eat raw food before cooked food, juicy food before dry food, and easy-to-digest food before foods that need more time for digestion (such as starches, proteins and fats).

2.2 Sequence of Eating

It is true that all the food will be mixed in the stomach, but the so-called "Ideal Order of Eating" is helpful to some extent.

Eat raw food before cooked food. Raw foods contain live enzymes, which influence digestive efficiency; cooking destroys all enzymes. Moreover, the consumption of raw foods stimulates gastric enzyme secretion, which is necessary to initiate good digestion. Besides, the more raw foods eaten as the first course, the less cooked foods will be eaten.

Eat juicy foods before dry foods. During the process of digestion, hydrolysis occurs—that is, the combining of the food with liquid from the body's reserve supply. Juicy foods contain some of their own liquid, which facilitates the initial processing of the food mixture. (Do not take water with dry foods as an alternative—this causes problems—see Rules for Drinking.)

Eat easy-to-digest foods before foods, that require a longer digestion time. The digestive process starts while the meal is being consumed, and the most liquid portion of the food mixture, the chyme, leaves the stomach at intervals. Thus, some of the easy-to-digest foods may be processed and leave the stomach before the end of the meal. Even if this does not occur, if the concentrated foods are eaten last, you may possibly eat less of them, which would be an advantage for many people, especially those who have a tendency to overeat of the concentrated proteins and starches.

An exception may advantageously be made in the case of eating salad alternately with nuts, rather than consecutively. Many people find that eating the salad along with the nuts actually aids digestion, and also eliminates the dry or thirsty feeling that sometimes follows the eating of nuts after the salad. Do not use the tomato or lettuce to moisten the nuts to help get them down. The nuts must be thoroughly chewed.

Dr. Vetrano's article on the "Sequence of Eating" indicates that she does not attach importance to the sequence of eating concentrated foods and less concentrated foods. You might want to experiment to determine your own preference.

When combining several fruits at a meal, it is a good idea to eat the sweetest variety last. (Oranges after grapefruit; bananas, persimmons, dates, figs, after grapes, plums, apples etc.) If you follow a sweet fruit with one that is less sweet, the comparison actually seems to make the less sweet fruit usually taste acid or sour.

On the other hand, I sometimes like to eat a small amount of subacid fruit after the sweet fruit to dilute the excessively sweet taste at the end of the meal. Either way, there is no food combining principle involved—please yourself.

If you sometimes would like to eat fruit in combination with a mixed vegetable meal, the best way would be to eat the fruit first, and then, if possible, delay at least fifteen minutes before eating the other foods, starting with the salad.

As previously indicated, exceptions to this arbitrary "eating order" are not serious. After all, it does all go into the same stomach, and is quickly combined into a mobile mixture, the chyme.

2.3 Rules for Drinking

Drink no beverage except pure water, only when thirsty, and not with meals, as drinking at meal time dilutes the digestive juices and retards digestion. Most beverages commonly consumed are loaded with harmful substances, interfere with the digestion and assimilation of foods, and may be addictive and destructive of vital organs.

No particular amount of water is necessary; thirst is the best guide. Hygienists usually drink very little water because no spices or seasonings are used, and there is so much liquid in foods as provided by nature. If thirsty, one may drink ten to twenty minutes before meals, one-half hour after a fruit meal, two hours after a vegetable or starch meal, and four hours after a protein meal. It is best to sip water, not gulp.

If one ignores the feeling of thirst that sometimes follows a meal and resists the impulse to drink, the thirst may soon disappear, having been satisfied by digestive secretions, and good digestion will be accomplished (since the digestive juices will not have been diluted). If very thirsty, and you feel that you must drink, try a few sips, instead of gulping large quantities of water. Drinking water with meals, or directly after meals, causes the stomach to dilate, and may lead to chronic indigestion, gastritis, ulcers, or even cancer.

Juices: Foods should not be juiced for use as a beverage, but should be eaten in their whole state. If exceptions to this rule are occasionally made, it should be with the full awareness that this fragmented food does not contribute anything "extra" to your health or nutrition, and is definitely a compromise of Hygienic principles.

In fact, this bombardment of the body with concentrated portions of fragmented foods may actually cause unpleasant, even serious problems. If carrot juice is consumed in large quantities, it may cause carotinemia and discolor the skin—the liver cannot handle too much of it. I have seen yellow palms (a symptom of carotinemia) that, fortunately, disappeared when the juicing habit was discontinued (prior to irreversible damage).

If you do insist on using juices, it would be best to follow the following guidelines: Never use large quantities of juiced foods and don't use them as part of your regular food program. If you use juice occasionally, four to six ounces of vegetable juice may be taken twenty to thirty minutes before the evening meal at which a salad and, perhaps, some cooked food are eaten. Fruit juice— preferably fresh-made at home—may occasionally be used prior to a fruit meal. However, keep in mind that juices, either fruit or vegetable, are not beverages but fragmented foods.

The only time juices are indicated as part of a Hygienic program is when breaking a fast (though many people do very well in breaking a fast on whole fruit) or, very judiciously, as a temporary elimination diet. See Dr. Vetrano's article "Mono-Eliminating Diets". More details about the inadvisability of juicing foods will be given in a future lesson.

Pure water: The only beverage which should be used when thirsty is pure water. Avoid chlorinated city water, if you can. Don't drink fluoridated water; do whatever you must to avoid it. Using fluoridated water in cooking is even worse, as it concentrates the fluorides, causing the water to be even less safe for use. Osteoporosis can occur from drinking fluoridated water. Sodium fluoride inactivates magnesium and some amino acids, and inhibits enzyme activity. Never drink artificially softened water because the miscellaneous inorganic minerals and impurities have been replaced by salt.

Minerals in water inhibit the absorption of the water. The minerals are inorganic substances and must be eliminated by the body. They are usually suspended particles of dirt and stone. These inorganic minerals are usable only by plants, which convert them to organic minerals, thus usable by man.

Professor Henry Sherman, in. his book. *The Chemistry of Nutrition*, says he doesn't like to refer to such elements as calcium and iron as minerals, which may imply that they come directly from the mineral kingdom.

He says that these elements are usable by humans only when they occur organically in plant tissues—as complex, organized structures within the plant. This is the way in which these elements are adaptable to animal life, and this is the way we can make the best possible use of them.

Pure water from a rock spring is excellent; fresh rain water (if it could be gathered unpolluted) and distilled water are best. More detailed information about water, beverages and drinking are given in another lesson.

2.4 Modifications

People with efficient digestions can withstand modifications more freely; people with impaired digestions need to utilize as ideal an eating pattern as possible.

2.5 Cooked Foods

No cooked food could even come close to the nutritional value of foods which are used as they grow in the garden and orchard. If you do use some cooked foods, choose the best available and prepare them conservatively and correctly. Lessons 24, 25 and 26 will help in the selection, storage, preparation and serving of foods for the best nourishment. This lesson will simply provide a preliminary outline of foods which may be cooked.

The variety of acceptable cooked foods is quite extensive. It includes such meals as broccoli and lentils, or green beans and steamed or baked potatoes, or eggplant casserole, vegetable chop suey, a mixed vegetable casserole, or thick bean or vegetable soup. Baked parsnips, beets and carrots have a delightful sweet taste and need no seasonings. You may select globe artichokes, cauliflower or sweet corn—the choices are many.

Plain steamed vegetables need no seasoning if they are not overcooked; most vegetables cook in ten minutes or less. Casseroles may require some seasoning, but we use no salt or pepper. Season with parsley, celery or sweet bell pepper. Recipes for casseroles will be included in the lesson on food preparation.

The best way to use whole grains is to sprout them.

Even those people who cook some of their vegetables should try to use as many as possible in the raw state. Try young sweet corn or sweet potatoes uncooked. Ground (Jerusalem) artichokes are delicious raw. Raw young sweet peas or edible pod peas are delicious uncooked. In fact, the edible pod peas are a gourmet delight. Of course, all meals that include some cooked food should be preceded by a large raw salad.

Individual needs: The foregoing suggestions for meals including uncooked and cooked foods are generally applicable to people not suffering from serious pathological problems. This program may have to be adjusted in various ways to provide for the nutritional needs and capacities of those whose health is impaired. It is not necessary or advisable to try to conform to a "blueprint" program. Certain people may have emotional needs, or other reasons, for requiring other foods.

We must think in terms of careful consideration of the needs of the individual. It is important to see each person in relationship to his emotional as well as his physical needs, and in relationship to his total life situation.

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3. Daily Menus

3.1 Salads

Eat as much salad as you want—but don't stuff yourself. Use one or two varieties of lettuce from among the dark garden varieties, such as Romaine, Bibb, Boston, leaf or any garden lettuce (except iceberg). Endive or escarole may be included as a variety of lettuce, if it is not bitter. In addition to the lettuce, choose two or three salad vegetables from among the following: celery, cabbage, cucumber, sweet pepper, or any young, tender greens (kale, turnip, dandelion, collard). Broccoli flowerets and leaves are particularly good salad vegetables. Cauliflower flowerets are also very good in the salad. Green beans, peas, chayote, zucchini or yellow summer squash are good choices when young and tender. Raw carrots or sweet potato may be used except with a protein meal; tomato may be used except with a starch meal.

3.2 Four Weeks of Menus

3.3 Two Weeks of All-Raw-Food Menus - First Week

	Breakfast	*Lunch*	*Supper*
Sunday	Strawberries	Salad Raw sweet corn (young/tender) Raw carrots Alfalfa sprouts	Salad Tomatoes Raw broccoli Macadamianuts
Monday	Oranges	Salad Wheat or rye sprouts Avocado	Salad Tomatoes Alfalfa sprouts Almonds
Tuesday	Papaya	Lettuce Blueberries (or other subacid berries) Persimmons Fresh or dried figs	Salad Raw turnips Alfalfa sprouts Lentil sprouts
Wednesday	Cantaloupe	Lettuce, celery Pears Sweet plums Soaked dried apricots	Salad Tomatoes Raw zucchini squash Cashews
Thursday	Kiwi Fruit Filberts	Watermelon	Salad Alfalfa sprouts Edible pod peas Raw cauliflower or carrots Avocado
Friday	Fresh ripe pineapple	Salad Alfalfa sprouts Raw cauliflower Jerusalem artichokes Avocado	Lettuce Peaches Papaya Bananas
Saturday	Casaba melon	Lettuce Grapes Apricots Dates	Salad Tomatoes Alfalfa sprouts Pecans

3.4 All-Raw-Food Menus - Second Week

	Breakfast	*Lunch*	*Supper*
Sunday	Honeydew Melon	Lettuce, celery Jonathan apples Plums Avocado	Salad Tomatoes Alfalfa sprouts Pecans
Monday	Fresh ripe pineapple	Salad Tomato Alfalfa sprouts Sunflower seeds	Lettuce, celery Pears Grapes Dates
Tuesday	One grapefruit Two oranges	Salad English peas Raw broccoli Avocado	Salad Tomato Alfalfa sprouts Brazil nuts
Wednesday	One or two grapefruit Pecans	Watermelon	Salad Raw chayote Alfalfa sprouts Mung bean sprouts
Thursday	Mangoes	Lettuce Cherries Bananas Dried soaked apricots	Salad Edible pod peas Coconut
Friday	Strawberries	Salad Alfalfa sprouts Raw sweet potato Raw cauliflower Avocado	Salad Tomato Raw broccoli Filberts
Saturday	Grapes	Lettuce Peaches Fresh figs Persimmons	Salad Tomato Alfalfa sprouts Almonds

3.5 Menus Which Include Some Cooked Food - First Week

	Breakfast	*Lunch*	*Supper*

Sunday	Watermelon	Salad Tomatoes Eggplant casserole With cashew nut topping or Mixed vegetable casserole with sesame seeds	Lettuce, celery Apricots Cherries Bananas Raisins
Monday	Grapes	Salad Alfalfa sprouts English peas (raw) or Lentil or mung bean sprouts Avocado	Salad Tomatoes Raw broccoli Pecans
Tuesday	Honeydew melon	Lettuce Red Delicious apples Persimmons Bananas	Salad Alfalfa sprouts Lentils with steamed yellow squash
Wednesday	Grapefruit Filberts	Watermelon	Salad Edible pod peas (raw) Alfalfa sprouts Avocado
Thursday	Fresh ripe pineapple	Salad Young tender raw kale Wheat or rye sprouts Avocado	Salad Green beans (raw or cooked) Raw carrots Steamed or baked potato*
Friday	Oranges Lettuce Avocado	Lettuce, celery Grapes Persimmons Dates	Salad Tomatoes Alfalfa sprouts Sunflower seeds
Saturday	Kiwi fruit Almonds	Casaba melon	Salad Alfalfa sprouts Vegetable chop suey Brown Rice

* Sweet potatoes may be eaten raw, but white potatoes should not. It is advisable to dextrinize the starch in white potatoes, by cooking, to render them suitable as food.

3.6 Menus Which Include Some Cooked Food - Second Week

	Breakfast	*Lunch*	*Supper*
Sunday	Honeydew melon	Salad Globe artichokes (raw) Steamed broccoli Alfalfa sprouts	Lettuce, celery Strawberries Cashews
Monday	Raw fresh pineapple	Salad Tomatoes Raw yellow squash Macadamia nuts	Celery McIntosh apples Plums Avocado
Tuesday	Grapefruit Almonds	Lettuce Cherries Peaches Dried figs	Salad Alfalfa sprouts Vegetable stew with garbanzo beans
Wednesday	Strawberries Oranges	Salad Edible pod peas Sweet potato Avocado	Salad Tomatoes Alfalfa sprouts Pecans
Thursday	Kumquats Winesap apples	Lettuce, celery Grapes Bananas Soaked dried apricots	Salad Alfalfa sprouts Steamed or baked butternut squash Green beans (raw or cooked)
Friday	Cantaloupe	Salad Alfalfa sprouts Avocado	Salad Tomatoes Raw broccoli Almonds
Saturday	Grapefruit Oranges	Lettuce Golden Delicious apples Fresh figs Bananas	Salad Alfalfa sprouts Kasha (Buckwheat groats) or (Wild rice casserole) or (Millet casserole)

3.7 Recap of Concentrated Foods in Sample Menus (Number of Times Used Each Week)

	Raw Food Menus		*Menus With Some Cooked Food*	
	First Week	Second Week	First Week	Second Week
Concentrated Protein/Fat (Nuts and Seeds) Use 2 to 4 oz.	5	6	5	5
Combination Foods Starch/Protein (Coconut, Lentil Sprouts, Lentils, Mung Bean Sprouts, Rice, Wild Rice, Kasha, English Peas, Garbanzo Beans)	1	3	4	2
Starch foods (Jerusalem Artichokes, Globe Artichokes, Corn, Carrots, Potatoes, Sweet Potatoes) Use 1/2 to 3/4 cup	3	2	1	3
Fat/Protein (Avocado) Use up to 1/2 Medium Size	3	3	4	3
Concentrated Sweet Fruits (Dried Fruits) Use sparingly, e.g. up to 8 dates	3	2	2	2

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4. Mono Meals And Mono Diets

Primitive man, in his pristine life in the forest, probably ate one food at a time, depending upon the availability of the food. Eating only one food at a meal is known as a monotrophic meal. If all meals over a period of time consist of a single food, such as oranges or grapes or watermelon, this would be called a monotrophic or "mono" diet.

4.1 Advantages of Mono Meals

There are advantages to the use of monotrophic meals, and it is recommended that at least the first meal of the day be a mono meal and preferably be of one kind of juicy fruit or melon. Obviously, the digestion of a mono meal would not be subject to the adaptation problems that are sometimes experienced (even to a minimal degree) when so-called compatible foods are combined. For instance, even when several subacid fruits are combined, there may be subtle or overt differences in degrees of alkalinity or acidity, or in liquid or sugar content, or in digestion time. Most fruits lend themselves very well to monotrophic meals. It would be advantageous to program at least one mono meal daily—for the first food of the day.

4.2 Mono Diets Not Recommended for Regular Use

I do not endorse the use of a monotrophic diet for extended periods or regularly for several days every week, nor do I endorse the regular or extended use of a diet consisting of all monotrophic meals, i.e., each meal consisting of a single food, e.g., one kind of melon for one meal, grapes for another meal, romaine lettuce for another meal, alfalfa sprouts for another meal. I do not believe this would be conducive to optimal nutrition, nor do I believe that all types of Hygienic foods lend themselves optimally to this usage. For example, romaine lettuce and nuts or seeds combine well; this combination has been observed to produce more efficient digestion of both foods.

Several days on a mono diet, followed by several more days on monotrophic meals, immediately following a prolonged fast—or, perhaps, during a flareup of digestive problems—may prove to be very beneficial. But people who implement diets consisting of all mono meals usually concentrate on fruit and neglect nuts and green leaves. This can be damaging, even disastrous. Such a practice may ultimately result in protein deficiencies and other serious pathological problems.

Dr. Herbert M. Shelton says (*The Hygienic System, Volume II, Orthotrophy*, Page 223): "As there are no pure frugivores, all frugivores eating freely of green leaves and other parts of plants, man may, also, without violating his constitutional nature, partake of green plants. These parts of plants possess certain advantages, in which fruits are deficient. Actual tests have shown that the addition of green vegetables to the fruit and nut diet improves the diet."

In the June 1976 issue of Dr. Shelton's Hygienic Review, Dr. Shelton says: "If man is a frugivore, as we have tried to demonstrate, then his natural diet should consist of fruits, nuts and green vegetables. The inclusion of tender, succulent green leaves, stems and flowers should not be considered a violation of his constitutional nature, as practically all animals in nature consume green foliage of one kind or another. For example, the frugivora consume large amounts of wild celery and other leafy plants along with their fruits and nuts. At times, even the carnivora consume large amounts of vegetation. Green leafy plants may be regarded as a wild card throughout nature. Whatever else an animal eats, whatever else it is specifically adapted for, some green leafy food is invariably included in the diet.

"Besides being specifically adapted to his digestive mechanism, fruits are also appealing to man's visual, olfactory and gustatory senses. They require no cooking, no dressing, no seasoning, no utensils, and hardly any cultivation, considering the abundance of wild fruit trees. Could any other food be more natural for us? With the addition of nuts and green vegetables, the fruitarian diet is as nutritionally sound as it is biologically correct."

Green leafy vegetables are more abundant in alkaline minerals than fruits. They are an excellent source of calcium, iron and other valuable minerals. They are rich in vitamins and contain small amounts of protein of the highest quality and biological value. They are the richest source of chlorophyll, such as only green plants can provide.

The analysis of chlorophyll shows it to be almost identical with the blood hemoglobin, except that the blood contains iron and chlorophyll contains magnesium. Increasing the amount of green leafy vegetables in the diet has been known to aid the body to correct secondary anemia.

The scientist, Frans Miller, wrote, "Chlorophyll has the same fast blood-building effect as iron in animals made anemic." The regenerative effect of crude chlorophyll from green leaves (not pure chlorophyll) was demonstrated through numerous scientific experiments in this country and abroad. (See Viktoras Kulvinskas article on chlorophyll.)

Green leaves convert sunlight into food by a process called photosynthesis, aided by the green pigment chlorophyll. Photosynthesis is the production of carbohydrate, in the presence of carbon dioxide, water and light. Since only green plants can do this, they are the most important things on our planet,, because they make possible the continuity of life.

Dr. Virginia V. Vetrano says (Dr. Shelton's Hygienic Review, January 1975, Page 116): "The Hygienic doctor has always advocated that some vegetables, particularly leafy vegetables, be eaten along with the fruit and nut diet, mainly because of the protein content in leafy vegetables. Most individuals have a difficult time adjusting to eating only nuts for protein and take an insufficient amount of protein at first; proteins of high biologic value are easily supplied by adding green vegetables to the diet."

Dr. Vetrano has also repeatedly advocated the regular use of nuts in the diet—in fact, they were served at the Health School every day. She is convinced that this source of concentrated protein is a necessary part of the daily diet. She says that whole nuts should be used, but that freshly-made nut butter or ground nuts can and should be used, if an individual does not have good teeth. (Dr. Shelton's Hygienic Review, February 1976, Page 135).

Dr. Shelton had many young people come to him during the time that Arnold Ehret's dietary system (*The Mucusless Diet*) was in the heyday of its popularity. These young people had been on his low or no (concentrated) protein diet for several years or longer and were suffering from weakness, ease of fatigue, and transverse and longitudinal ridges in their fingernails. After studying their problems for a while, he came to the conclusion that the problem was nothing more than a protein deficiency. He fasted them for three days, added protein to their diets, and they all recovered. (Dr. Vetrano, Dr. Shelton's Hygienic Review, October 1974).

I myself have repeatedly encountered individuals who, for as long as six months to a year after a fast, were becoming weaker and more enervated with each passing day—even having fainting spells. In every case, they had been convinced that concentrated proteins (nuts and seeds) were unnecessary, even inadvisable. When they added nuts and seeds to their diets, spontaneous and continuous improvement followed in every case.

Dr. Burton says (See his article "The Hygienic Diet" in Lesson 22): "I personally view the diet containing a large proportion of fresh fruits and vegetables, accompanied by three to four ounces of concentrated protein (nuts and seeds) as being the most satisfactory." He says we should attempt to secure our nutrients from a wide variety of foods, though, obviously, not at the same meal.

True that protein deprivation has to be prolonged and extreme in order to produce obvious signs of its inadequacy. Dr. Burton also makes the point that the varying needs and capacities of individuals must dominate in establishing requirements.

Eat a variety of Hygienic foods. Overeating of citrus and other fruits may be more easily avoided if it is thoroughly understood that a meal program which includes a variety of Hygienic foods, including fruits, nuts and seeds, green leafy vegetables, and sprouted seeds, is the best road to optimal nutrition.

It is not difficult to fall into the trap of the overeating of fruits. They are the most delightful of foods. They are also among the finest and best of foods, if properly used.

In many respects, I empathize and even tend to agree with those who maintain that the delights and nutritional value of fruits are unsurpassed. If, in addition, nuts, seeds and sprouts, and chlorophyll-rich green leaves are not neglected, optimal nutrition would be assured.

Dr. Esser really brings it all together with this sage observation: "Fruits and nuts are the perfect foods for man, but in the civilized areas of the world it is virtually an impossibility to obtain a sufficiently rounded supply for perfect nutrition and health. Therefore it is necessary to supplement them with vegetables. It will be found that vegetables are delicious and succulent."

I know it was a great relief to me, after my 29-day fast, when I was (after almost two weeks on fruit juices and fruits) at last given something to eat that was not sweet. When I was permitted to have at least one salad meal every day, with nuts or avocado or coconut or raw sweet corn, my improvement, weight gain and energy multiplied.

Recap: Monotrophic fruit meals are excellent; a total, diet of monotrophic meals is not advisable. Since the usual monotrophic meal consists of one kind of fruit or melon, it would seem that at least one meal daily (or, at the very least, one meal every second day) should consist of several salad vegetables and a protein (or possibly a starch).

But keep it simple! The less complex our food mixtures, and the simpler our meals, the more efficient will be our digestion, 'and the better our health. Few foods at a meal, with sufficient variety of different types of foods over the period of several meals to insure that the body gets all the nutrients it needs, is the ideal Hygienic food program.

Relationship of the diet to the acid-alkaline balance of the body: In general, the diet should consist of at least 75% alkaline-reacting foods and 25% or less of acid-forming foods. Most foods with high protein content are acid-forming. Adherence to a varied Hygienic diet, and to the other principles of Natural Hygiene (especially regular, vigorous exercise) will enable your body to adequately monitor its own acid-alkaline balance, since there is a buffer action in the organism which serves to maintain an equilibrium between alkalinity and acidity. Minerals play an important part in the regulation of this function.

Animal proteins, which contain sulfur, uric acid and other acid end-products, tend to leach the tissues of their alkaline salts. These alkaline salts (minerals) are particularly needed by the cells to buffer and render such end-products less acid, and thus less irritating to the cells and tissues.

The alkaline properties of vegetable and nut proteins help to maintain the acid-alkaline balance of the body. Thus, correct eating (and exercise) are the keys in maintaining the acid-alkaline balance. Eating vegetables helps to maintain your acid-alkaline balance. If only fruits are eaten, the balance tends to swing to the alkaline side eating only proteins swings it to the acid side. Bananas are neutral if you are in good health, but otherwise they are slightly alkaline.

4.3 Monotrophic Diets as "Elimination Diets"

"Elimination diets," which can be mono-diets, are often referred to under the misnomers "juice fasts" or "fruit fasts." Diets that are not stressful on the body and allow it to better perform its eliminative functions are sometimes useful when urgent symptoms require the temporary cessation of normal food intake, and it is not possible to go to bed and fast. However, the substitution of a long-term juice or fruit diet, when a fast is indicated, may be unwise and wasteful of the body's energy, because this does not accomplish the striking long-term benefits of the fast with nothing but distilled water. Nevertheless, a temporary juice diet or fruit diet may be indicated in some cases. If serious problems exist, a professional Hygienist can help to make this choice or decision.

There are other types of "elimination diets" (some not monotrophic) that are sometimes prescribed where a fast must be postponed, or should not be undertaken at the particular time.

"Elimination diets" are low in proteins, carbohydrates and fats. This causes the cells to use stored reserves to meet their requirements. During such a diet, the body can eliminate toxic matters and accumulated wastes, but never as efficiently or thoroughly as it would during a fast. The fast is always more efficacious in eliminating toxic wastes than is any kind of elimination diet. Greater benefit can be expected from one week of a complete fast than from two or three weeks of an elimination diet.

Further, a mono diet (the use of one food only—such as citrus, grapes or watermelon) may result in the production of imbalances in the body. During a total fast, the body is better able to monitor its own nutrition in a more balanced manner from the use of nutriments stored in the body.

A total fast increases metabolic efficiency. For example, the process of energy release from glucose (stored as glycogen in the liver) which is at 25% efficiency when eating, is increased to 45°/o efficiency when fasting (according to Dr. Alec Burton).

On a monotrophic diet, there is often a tendency to feel hungry and unsatisfied, while, during a total fast, hunger pangs usually disappear.

As you can see, the uses of monotrophic diets are limited. (See Dr. Vetrano's article "Mono-Eliminating Diets".)

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5. Application Of The Food Combining Rules

You will note that the discussion of a particular food combining rule will frequently overlap and dovetail with other food combining rules, since they are all closely interrelated.

Since starch digestion begins in the mouth with the action there of the enzyme ptyalin and requires an alkaline or neutral medium—while protein digestion begins in the stomach, where acid enzymes are secreted when protein is eaten—the first two and most important food combining rules seem obvious.

5.1 Carbohydrates with Acids or Proteins

1. *Never eat carbohydrate foods and acid foods at the same meal.*
2. *Never eat a concentrated protein and a concentrated carbohydrate at the same meal.*

Carbohydrates include starches, sugars and cellulose. Lesson 22 demonstrated in great detail how incompatible combinations such as protein with carbohydrates reduce and inhibit the efficiency of digestive enzymes and subject the foods to decomposition in the digestive tract.

Some illustrations of combinations at the same meal which can produce this abortive effect are:

- Potatoes or other starchy vegetables with tomatoes or other fruit
- Starchy vegetables with nuts or other concentrated proteins
- Grains or legumes with tomatoes or other fruit
- Grains or legumes with nuts or other concentrated proteins

This means that when people eat meat and potatoes together, or a meat sandwich, they are not only consuming foods that cause problems when eaten separately (meat, bread), they are also compounding the problem by ingesting them at the same meal with foods that require different conditions for digestion.

Tomatoes (acid fruit without the sugar content of other acid fruits) may be used with the vegetable salad or with any green or nonstarchy vegetable. They may also be eaten with protein/fat foods like nuts, cheese and avocados.

This seems to contradict Food Combining Rule No. 6, prohibiting the acid-protein combination. However, in actual practice, most Hygienists do use tomatoes with nuts and avocados rather freely. Both Dr. Shelton and Dr. Vetrano have come to consider these combinations acceptable and even desirable.

But Food Combining Rules Nos. 1 and 2 are extremely important, and there is general agreement among Hygienic professional and lay people that acids should not be used with starches nor with foods which combine concentrated starches with concentrated proteins (grains, legumes).

Since soy beans are higher in protein and fat, but lower in carbohydrates than other beans, there might be some possibility of combining them with tomatoes. I have experimented with this combination and have rejected it for my own use.

Any meal which includes cooked starches, or any cooked food, should begin with a large green salad. If you do use cooked foods, you should *always* use some raw food at the same meal, preferably as the first course.

Foods in the slightly starchy category, such as carrots, are best used with starchy vegetables like potatoes. When eating starch/protein foods, such as rice or beans, it is best to use green or nonstarchy vegetables only. Green and nonstarchy vegetables contain very small amounts of proteins and carbohydrates, and thus will not further complicate the digestion of the combination foods.

5.2 Some Examples of Percentages of Protein and Carbohydrate Content Of Various Categories of Foods

		Protein Content	*Carbohydrate Content*		
Concentrated Protein Foods:	*Almonds*	18.6%	19.5%		
		Sunflower Seeds	24%	19.9%	
			Cashews	17.2%	29.3%
Starch/Protein Foods	*Brown Rice*	7.5%	77.4%		
		Wild Rice	14.1%	75.3%	
			Fresh Coconut Meat	3.5%	9.4%

Starchy Vegetables	*Yam*	2.1%	23.2%		
		Potato	2.1%	17.1%	
Mildly Starchy Vegetables	*Winter Squash*	1.4%	12.4%		
		Carrot	1.1%	9.7%	
Nonstarchy Vegetables	*Cauliflower*	2.7%	5.2%		
		Summer Squash	1.1%	4.2%	
			Romaine Lettuce	1.3%	3.5%
Sweet Fruits	*Banana*	1.1%	22.2%		
		Dried Date	2.2%	72.9%	
Subacid Fruits	*Apple*	.2%	14.1%		
		Peach	.6%	9.7%	
Acid Fruits	*Orange*	1.0%	12.2%		
		Pineapple	.3%	13.7%	

Composition and Facts About Foods, by Ford Heritage, lists the protein and carbohydrate content of most common foods. You need not become an expert on these fine points, unless that is your desire. The food classification and food combining charts in this lesson will be adequate to help you to become enough of an expert in the food combining system to enable you to plan properly combined meals, and to teach others to do the same.

5.3 Examples of Menus That Do Not Violate Food Combining Rules No. 1 and 2

1. No Carbohydrate with Acid
2. No Carbohydrate with Protein

Carbohydrate Menus (No Acid or Protein)	*Protein Menus* (No Carbohydrates)
Bibb lettuce	Romaine lettuce
Celery	Celery

Cucumber
Sweet potatoes (raw or cooked)
Water chestnuts

Tomatoes
Raw broccoli
Pecans

Romaine lettuce
Sweet pepper
Edible pod peas
Sweet corn (raw or steamed)

Boston lettuce
Sweet red pepper
Tomatoes
Kale (raw or steamed)
Sprouted sunflower seeds

Boston lettuce
Raw carrots
Brussels sprouts (raw or steamed)
Potatoes (steamed or baked)

Young, sweet cabbage
Cucumber
Alfalfa sprouts
Tomatoes
Cashews

Celery or cabbage
Raw turnips
Green beans (raw or steamed)
Raw yellow squash
Cooked rice

Ruby leaf lettuce
Celery
Raw zucchini squash
Soy bean sprouts

5.4 Examples of Menus That Violate Food Combining Rules No. 1 and 2

1. No Carbohydrate with Acid
2. No Carbohydrate with Protein

Boston lettuce
Sweet pepper
*Tomatoes
*Sweet potatoes

NO-NO! (Acid with starch)

Bibb lettuce
Celery
*Peaches
*Sweet corn
*Almonds

NO-NO! (Starch with protein, fruit with starch, fruit with protein)

Romaine lettuce Celery Broccoli *Oranges *Jerusalem artichoke	NO-NO! (Acid fruit with starch)
Cabbage Cucumber *Tomatoes *Lentil sprouts *Rice	NO-NO! (Two combination starch/protein foods; acid with combination foods)
Leaf lettuce Celery *Dates *Pecans	NO-NO! (Sweet fruit with Protein)
Cabbage Celery Alfalfa sprouts *Potatoes *Sunflower seeds	NO-NO! (Starch with protein)
Bibb lettuce Cucumber Sweet pepper *Millet *Cashews	NO-NO! (Protein with combination starch/protein food)
Ruby leaf lettuce Cabbage Yellow squash *Acorn squash	NO-NO! (Starch with combination protein/starch food)

*Soy beans

5.5 Protein-Protein Combinations

3. *Never consume two concentrated proteins at the same meal.*

Gastric acidity, and type, timing and strength of secretions for various proteins are not uniform. Therefore, do not combine nuts with cheese, nor any of the following concentrated protein foods with each other: nuts, avocado, soy beans, cheese, eggs, flesh foods.

Alfalfa sprouts, which are considered a green vegetable, may be used with a concentrated protein.

For optimal digestive efficiency, only one variety of nuts or seeds should be used at a sitting, but, if digestive problems are not a factor, it may be possible to eat two or three varieties together without harm. Some personal experimentation in this area is indicated. You may desire to combine one variety of seeds with one variety of nuts, or not to use high-fat nuts like brazils or macadamias by themselves. I have had good results in combining such high-fat nuts with lower-fat nuts or seeds. It might also be useful to combine expensive nuts like macadamias or pignolias with lower-priced nuts or seeds, in order to be able to afford the indulgence and variety of including the higher-priced nuts in the diet.

Some high-fat nuts are:

Macadamias	71.6% Fat
Brazils	66.9% Fat
Pecans	71.2% Fat

Some lower-fat nuts and seeds are:

Almonds	54.2% Fat
Pignolias	47.4% Fat
Sunflower seeds	47.3% Fat
Pumpkin seeds	45.8% Fat
Sesame seeds	52.2% Fat

Do not combine cashews with other nuts; the cashew is a part of the cashew apple and is not a true nut. It has a higher carbohydrate content than true nuts, having 29.3% carbohydrate and 17.2% protein. By contrast, for example, the almond has 19.5% carbohydrate and 18.6% protein.

Actually, the cashew is the pistil of the cashew apple. The whole raw cashew has within its shell a thick caustic liquid. In preparing cashews for marketing, they are "parched" to dissipate the acid, and then shelled. While not exactly "raw", they have not been subjected to the "roasting" (deep-frying) given "roasted nuts", and are considered good Hygienic food. They are combined in the same manner as nuts and can be eaten with a salad.

Peanuts, of course, are not nuts. They are combination starch/protein foods, and are combined as starch.

If you experience any problems in learning to eat and digest nuts, it would be best to use only one variety at a sitting. Start out with small quantities, one to two ounces, and use only with salads. If you do have problems with nuts, experiment and find those you handle best and use mostly those. You will eventually build, up your nut-digesting ability and be able to use more varieties.

Most people have no problem with sunflower seeds. Those who do can begin by using them slightly sprouted. Just soak overnight, drain and let them progress until just a small sprout is showing. Complete sprouting instructions will be given in Lesson 26, Preparing and Serving Foods.

Although the pecan is a high-fat nut, it is easy to chew and seems to agree with most people. Cashews are also easy to chew and most people enjoy the sweet taste.

Almonds are valuable nuts, and have a somewhat alkaline reaction, whereas other nuts have the acid reaction commonly found in protein foods. However, they are hard and more difficult to masticate thoroughly. Problems may be avoided by thoroughly masticating and insalivating these nuts.

It does not seem necessary to give examples of menus which do or do not violate Food Combining Rule No. 3. It should suffice to repeat: eat but one protein food at a meal, and do not combine nuts, avocados, soy beans, cheese, eggs or flesh foods with each other.

5.6 Protein-Fat Combinations

4. *Do not consume fats with proteins.*

For the conventional eater, this means do not use cream, butter or oil with meat (any flesh foods), eggs, cheese or nuts. For the budding or experienced Hygienist, the fat foods are avocados and nuts. Of course, nuts are also a principal protein food. Avocados also contain small amounts of excellent protein. Since the Hygienic "fat" foods are really protein/fat foods, it would certainly be inadvisable to add more fat to the meal. You learned in Lesson 22 that fat has an inhibiting influence on digestion. We have also emphasized that we do not use two proteins at the same meal. So, it is obvious you would not use nuts and avocados at the same meal. This would also apply to cheese, if you use it—do not use cheese with avocados or nuts.

However, in implementing the "no protein-fat combination" rule, it must also be borne in mind that you should not use cream, butter or oils with protein foods, whether they are protein/fat foods (which most of them are) or whether they are among the few low-fat protein foods (legumes, skim milk cheese, lean meat).

5.7 Menus That Do Not Violate Food Combining Rule No. 4 No Fat with Protein

Boston lettuce
Celery cabbage
Cucumber
Pecans

Sweet, young cabbage
Cucumber
Sweet pepper
Alfalfa sprouts
Cheese

Romaine lettuce

Kale

Cucumber
Celery
Tomato
Avocado

Cucumber
Celery
Soy pecan sprouts

5.8 Menus That Violate Food Combining Rule No. 4

Cabbage
Tomato
Celery NO-NO! (A fat/protein with a protein/fat)
*Avocado
*Pecans

Boston lettuce
Celery cabbage
Tomato NO-NO! (Two protein/fat foods)
*Cheese
*Walnuts

Leaf lettuce
Kale
Cucumber
Celery NO-NO! (Fat added to high protein combination food)
*Cooked soy beans with butter added

Romaine lettuce
Sweet pepper
Broccoli NO-NO!(A protein/fat food with a fat/protein)
*Cheese
*Avocado

5.9 Fats in Combination with Other Foods

5. *Use fats sparingly.*

Too much fat taken with a meal results in discomfort and digestive problems. The best way to use fats, in moderation, is with raw green vegetables. If fats are used with other foods, adding raw green leafy vegetables to the meal will help to counteract the inhibiting effect of fats on gastric secretion.

In Lesson 22, it was pointed out that the use of avocados (low protein/fat) with starch is considered fair, provided a green salad is included with the meal. Nuts (high protein/fat) are not used with starch. The best way to use avocados or nuts is with the salad meal.

We also concluded that, while the use of avocados with subacid or acid fruit is ordinarily considered only a fair combination, it has been found that including salad vegetables, especially lettuce and celery, in the avocado/fruit meal enhances its digestion, and it becomes a quite acceptable combination.

5.10 Menus, That Do Not Violate Food Combining Rule No. 5 Fats with Other Foods

Bibb lettuce
Celery cabbage
Cucumber
Tomato
Avocado

Leaf lettuce
Celery
Cucumber
Potato (steamed or baked)
Avocado

Romaine lettuce
Celery
Sweet pepper
Alfalfa sprouts
Avocado

Peaches
Apples
Lettuce
Celery
Avocado

In the above menus we are using avocado only as an example of the correct combining of fat. We are not using nuts (high protein/fat) as examples of fat with other foods, because when we combine nuts with other foods, their protein content is our primary concern. As for other fats (butter, oil, etc.), they do not really belong in a list of Hygienically correct menus.

5.11 Menus That Violate Food Combining Rule No. 5 Fats with Other Foods

Cucumber Green beans *Steamed potato with butter *Avocado	NO-NO! (Two foods high in fat)
Bananas *Dates *Avocado	NO-NO! (A fat/protein with dried sweet fruit—this would be somewhat better if lettuce and/or celery were included.)
Carrots	NO-NO! (Two foods high in fat)

Buttered cooked sweet
corn
Avocado

Salad with oil dressing
Rice NO-NO! (Two foods high in fat)
Avocado

5.12 Acid-Protein Combinations

6. Do not eat acid fruits with proteins.

There is some variation in practice as to the use of citrus or other acid fruit with nuts. Dr. Vetrano has discontinued this practice, but it is still used by other Hygienic professionals and lay people. Those with digestive problems should certainly avoid this combination. The student should carefully re-read the text of Food Combining Rule No. 6 (in Lesson 22) for an understanding of this subject.

Those with unimpaired digestions can probably decide on an individual basis whether they should experiment with this combination. The choices would be (a) no citrus with nuts, (b) eat citrus, wait one-half hour to one hour before eating the nuts, and (c) eat the citrus and nuts together. The best practice is (a), because it is not good Hygienic practice to eat a meal in "relays."

If you do use citrus and nuts at the same meal, it would be a good idea to include some lettuce and/or celery.

The same reasoning would also apply to other acid fruits, such as pineapple, strawberries, tart apples, etc. The less sugar they contain, the less objection there is to combining them with nuts.

The same reasoning would apply to the use of citrus or other acid fruits with other protein foods, such as avocado or cheese.

People who use eggs or flesh foods should avoid the use of any fruit at the same meal. The use of these foods causes enough problems without also adding the extra problems of combining the fruit acids and sugars with the flesh foods.

Sour salad dressings and acid fruit drinks are bad with any meal, but are particularly bad with protein meals because they check hydrochloric acid secretion.

5.13 Menus Illustrating Food Combining Rule No. 6 Acid Fruits with Proteins

Good Combinations

Lettuce
Celery
Tomato
Brazil nuts (or other nuts, or avocado, or cheese, if you use it)

Fair Combinations

Lettuce
Kiwi fruit
Almonds

Lettuce
Grapefruit
Avocado

Somewhat tart oranges, pineapple, strawberries or apples, combined with nuts, avocado or cheese would also be fair combinations.

Bad Combinations

Very sweet oranges, pineapple, strawberries or other fruit, combined with nuts, avocado or cheese would be bad combinations (too much sugar with protein).

5.14 Sugar with Starch, Protein, Acid Fruit

7. *Do not combine sweet fruits with foods that require a long digestion time—such as proteins, starches and acid fruit.*

Sugar with protein, starch or acid leads to fermentation, a sour stomach and discomfort. When protein or starch foods are combined with sugars, they may remain in the stomach almost twice as long as is normal. Use sweet fruits only as indicated in Food Combining Rule No. 10.

The same principle applies to the use of any sugar, honey, molasses or syrup, which are especially prone to ferment if used with mixed meals. Of course, these types of sugars should not be used at all—with anything. Refined sugar robs the body of B-vitamins and throws a "monkey-wrench" into the digestive machinery. The other "sweeteners" are almost as bad. A future lesson will discuss in detail the harmfulness of sweeteners.

5.15 Menus That Do Not Violate Food Combining Rule No. 7

Sweet Fruits with Foods Requiring a Long Digestion Time

Lettuce
Grapes
Bananas

Lettuce
Sweet mangos
Persimmons

Celery
Cherries
Delicious apples
Dates

Celery
Lettuce
Pears
Peaches
Raisins

5.16 Menus That Violate Food Combining Rule No. 7

Sweet Fruits with Foods Requiring a Long Digestion Time

Jonathan apples Strawberries Bananas	NO-NO! (Acid fruit with sweet fruit)
Plums Oranges Dates	NO-NO! (Acid fruit with sweet dried fruit)
Sweet corn Persimmons Figs	NO-NO! (Starch with sweet fruit)
Apples Raisins Pecans	NO-NO! (Protein with sweet fruit) (Many people have said they like to eat this combination, but it should be avoided, as it is quite incompatible.)

5.17 Starch-Starch Combinations

8. *Eat but one concentrated starch at a meal.*

This rule may be important principally as a means of avoiding overeating of starches, but it is a good rule to follow. Never combine a concentrated starch with a combination food (starch/protein food) such as grains or legumes. Never combine two combination foods at the same meal (such as rice with beans).

Slightly starchy foods may be combined with concentrated starches but not with combination foods. Potatoes with carrots, green beans and a large green salad is a good combination (if you are using cooked food). Brown rice would be better combined with broccoli, yellow squash and a salad.

Two mildly starchy vegetables may be combined if no concentrated starch is used, e.g., globe artichokes and carrots, or beets and edible pod peas.

5.18 Menus That Do Not Violate Food Combining Rule No. 8 One Concentrated Starch at a Meal

Ruby lettuce
Carrots
Celery
Raw Broccoli

Celery cabbage
Cucumber
Edible pod peas

Globe artichoke

Sweet corn (raw or cooked)

Cabbage
Sweet pepper
Cucumber
Green beans (raw or cooked)
Potatoes

Bibb lettuce
Celery
Cauliflower (raw or cooked)
Yams (raw or cooked)

Romaine lettuce
Celery
Sweet pepper
Cauliflower (raw or cooked)
Butternut squash

Boston lettuce
Cucumber
Water chestnuts
Parsnips

5.19 Menus That Violate Food Combining Rule Nr. 8 One Concentrated Starch at a Meal

Bibb lettuce
Sweet pepper
Kale
*Sweet corn
*Potatoes

NO-NO! (Too much starch—unless corn is young, green and freshly picked)

Celery cabbage
Cucumber
*Cauliflower
*Acorn squash
* Jerusalem artichokes

NO-NO! (Too much starch)

Leaf lettuce
Celery
Broccoli
*Sweet potatoes
*Rice

NO-NO! (Starch with combination starch/protein food)

Cabbage
Celery
Cucumber
Zucchini squash1
*Potatoes
*Chestnuts

NO-NO! (Starch with combination starch/protein food)

5.20 Acid Fruits, Subacid Fruits, Sweet Fruits

9. *Acid fruits may be used with the less sweet subacid fruits.*

Tomatoes should not be used with subacid fruits. The acid fruits are those with the tart flavors (see Food Classification Chart in this lesson). The less sweet subacid fruits are some grapes (those which are neither sweet nor sour), some varieties of apples, most mangos, and any fruit on the subacid list which is not really sweet.

5.21 Menus Illustrating Food Combining Rule No. 9

Good Combinations

Lettuce
Oranges
Apples

Celery
Pineapple
Peaches (if not sweet)

Lettuce
Strawberries
Plums (if not sweet)

Bad Combinations

Tomatoes
Bananas

NO-NO! Acid with sweet fruit

Grapefruit
Sweet cherries

NO-NO! Acid with sweet fruit

Oranges
Delicious apples

NO-NO! Acid with sweet fruit

5.21 Acid Fruits, Subacid Fruits, Sweet Fruits

10.*The sweeter subacid fruits may be used with sweet fruits.*

The sweeter subacid fruits are any fruits on the subacid list that have a marked sweet taste. See Food Classification Chart for a list of the sweet fruits. Dried sweet fruits should be used sparingly—one kind at a meal—and in small quantities.

5.22 Menus Illustrating Food Combining Rule No. 10

Good Combinations

Lettuce
Delicious apples
Bananas

Lettuce
Pears
Persimmons

Celery
Sweet grapes
Dates

Celery
Papayas
Figs

Bad Combinations

Tart apples
Bananas
NO-NO! (Acid with sweet fruit)

Tart mangos
Dates
NO-NO! (Acid with sweet fruit)

Tart grapes
Persimmons
NO-NO! (Acid with sweet fruit)

Tart peaches
Figs
NO-NO! (Acid with sweet fruit)

5.23 Fruits with Vegetables

11.*Do not combine fruit with any vegetables other than lettuce and/or celery.*

Lettuce and celery combine well with all types of fruit except melon. It is best to use two to four varieties of fruit at a fruit meal, plus lettuce and/or celery. These green leafy vegetables may even enhance digestion of the fruit.

Menus Illustrating Food Combining Rule No. 11

Good Combinations

Lettuce
Celery
Sweet grapes
Pears
Bananas

Lettuce
Sweet apples
Sweet cherries
Fresh figs

Celery
Papayas
Sweet peaches
Persimmons

Bad Combinations

Broccoli
Yellow squash
Apples
Dates

NO-NO! (Fruits with vegetables other than lettuce and celery)

Lettuce
Pears
Sweet corn
Bananas

NO-NO! (Fruits with vegetables other than lettuce and celery)

Lettuce
Blueberries
Green beans
Potatoes

NO-NO! (Fruits with vegetables other than lettuce and celery)

5.24 Fruits with Vegetables

12.*Salads combine very well with either proteins or starches.*

Green leafy vegetables combine well with most other foods. They are excellent food and should be used in abundance. Do not combine any vegetables with melon.

A large daily salad is an excellent part of your food program. The dark green leafy vegetables are the best for salad—Romaine, Boston, leaf or Bibb lettuce, green celery—to which may be added cucumbers, sweet peppers, raw broccoli, raw turnips or raw cauliflower. Raw carrots may be added if u is a starch meal; tomatoes may be added if no starch or combination foods are included in the meal.

5.25 Menus Illustrating Food Combining Rule No. 12

Good Combinations

Lettuce
Celery cabbage
Cucumber
Tomatoes
Nuts

Lettuce
Celery
Sweet pepper
Raw broccoli
Avocado

Lettuce and/or celery with any fruit

Bad Combinations

Lettuce
Celery NO-NO! (Do not combine salad vegetables with melon)
Watermelon

Tomatoes
Celery cabbage NO-NO! (Do not combine salad vegetables with melon)
Honeydew melon

5.26 Melons

13.*Do not consume melons with other foods.*

They do not combine well with any food, except, perhaps, with certain fruits. Those with unimpaired digestions may wish to experiment with the use of grapes or other subacid fruits with melon. It is really best to take melon alone, especially watermelon. Melon decomposes much more quickly than other fruits and, if held up in the stomach awaiting the digestion of other foods, will decompose and cause gastric distress.

Never eat watermelon with nuts. There are a number of different kinds of melon, and it is better to eat your fill of one kind as one meal.

I am not giving any examples of melon with subacid fruits. 1 do not really recommend using melon with any other foods, since 1 believe this is a good rule for most people. Those who wish to experiment with the use of melons with subacid fruits should do so very carefully, testing one subacid fruit (in small amounts) at a time. (See Dr. Vetrano's comments on this subject.)

5.27 Sprouts

14.*Alfalfa sprouts may be combined as a green vegetable.*

Other sprouts should be classified somewhat in the same category as the original seed, even though the protein and carbohydrates are less concentrated. (Review the discussion of sprouts in Lesson 22.)

Classification of Sprouts for Purpose of Food Combining

Alfalfa seeds, sprouted	Green vegetable
Mung beans, sprouted	Green vegetable protein/starch (combine as starch)
Grains, sprouted, sprouted	Mildly starchy combination foods
Sunflower seeds	Protein
Soy beans, sprouted	Protein
Lentils, sprouted	Protein

5.28 Menus Illustrating Food Combining Rule No. 14

Good Combinations

Tomato
Lettuce
Alfalfa sprouts
Nuts

Celery
Cucumber
Avocado
Mung bean sprouts

Cabbage
Sweet pepper
Broccoli
Sprouted soy beans

Lettuce
Celery
Cauliflower
Green beans
Sprouted wheat

Bad Combinations

Lettuce
Cucumber

NO-NO! (Protein with combination food)

Sprouted mung beans*
Nuts*

Celery
Sweet Pepper
Sprouted rye*
Nuts*

NO-NO! (Protein with combination food)

Cabbage
Celery
Sprouted sunflower seeds*
Potatoes*

NO-NO! (Protein with starch)

Lettuce
Tomatoes*
Lentils, sprouted*
Rice*

NO-NO! (Acid and protein with combination food)

5.29 Milk, Clabber and Yogurt (Not Recommended)

15.*Milk is best taken alone.*

This rule is included because it is one of Dr. Shelton's food combining rules, and because this lesson may be helpful to those still on a mixed diet. Please review the text in Lesson 22 on Food Combining Rule No. 15. I hope you will decide not to use milk, clabber or yogurt.

I am not including menus for the best ways to combine these foods, but will simply say they are best used alone, but are a fair combination with acid or subacid fruit.

5.30 Good, Fair, Poor and Bad Combinations

- Good combinations are good for the weakest digestion.
- Fair combinations are permissible for those with unimpaired digestions.
- Poor combinations should only be used by people with the best digestions, and then rarely (or they may lose their distinction of possessing the "best" digestions).
- Bad combinations are so bad that no one should ever use them.

5.31 Examples

Good combinations

Golden Delicious apples
Thompson seedless grapes
Lettuce and celery
Bananas

Lettuce
Cucumber
Sweet peppers
Alfalfa sprouts
Nuts

Fair Combinations

Jonathan apples
Pears
Lettuce
Avocado
(Avocado with fruit)

Lettuce
Cabbage
Green beans
Potatoes
Avocado
(Avocado with starch)

Poor Combinations

Cherries
Lettuce
Avocado
Soaked dried apricots
(Avocado with dried sweet fruit—the fact that it has been soaked and that lettuce is included with the meal improves it somewhat.)

Celery cabbage
Cucumber
Mung bean sprouts
Nuts
(It would be better to use alfalfa sprouts with nuts.)

Bad Combinations

Grapes
Avocado
Bananas
Dates
(Concentrated fat with too much concentrated sugar.)

Lettuce
Celery
Cabbage
Rice
Potatoes
(Starch with combination starch/protein food)

5.32 Discrepancies

You may detect discrepancies if you compare the different food charts and classifications of foods as interpreted by various authors and professionals. For instance, you may see butternut or acorn squash listed by one author as starchy, and mildly starchy by another author.

If you are really concerned about it, you can refer to *Composition and Facts About Foods*, by Ford Heritage, or *Composition of Foods*, Department of Agriculture Handbook No. 8. You can then make your own decision.

Sweet potatoes with 26.3% carbohydrates, yams with 23.2% carbohydrates and potatoes with 17.1% carbohydrates are all considered starchy foods. Carrots with 9.7% carbohydrates and beets with 9.9% carbohydrates are considered mildly starchy. Winter squash (butternut, acorn, etc.) has 12.5% carbohydrates. Would you classify it with the 17.1% potatoes or the 9.9% beets? It's not too important, since starches may be used together, if desired, provided the total quantity of starch at the meal does not exceed, say, 15% of the meal.

Cauliflower, with only 5.2% carbohydrates, is listed by some as mildly starchy, yet its carbohydrate content is less than that of broccoli or brussels sprouts.

Another case in point is the coconut. Dr. Esser classified it as protein, but Dr. Shelton combines it as starch. It is actually a combination food, and is usually combined as a starch. But when we look it up in the food charts, we find that fresh coconut contains 9.4% carbohydrate and 3.5% protein; dried coconut contains 23% carbohydrate and 7.2% protein.

By comparison, almonds contain 19.5% carbohydrate and 18.6% protein; pecans 14.6% carbohydrate and 9.2% protein; these, of course, are classified as protein foods.

Brown rice contains 77.4% carbohydrate, 9.6% protein; fresh lima beans contain 22.1% carbohydrate and 8.4% protein; these are combination foods, and are combined as starch.

It seems to me that the coconut, with three times as much starch as protein, should be combined as starch. But, since fresh coconut only has 9.4% carbohydrate, perhaps the idea that its starch content is unimportant is a valid one. What do you think? My own method is to think of it as a combination food, and I don't use tomatoes or other acid fruits with coconut—it seems the safest interpretation.

If you see other such discrepancies, you may either disregard them and use the food either way, or, if you are uncomfortable about it, get a reference book and look it up. It can be a great satisfaction to resolve such discrepancies in your own mind by tracking down the correct information.

You may also occasionally come across an error in food combining charts; for example, on page 321 of *The Hygienic System, Volume II*, in one place starch is said to be a bad combination with subacid fruit and in another place on the chart, it is said to be a fair combination. I would say that the use of any fruit with starch would be contraindicated.

The food combining charts in this lesson are as accurate as I could make them, and I hope they will be helpful to you and your students.

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6. Trying Too Hard

6.1 Take It Easy!

Don't try so hard that you become nervous and anxious. Do the best you can. Avoid the worst combinations (dates or bananas with nuts, potatoes or grains with tomatoes, or grain with nuts) and everything else will gradually fall into place.

Occasional indulgence in incorrect food combinations is no cause for anxiety, even though it is not ideal—a healthy body can cope with occasional exceptions. It is what we do daily, habitually, that will make the difference.

Don't make food the focal point of your life. Above all, the student should not become overly preoccupied with food. Eat your meal and forget it. Let your friends eat their foods and don't give them a lecture at the dining table. You may have to parry their questions about your eating habits by explaining that you don't like to enter into these discussions at mealtime, but will be happy to answer their questions afterwards.

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7. Your Social Life

If you take a moderate attitude, the enjoyment of dining out, entertaining or eating at a friend's home need not be eliminated from your life. Sometimes, with good planning, little or no compromise will be necessary.

Do your best at home, and partake, somewhat selectively, when with your friends. Even if you decide to "go all the way" in Natural Hygiene for optimal health, and never make exceptions at home, it is not necessary to act superior and critical when in company. You can partake enough not to be too conspicuous without really hurting yourself. Just be alert not to carry your indulgences too far, or to loose sight of your goal. You might even find that your friends respect you and are interested in your desire to cooperate with the needs of your body.

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8. Your Family

As for your family, their participation in proper food and good food combining is up to them. You can make better food available, but don't try to force them to eat anything or to eat in a particular way. They may gradually want to follow your example, or they may never do so. It's not all that hard to provide simultaneously for your needs and theirs. It's certainly worth the effort if it's going to improve your health.

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9. Looking Forward

As you progress in Natural Hygiene, your understanding and application of Hygienic principles will become increasingly synchronized, and you will find it easier today than yesterday, and easier tomorrow than today!

10. Food Classification Charts

10.1 Proteins

Nuts

Pecans
Almonds
Brazil nuts
Filberts or hazelnuts
English walnuts, butternuts, heart nuts
Black walnuts
Macadamias
Pistachios
Pignolias (Pine nuts)
Indian nuts
Beechnuts
Hickory nuts
Cashews

Other Plant Proteins

Soy beans (fresh, dry or sprouted)
Sunflower seed sprouts
Lentil sprouts
Garbanzo sprouts

Low Protein

Avocados (may also be classified as a fat and as a neutral fruit)
Olives
Milk (not recommended)

Green Vegetable Proteins** (Combine as Starch)

Peas in the pod
Lima and other beans in the pod
Mature green beans in the pod
Mung bean sprouts*

* Mung beans sprouted to green leaf stage—green vegetable starch/protein
** Classified as starches for purposes of food combining

Seeds

Sunflower seeds
Sesame seeds
Pumpkin and squash seeds

Animal proteins (not recommended)

Cheese (raw milk or unprocessed)
Eggs
All flesh foods except fat

Starchy proteins * * (not recommended)
(Combine as starch)

Beans:
Peas
Lentils
Peanuts
Chestnuts

All grains:
Wild rice
Rice
Buckwheat
Millet
Wheat
Rye
Barley

Sprouts (contain significant amounts of protein, especially in early stages)

Soy sprouts (Combine as protein)
Lentil sprouts (Combine as protein)
Sunflower seed sprouts (Combine as protein)
Alfalfa sprouts (may be combined as green vegetable)
Mung bean sprouts*
All seed, bean & grain sprouts
Combine seed & bean sprouts as protein —except alfalfa
Combine grain sprouts as mildly starchy

* Mung beans sprouted to green leaf stage—green vegetable starch/protein

10.2 Starches

Starchy proteins (Classified as starches for purposes of food combining)

Peanuts
Chestnuts
Coconuts
Dry beans

Dry peas
Lentils
Peas in the pod
Lima & other beans in the pod
Mature green beans in the pod

All grains and all foods containing grains:
Wild rice
Brown rice
Buckwheat groats
Millet
Oats
Wheat
Rye
Barley

Starchy vegetables

White potatoes
Yams and sweet potatoes
Mature corn
Jerusalem artichokes
Parsnips*
Salsify (Oyster plant)*

Mildly starchy vegetables

Carrots
Globe artichokes
Beets
Rutabaga
Edible pod peas
Winter squash (acorn, butternut, hubbard, banana, etc.)*
Pumpkin*
Water chestnuts
Sprouted grains

* Parsnips (17.5% starch) and salsify (18%) are sometimes listed as mildly starchy or even nonstarchy vegetables, but since they contain as much starch as the potato (17.1%) they should properly be classified as starchy.

Winter squash (12.4%) and pumpkin (6.5%) are shown on some charts as starchy, but their starch content is quite a bit lower than potatoes (17.1%). 1 would consider them mildly starchy (or you could consider winter squash as borderline).

* Cauliflower is sometimes listed as mildly starchy, but with a starch content (5.2%) lower than broccoli (5.9%) and Brussels sprouts (8.3%), it properly belongs in the nonstarchy category.

10.3 Nonstarchy and green vegetables

Lettuce
Celery

Cabbage (young, sweet)
Celery cabbage
Cucumber
Cauliflower* (see * above)
Escarole (if not bitter)
Sweet pepper
Broccoli
Rappini (similar to broccoli)
Brussels sprouts
Kale
Collard greens
Dandelion greens
Turnip tops
Mustard greens (if young and mild)
Okra
Kohlrabi
Turnips
Eggplant
Green corn (if not mature, and if eaten less than 2 hours after picking)
Green beans (young & tender)
Zucchini (and all other summer squash)
Yellow crookneck squash (and all other summer squash)
Chayote
Bok choy
Alfalfa sprouts

Use seldom if at all— too high in oxalic acid (a calcium antagonist)

Spinach
Swiss chard
Beet tops
Rhubarb

Should not be used— contain concentrated acids & irritants

Bitter cabbage
Endive
Escarole

Contain mustard oil

Irritant foods (unless very young and sweet)— should not be used often or in large quantities

Parsley
Watercress
Chives
Scallions
Onions
Leeks
Radishes

Garlic
Mature mustard greens

10.4 Fats

Fats delay digestion—may take up to four to six hours. The need for fat is small, and the best sources are whole foods like nuts and avocados.

Recommended fats

Edible (protein/fat foods) seeds, nuts and avocados

These fats are not recommended

Not recommended, though used occasionally by some Hygienists.

Butter
Cream

All oils

(Oils are used occasionally by some Hygienists, but are not recommended. Use unrefined cold-pressed oils, preferably stable oils like olive and sesame oil, less likely to be rancid. Oils are fragmented, concentrated foods, and are best omitted)

Olive oil
Sesame oil
Sunflower seed oil
Corn oil
Peanut oil
Cottonseed oil
Safflower oil

All meat fats (not recommended)

Butter substitutes (not recommended)—oleomargarine and the hard white hydrogenated "vegetable" shortenings commonly used in frying and baking are particularly pernicious substances, which the body is not equipped to handle.

10.5 Sweet fruits

Fresh:
Bananas
Persimmons
Thompson grapes (seedless)
Muscat grapes
All sweet grapes
Fresh figs

Dry:
Dates
Figs

Raisins
Prunes
Apricots
Peaches
Apples
Cherries
Bananas
Litchi "nuts"
Carob
All dried fruit

Some unusual or tropical fruits not listed— sweet taste is a good indication of its classification.

10.6 Subacid fruits

Sweet apples (Delicious)
Sweet peaches
Sweet nectarines
Pears
Sweet cherries
Papayas
Mangos
Apricots
Fresh Litchi "nuts"
Sweet plums
Blueberries
Raspberries
Blackberries
Mulberries
Huckleberries
Cherimoyas
Some grapes (neither sweet nor sour)

Some unusual or tropical fruits not listed.

10.7 Acid fruits

Oranges
Grapefruit
Pineapples
Strawberries
Pomegranates
Lemons
Kiwi fruit
Kumquats
Loquats
Carambolas
Loganberries
Gooseberries
Cranberries (not recommended—they contain benzoic acid)

Limes Sour apples Sour grapes Sour peaches Sour nectarines Sour plums Sour cherries

Tomatoes—acid fruit, without the sugar content of other acid fruits. Used with vegetable salad or any green or nonstarchy vegetables, but not at a starch meal. May be used with nuts or cheese, but not with meat, milk or eggs. Some unusual or tropical fruits are not listed—acid (or sour) taste is a good indication of its classification.

10.8 Melons

Watermelon
Honeydew melon
Honey balls
Cantaloupe
Muskmelon
Casaba melon
Crenshaw melon
Pie melon
Banana melon
Persian melon
Christmas melon
Nutmeg melon

10.9 Syrups and sugars

Brown sugar
"Raw" sugar
White sugar
Milk sugar
Maplesyrup
Cane syrup
Corn syrup
Honey

None of these substances are recommended.

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11. Questions & Answers

How many mildly starchy vegetables may be used with a concentrated starch?

> Preferably only one, e.g., potatoes and carrots. However, if no concentrated starch is used at the meal, two (or perhaps even three) mildly starchy vegetables might be used together, e.g., globe artichokes, carrots and water chestnuts, together with a large green salad.

What percentage of a meal should be of concentrated proteins or starches?

> A small percentage, say 10 or 15%.

If I want to eat home-made bread, cake or pie occasionally, how should they be combined?

Cake or pie is such a conglomeration of ingredients, there is no way to properly combine them.

I have an 85-year-old mother who lives with me. How far should I go in trying to convince her to accept the Hygienic food program and food combining?

You can't (and shouldn't try to) force anyone at any age to eat your way. You should not nag elderly people to change their ways. If she is receptive to gentle persuasion, that is fine, but arguing about what foods she should eat may do more harm than good.

Why is it that conventional foods stay with me longer, and what can I do to feel more satisfied for a longer period of time between meals, so I can resist snacking?

First of all, to have foods "stay with you" is undesirable. When you eat a conglomeration of foods that are diffficult to digest, you have given your body a lot of work to do to try to get rid of the mess. No wonder you don't feel like eating again for a long time! Food mixtures that take many hours to digest are apt to ferment and cause problems When I first changed to a properly combined Hygienic diet, I noticed the "empty" feeling at certain times, but I soon came to realize that it was a good feeling to know that gastric digestion has been efficiently accomplished, and that the stomach would now have chance to relax and rest before it would have to deal with the next meal. The "empty" feeling doesn't necessarily signal the need for food.

Of course, it is unusual to feel "empty" very soon after a protein meal. My digestion has improved so much that I am delighted when my stomach feels empty 3 1/2 or 4 hours after eating nuts and a raw salad. In my earlier years of Hygienic eating, it took five or six hours or longer to achieve that happy state of "emptiness."

It is true that for those who feel more satisfaction and less desire for unwholesome foods after a meal that takes longer to digest, it might be advisable to have a protein meal at noon instead of in the evening. A properly combined protein meal will not cause the complicated problems common in digesting conventional meals, but it does remain in the stomach and intestines much longer than fruit or starch meals, thus giving people a satisfied feeling and preventing them from snacking on junk foods or sugars between meals.

In recent years, Dr. Vetrano served the protein/fat meal (nuts) at noon at the Health School. (See article, "Protein Meal at Noon," by Dr. Virginia Vetrano, in this lesson.) I personally prefer to defer eating foods which require long digestion time (proteins or combination foods or starches) until the evening meal. During the day, when I am most active, I don't like to have a "full" feeling. In fact, when I am scheduled to give an afternoon lecture, I usually don't eat at all until after the lecture. Sometimes I might eat the orange or a small piece of melon a couple of hours before the lecture. When I am scheduled for an evening lecture, I might eat a light fruit meal a couple of hours beforehand.

When I eat a meal which includes protein or a combination food or starch (following a large salad, of course), I prefer to be able to relax and rest afterwards, if at all possible. I find this works best for me.

> I do make some occasional exceptions to this rule, depending on my program for the day. If I am going to be away from home in the evening and unable to have my leisurely evening meal, I might eat a protein meal before leaving home, as my noon meal. Sometimes I simply take a bag of salad and some nuts with me.

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Your Probing Mind By Dr. Virginia Vetrano

"Mono-Eliminating Diet"

What are your feelings about a "mono-eliminating diet, " e.g. oranges or grapefruit?

> An "eliminating diet," mono or otherwise, is useful when for some reason a genuine fast cannot be taken. Bear in mind that the fast is always more efficacious and more rapid in permitting the body to rid itself of toxic wastes than any kind of eliminating diet. One week of a complete fast is probably more beneficial than two or three weeks of an "eliminating diet."
>
> It is often thought that one can do the "eliminating diet" on his own, bypassing the service of a *Hygienic* doctor. While I am not trying to make people more dependent upon doctors for everything, I am trying to stress the fact that most people have insufficient knowledge of their condition and the "elimination diet," and often damage themselves by the improper application of *Hygiene*. Many people come to me after having placed themselves on an "eliminating diet" and carrying it out for too long. Many people tend to vascillate back and forth from one type of "eliminating diet" to another; and from stuffing to underfeeding so long that real deficiencies are produced and health is not regained. They do themselves much harm and come to me suffering with the same problems for which they started the diet, as well as suffering with deficiencies. The pathetic thing is now they are too thin to fast for speedy recovery of their health and too sick to eat. What do you do with them? They've gotten themselves in real trouble and have actually made themselves sicker and unable to be helped by the Hygienic doctor until they carry out his or her instructions in Hygienic living and have eaten properly for a year or more.
>
> Juice diets, and the orange or grapefruit diet may be used judiciously with beneficial results, but these should not be carried out for months at a time, nor should a person go three or four days out of every week on a juice diet over a long period of time. He will become weak, and run into deficiencies.

Protein Foods

Is it true that the food I eat today is not digested, assimilated and put to use until several hours later? Why then does eating nuts early in the day give me a protein kick and in general help me to feel more *satisfaction and less desire for unwholesome foods?*

Eating protein foods, especially nuts, satisfies for many physiological reasons. One of them is probably because of their high fat content. Fat seems to be used for energy longer than carbohydrates before being stored by the body. Sugars and starches are absorbed and gotten out of the small intestine and circulation quickly, and then rapidly converted into glycogen in the liver. Perhaps, with nothing in the intestines to be absorbed, hunger is again manifested. Proteins take quite a bit longer for digestion and absorption, and perhaps this is another reason why they satisfy more. Once they have been absorbed through the digestive epithelium, however; the amino acids are readily taken up by the cells. In spite of this, they still satisfy and prevent people from desiring junk foods or sugars between meals. This is one of the main reasons that we began serving the protein meal at noon instead of in the evening at the Health School.

Sequence of Eating

In what order should you eat foods?

Formerly it was thought by a few Hygienists that it was necessary to eat the least concentrated food first and the most concentrated food last. The reason for this was that the foods were supposedly layered in the stomach, and it was thought best not to mix them; to permit the juicier foods to be evacuated from the stomach first. It has been shown, however, that food does not stay in layers in the stomach, and the pyloric valve does not open with each peristaltic wave so that food will become mixed in the stomach even if you eat the most concentrated food last. For instance, let us say that you eat some subacid fruit first. The pyloric valve stays tightly shut for fifteen minutes after the beginning of a meal, then it begins to open and pass a tiny bit of food to the duodenum. Each time there is a contraction of the stomach, the food is pushed forward toward the pylorus (the lower end of the stomach). As the valve opens only occasionally and not each time the peristaltic wave pushes food toward it, the food is pushed toward a closed valve. The food cannot get out of the stomach at the valve, so it streams back toward the upper end of the stomach, thoroughly mixing with the food eaten last. Even if some food empties from the pylorus when it opens, only a small amount is evacuated and the rest is propelled backward to be thoroughly mixed with the contents of the upper stomach. Eat your foods in proper combinations, and you won't have to worry about the sequence in which you eat them. Food becomes mixed in the stomach regardless of sequence of eating.

It is wise, however, to remember to chew your foods well, and separately. That is, do not use a tomato or lettuce to moisturize nuts to help get them down. Chew your nuts well, and alone; swallow them. Between mouthfuls of nuts you may eat some salad foods. Never use the moisture of the less concentrated foods to help liquify nuts or other concentrated foods. The salivary glands will secrete sufficient moisture of the proper kind for this purpose and your foods will be better digested.

Sometimes it is wise to eat the least sweet fruit first when eating three fruits at one meal, otherwise the last part of the meal may be less tasty. If you eat dates first, for instance, and then take apricots, which are less sweet, you may not enjoy them as well after the very sweet fruit because of the unavoidable comparison of sweets.

Melons

Why do you eat melons alone?

Melons are best taken alone because the sugar and other nutriments are in a less stable form than the nutrients of other fruits. Orange juice may be kept in the refrigerator for an hour with little change in flavor, but if you refrigerate watermelon juice for only 10 minutes, its flavor, color and composition change. It decomposes much more quickly than other fruits. Consequently, if it is held in the stomach awaiting the digestion of other foods, it will decompose (ferment) and cause a great deal of gastric distress. Eating watermelon with nuts can really be troublesome.

One should not take watermelon with other more concentrated fruits. The more concentrated the food is, the longer it takes to propel it from the stomach, and if the melon is held in the stomach mixed with the other fruit, then it also will be held in the stomach for a longer period of time. Watermelon must be evacuated from the stomach as rapidly as it would be if eaten alone. If eaten with foods that slow its evacuation time from the stomach then it will ferment in the stomach and cause trouble.

Can you eat watermelon seeds?

Watermelon seeds can be saved and eaten if desired. There is some nutrient inside the hard shell, but the shell itself is composed of indigestible cellulose, and I do not think it wise to consume so much cellulose. In wild nature, animals would not normally try to chew something so hard and indigestible. Primates eat the fruits and spit out the hard seeds. Man, unfortunately, has the ability to analyze foods, consequently he discovered nutrients in the seed, so he tries to eat the seed, forgetting that most of the watermelon seed is indigestible, and may serve only to irritate the lining of the gastrointestinal tract. Many seeds of fruits are poisonous; they contain benzaldehyde and cyanide.

Nuts with Acid Fruits

Why is innpt advisable to take nuts with acid fruits?

We no longer serve nuts with acid or subacid fruit mainly because of the sugar content in the fruit. When fruit is held in the stomach awaiting the digestion of nuts, it has a tendency to ferment, and cause digestive troubles. The sugar content of organically grown citrus fruit is very high, and high concentrations of sugar inhibit gasiric secretion thus also interfering with protein digestion. It was formerly thought that the citrus didn't interfere with protein digestion but with greater study, observation and reflection, thoughts have changed.

Acid fruit such as tomatoes and grapefruit may not be deleterious, because of their diminished sugar content. Even if one eats the citrus thirty minutes prior to taking nuts, in most cases, there will still be a great deal of fruit in the stomach. The pyloric sphincter stays tightly shut for approximately 15 minutes after a meal begins. After fifteen minutes, the stomach begins gradually to evacuate, and then not rapidly. The food gets mixed in the stomach. If you desire nuts in the morning for breakfast, then it would be best to take them at least one hour after finishing your citrus or other fruit.

Beverages

What kind of beverage do you suggest besides water?

> Many years ago Dr. Shelton pointed out that water is the only drink. All other substances are either food or poison. If you are thirsty, you should drink pure water. If you are hungry, you should eat. If you are thirsty it doesn't mean you must eat a piece of watermelon, unless you are hungry at the same time. Drink only when thirsty and eat only when hungry. Poisonous soft drinks, coffee, tea, and other unnourishing beverages, and other poisonous fluids should never be used to quench a thirst. Pure water is best.

Dried Fruits

Are there any subacid dried fruits?

> The sugar concentration is naturally greater in fruits which have been dried. Some fruits that are considered subacid are considered as sweet fruits, after drying, unless they are soaked to replenish the missing water.

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Article #2: Proteins In Your Diet! By Dr. Alec Burton

This short thesis on proteins is intended to clarify some of the confusing issues at present dominating the so-called science of nutrition, and especially to present to hygienists a rational view of the importance of protein and its indispensability to normal health and well being.

It has been of considerable interest to me to study the various diets offered by the numerous food reformers over the past two decades. Many of these diets have had nothing more than enthusiasm to support them and several have been completely impractical. One of my chief aims is to present a program which will have a genuine practical application based on sound physiological principles. I have frequently been identified with a movement which stresses the need for protein. I do not wish to reject this identification but to elaborate its basis.

My argument is not as some have supposed, that a high protein diet is desirable, but that an *adequate* amount of protein is necessary. Few, if any, students of the subject would quarrel with this, although much current argument revolves around the term 'adequate'. There is considerable disagreement among nutritionists as to the optimum protein requirements and when one consults the literature on the subject, it is distressing to find so many assumptions replacing facts.

Some discussion has also arisen as to whether there is such a condition as protein deficiency. Those of us with experience of fasting are aware of the fact that the organism can maintain nitrogen needs throughout an extensive period without food. This seems inconsistent with the well-publicized statement that the body does not store protein, and in the sense in which it stores carbohydrates as glycogen in the liver and muscles, and fat in the organs and cutaneous tissues and elsewhere, this is probably correct. But as tissue structures are broken during the fasting process, materials (amino acids) are made available for utilization. It is true that protein deprivation has to be prolonged and extreme in order to produce obvious signs of its inadequacy, and even here it is not necessarily only a problem of protein.

The complex physiological processes involved in digesting, absorbing and assimilating the materials ingested is such that it is unwise to make predictions about the effect of an isolated food element. Rather, the hygienist is inclined to study the total impact of food on the organism and strive to relate the theoretical concepts of nutrition to a practical situation. It is necessary to dissociate ourselves from nutrients in feeding our patients and deal with foods that are complex parcels of numerous nutrients. In addition the hygienist has always, stressed the need to consider the feeder. In nearly all diets and nutritional studies, the individual variations of those consuming the food is overlooked. Notable exceptions to this exist, but only in a general way, such as the dietetic control of the diabetes, diets for obesity, the regulation of diet in phenyl-ketonuria and so on. This maneuver is not so much a consideration of individual needs and capacities as a therapeutic approach to disease, that is, treating symptoms. Such an action may be justified on practical grounds but it has serious theoretical inconsistencies and is objectionable philosophically because it does not radically solve any of the most crucial problems.

Because of the serious deficiencies of generalizations, hygienists are often reluctant to make specific extensions of their principles. Consequently, at this point, I should absolve myself from apparent infallibility in the pages that follow wherein I have made categoric statements concerning qualities and quantities of food. There is always the individual consumer, whose ever varying needs and capacities must dominate his requirements. Hygiene, in its proper role of education, should teach us to respect our limitations and learn our needs, so that we can adequately supply them. What I have suggested should remain a tentative generalization requiring individual modification.

An inadequate diet may be a temporary necessity. By this I mean that food, and particularly protein which is more difficult to digest than many other food elements, should be consumed within individual capacities rather than according to charts, tables and graphs. There are times when the organism will be unable to utilize satisfactorily an adequate amount of a nutrient, and less will suffice. A consequent loss of weight and possibly energy may result, but this could conceivably be even greater if the extra food is forced into a reluctant feeder. Fasting usually, but not always, involves some loss of weight (this may be disputed, but the apparent contradiction involves fluid changes and not flesh). It is a procedure employed in special circumstances; it is most effective when the desire for food is lacking, when there is a dimished capacity to use food. The feeder must therefore learn to balance his diet and balance his intake. As we no longer live in a natural environment, one that would supply all our needs selected according to inherent demands, some knowledge of food and feeding is essential, if we are to maintain health and vigor. Man's success or failure depends upon the use of his rational faculty. He can choose to respect his bodily (mental, emotional and physical) needs and supply them, or he can ignore them and suffer the consequences.

Conventional nutritionists argue that protein must be eaten with a carbohydrate, otherwise the amino acids derived therefrom will be broken down by the liver (de-amination). This is called the 'protein sparing' effect of carbohydrates. If this is true, (and the experiments the claim is based are highly suspect), only a small quantity of carbohydrate is necessary. As indicated earlier, we do not eat nutrients and an examination of analyses of vegetable proteins reveals that they contain sufficient carbohydrates to provide the required conditions to prevent deamination. Animal proteins, on the other hand, do not. Their carbohydrate content is negligible.

Proteins combine best with nonstarchy vegetables. They should not be eaten with concentrated carbohydrates, either starch or sugar, nor with concentrated fats. Their use with fruit is not generally advocated.

Hygienists are almost unanimous in their agreement that nuts represent the best source of protein for man. It is a fact that people have developed tremendous muscular strength and vigour on an exclusively vegetarian diet. There are no special properties in animal foods which confer superiority over vegetable sources of nutrients. It may be categorically stated that vegetable proteins, especially nuts, have the following advantages over animal products:

1. They are generally eaten raw; uncooked proteins are superior.
2. They do not contain toxic end products of metabolism, as is inevitable with meat and fish.
3. They are generally much fresher. No matter what precautions are taken, flesh decomposes after the death of the animal, and meat is usually many weeks old before it reaches the table. Some putrefactive poisons are inevitable.
4. The present method of raising animals domestically leaves much to be desired. Most animals are unhealthy and have to receive regular treatment from veterinary scientists. At present, nuts are subject to few contaminating influences, far less than our other fruits and vegetables.

The grains and cereals do not represent any art of the natural diet of man. They are not essential to life and health and should certainly be omitted from the diets of infants and young children. Where they are included, they should be eaten whole, unprocessed and dry. The habit of eating cereal products with milk or other fluids such as juices is objectionable and conducive to fermentation. If they are included in the diet, thorough mastication is essential.

Cereal proteins are almost invariably incomplete and should not be used.

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Article #3: Food Combining By Dr. Herbert M. Shelton

An intelligent reader who has done much personal experimenting with foods and diets writes me as follows:

"It is surprising that of all the foods I've eaten, I find the banana the best and the least troublesome. Of course I'm talking about the ungassed banana. The gassed ones do give me some trouble, even such easily digested foods as the orange, apple, grape, etc., if overeaten, will cause distress. I realize one should not overeat on any food, but I do find that the ripe banana even if eaten to excess does not seem to do me any harm. Also, the banana seems to be a complete meal all by itself. It eaten with other foods, it can cause trouble. It really can't be appreciated unless eaten alone. Even if combined with sweet fruits (dates, figs, raisins, peaches, grapes) it is not digested as well as when eaten alone. It seems to be a good food for both the hard laborer and sedentary worker. I am praising this fruit because by most people it is looked upon as 'monkey food' and of little importance as far as nourishing the body. I don't know how long one can live on the fruit alone, but I think with the addition of some nuts or seeds and some leafy vegetables one could probably maintain good health. This should be a comparatively simple diet; not too expensive. Since I do not have the facilities for cooking and preparing elaborate meals, "I think this could be the type of diet I can live on."

This reader's experience verifies my own. While I have found that bananas combine fairly well with dates, raisins, grapes and a few other sweet fruits and with green leafy vegetables, such as lettuce and celery, I have noted that they digest best if eaten alone. This calls to mind the fact that Tilden, also, after much testing of the matter, reached the conclusion that bananas are best eaten alone. Tilden's view, like that of the writer of the foregoing letter, was based upon tests made with the ungassed banana. Gassed bananas do not ripen and can hardly be said to form desirable additions to man's diet.

The green banana is an almost insoluble starch; the ripe banana (ungassed) is a predigested sugar. It is quite probable that it is this sugar that makes a poor combination with other foods. As the gassed banana does not ripen, but rots instead, while still in the starch stage which is practically insoluble, it would seem quite natural that it should give trouble in digestion, even if eaten alone.

The banana, which contains about 1.30 per cent protein, is abundant in most of the minerals required by the body and is rich in vitamins. Dr. Carios Arguello, of Nicaragua, introduced me to a native strong man, while I was visiting in his country a few years ago, who stated that he lived largely on bananas, eating them in large quantities and that he found that they sustained him in health and strength as none of the other foods did. He had one advantage over those of us who live in the United States; namely, he could get his bananas tree ripened and fresh from the banana tree. This is an advantage of considerable importance.

Article #4: Chlorophyll And Hemoglobin By Viktoras Kulvinskas

For ages men have puzzled over the question - "What makes grass green?" About a century ago, chemists named the green pigment in growing plants chlorophyll.

A certain belief evolved about this green fluid. The fact that herbivora build hemoglobin (blood cell pigment) on a diet composed of leafy greens invites the hypothesis that derivatives of chlorophyll may be used in making hemoglobin. A Dr. Abderhalden, in his textbook, suggests that blood pigment might be made from plants.

Added to this biological relationship is the chemical similarity between chlorophyll and hemoglobin This was suggested by Verdeil in 1851, though on the basis of invalid evidence. It was substantiated in 1879 by Hoppe-Seyler, who showed a similarity between hematin and chlorophyll derivatives.

Willstater's work between 1906 and 1913 identified chlorophyll as an unstable water soluble magnesium compound characterized by ester groups of methyl and phytyl alcohol. He further showed both chlorophyll and hemoglobin to be closely related; both had some phyrrole fragments.

The years of research that were stimulated by Verdeil's hypothesis culminated in the series of brilliant investigations by Hans Fisher, for which he was awarded the Nobel Prize in 1930. He and his co-workers finally established the correct structure of hemin, part of the hemoglobin, by synthesis, and showed the true relationship to chlorophyll. They observed that the chlorophyll molecule closely resembles hemin, the pigment which, when combined with protein, forms hemoglobin. The latter is present in the red corpuscles of the blood, and by carrying oxygen to the tissues, makes the production of energy and life feasible. One of the major differences between chlorophyll and hemin is that chlorophyll contains magnesium, while the hemin molecule contains iron for the central atom. Note, hemoglobin is one of the most important constituents of cells; it makes up three quarters of the solid content. Owing to the close molecular resemblance between chlorophyll and hemoglobin, it was believed by Frans Miller, another scientist, that chlorophyll is nature's blood-building element for all plant eaters and humans. He writes: "Chlorophyll has the same fast blood-building effect as iron in animals made anemic." This has led to a great deal of controversy.

What exactly is anemia? According to Webster's dictionary, anemia is a condition in which there is a reduction of the number of red blood corpuscles or the total amount of hemoglobin in the blood stream or both. Thus, anemia is an excellent vehicle for the study of the relationship between food and hemoglobin count.

The first scientist to demonstrate the regenerative effect of chlorophyll on animals was Dr. Emil Burgi, who, in 1916, observed that rabbits rendered anemic by bleeding recovered more rapidly when chlorophyll was added to their diet.

Scott showed that a diet of milk, white bread and chlorophyll rebuilt blood faster than bread and milk. Scott and Delor noted that iron-and-copper-free alfalfa extract relieved milk induced anemia.

Patek and Minor, in clinic study with a rare type of anemia caused by pigment scarcity, observed a small positive increase in hemoglobin concentration on intravenous injection of chlorine derivative. Dr. Fisher in Germany announced that for some time he had been using chlorophyll in the treatment of anemia with promising (although by no means conclusive) results.

In another clinic study, Dr. Patek used fifteen adult patients with chronic hypochronic anemia. They were given chlorophyll and allied substances, and were placed on house diets free of meat and eggs, whereas the diet was adequate in all other respects. The crude chlorophyll was a tar-like substance extracted from alfalfa leaves. It was found that chlorophyll alone was not effective. When chlorophyll and its derivatives were administered, there was an increase in hemoglobin and improvement in the sense of well being.

Other workers have reported curative effects of chlorophyll and its derivatives in a wide variety of anemias: protein deficiency, hemorrhagic, phenyl hydrazine poisoning, pernicious, hypochronic of unknown etiology and "experimental nutritional anemia" of unidentified character. Some of the reports are based on clinical studies, while others are the results of animal experimentation.

J. Howell Hughes and A.L. Latner, from the Department of Physiology, University of Liverpool, in a highly discriminative experiment, finally resolved the question of the blood regeneration capacity of chlorophyll. Rabbits were made anemic by daily bleeding, reducing the hemoglobin level to two-fifths of the normal value. The rabbits were split into two groups. The experimental received in diet chlorophyll in oil, the control only oil.

They performed five experiments. Three were with varying degrees of pure chlorophyll, one with large doses of crude chlorophyll (unrefined), and one with magnesium-free chlorophyll derivatives. The following is a summary of their findings.

1. Pure chlorophyll in large doses has no effect on the speed of hemoglobin regeneration after hemorrhage. It seems large doses are toxic to the bone marrow.
2. Very small doses of pure chlorophyll markedly increased the speed of hemoglobin regeneration to approximately its previous level.
3. Crude chlorophyll is effective even in large doses. Hughes concludes: "It seems, therefore, that the animal body is capable of converting chlorophyll to hemoglobin." This is in agreement with Zin, who, however, showed the effect of chlorophyll injection on the red blood cell count of animals not rendered anemic.

Thus we see how chlorophyll can aid in rebuilding the bloodstream. Without correcting all the causes of anemia, the chlorophyll results are temporary in nature and not consistently workable with every individual. If, however, the individual was to be placed on organic live foods and on one of the richest crude forms of chlorophyll, then the results are always the same, and the anemic condition disappears. Rev. Ann Wigmore, in clinical studies, has proven this many times.

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Lesson 24 - Selection And Storage Of Most Wholesome Foods, Part I

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1. Changing To A Nutritionally Superior Diet

1.1 Raw Food

It is relatively simple to plan an optimally nutritional diet. For optimum nutrition, eliminate the denatured foods, and enjoy the greatest possible variety of raw fruits and vegetables, as they are seasonably available, plus approximately two to four ounces of raw, unsalted nuts and seeds per day, in addition to sprouted seeds and grains.

If you persevere in adhering to this all-raw food diet, you will eventually achieve the highest pinnacle of health possible for you. Those who are willing and able to quickly progress to an all-raw food diet from the plant kingdom will have amazing and seemingly miraculous health improvement and potential for longevity.

1.2 The 80% Raw Food Diet

If you are not yet willing or able to change to the all-raw food diet, a good start is the 80-90% raw food diet. If you have been a conventional eater and now concentrate on the use of uncooked foods to this extent, you will achieve a radical improvement in your food program, and, consequently, in your health.

As indicated in Lesson 22, an 80% raw food diet is not difficult to achieve. It can be appetizing, interesting, varied, satisfying end economical. The best plan is never to eat cooked food more than once a day, as part of one meal. Try for more and more days on raw food only.

1.3 Body Chemistry

The English poet, John Dryden, said, "We first make our habits, and then our habits make us."

As indicated in Lesson 22, the body chemistry is largely determined by the food that is eaten. When the diet is altered and the new diet maintained for a given length of time, the enzymes, body fluids and glandular secretions become increasingly adapted to the influences and requirements of the new food-just as they necessarily adapt to the junk foods that are eaten. *The important difference is that the adaptation to the junk foods involves health deterioration, while the readjustment to a nutritionally superior diet is in the direction of improved health*.

If you live on a conventional diet, which by all the recognized standards is said to contain enough nourishment, that diet will still fail to support normal physiology. The percentage of raw food is usually very small and, except for the fresh fruits and vegetables (usually a very small amount), practically everything in the conventional diet has been denatured.

Long-term storage of food, careless handling in shipping, and the refining, preserving and cooking processes destroy delicate and tender vital food factors and flavor. These altered foods become dull, flat and insipid, requiring seasonings to make them palatable. A future lesson will discuss in detail the destructive effects of all these processes.

The addition of vitamins to such diets will not render them adequate. Humans have not learned to create living substances. They cannot synthesize living substances in the laboratory, only chemical imitations. Neither can they extract them, in the kitchen or in the laboratory, without greatly impairing or destroying their food value. A more comprehensive discussion of the futility of the use of food supplements to replace missing elements in food and the actual harm that they can cause, will be given in a future lesson.

1.4 Organically Grown Food

A plausible argument has been offered that foods which are not organically grown are deficient in vitamins and minerals, and therefore we should take supplements. The superiority of organically grown foods is undeniable, but this problem cannot be solved, or even palliated, by taking nutrients out of their proper context.

Furthermore, whether or not an orange is organically grown, it still contains Vitamin C—the orange cannot be grown without it. It is true that the total nutritional value is impaired by the use of the chemicals, yet it is not totally destroyed.

But, as to the argument that commercially grown foods are practically devoid of nutrients-that is not biologically possible. Fresh, good-tasting food must contain substantial quantities of nutrients, regardless of how it was grown.

You should certainly make Herculean efforts to grow your own fruits and vegetables to the greatest extent possible. For whatever food you cannot grow yourself, you should try to secure as much organically grown as possible. For the rest, you should obtain the freshest, best quality obtainable, and you will achieve far better health than conventional eaters, plus a "serendipity" bonus: Dr. Burton says that Hygienists can save up to 30% on their food bills and up to 74% on their medical care bills. This lesson will help you in your quest for the best food available.

1.5 The Vegetarian Diet

Some people have misgivings about changing to a vegetarian diet. They may be worried about complete proteins, essential amino acids, or obtaining all of the amino acids at every meal. These are groundless concerns. All nuts, except the hickory, contain complete proteins, with all the essential amino acids—verified through experiments by Cajori, Kellogg and Berg. In addition, a generous supply of raw green leafy vegetables, sprouted seeds and grains, and raw fruits, will assure an adequate supply of all nutrients needed in the diet.

These nutrients are stored in the body and utilized by the cells as needed. If the body were not capable of storing nutrients, we could not fast for lengthy periods. Nowhere in Nature is there any evidence of the necessity for complicated maneuvering to obtain all of the essential amino acids at each meal.

You may be concerned about Vitamin B-12 and fearful that, on a preponderantly vegetarian diet, you might become a victim of pernicious anemia. But the fact is that more meat eaters than vegetarians suffer from this affliction. Pernicious anemia appears to arise, not from a shortage in the diet, but from impairment of the ability to absorb B-12. Study after study has revealed that this deficiency is due not to dietary inadequacy, but to failure to absorb the vitamin from the intestinal tract.

Putrefactive bacteria can destroy friendly bacteria, thus inhibiting the synthesis and absorption of B-12. Putrefaction in the digestive tract can be caused by the ingestion of flesh foods, bad food combining or overeating of concentrated proteins.

A more exhaustive analysis of the myths surrounding Vitamin B-12 will be given in a future lesson. In this lesson, it is simply desired that you establish in your mind that the foods recommended for your selection are the best of all possible foods.

A future lesson will deal at length with the destructive effects of flesh foods.

For the present, in order to establish in your mind the advisability of omitting flesh foods from your shopping list, a few points on this subject will be made.

The best protein foods for humans are raw, unsalted nuts and seeds. Dr. Hoobler, who did some research at Yale University, proved conclusively that the protein of nuts and seeds provides greater nutritive efficiency than that of meat, milk and eggs. *And of course, nuts and seeds have the distinct advantage over animal foods of being delicious in their fresh, raw state*.

John A. Scharffenberg, M.D., Director of Community Health Education at San Joaquin Community Hospital, Bakersfield, California, has marshaled the scientific evidence against flesh foods in his book, "Problems with Meat."

A meat-based diet is deficient in natural carbohydrates and fiber, high in saturated fat and excessive in protein, resulting in bone degeneration and greater work for the kidneys and liver. It can lead to calcium and vitamin deficiencies and a shortened life span.

Dr. Lendon Smith, M.D., from Portland, Oregon, incorporates in his writings many of the same ideas Hygienists have been advocating for years. On the Phil Donahue show (WTSP-TV, September 8, 1980) he recommended using nuts, seeds and legumes instead of meat. He said a bowl of lentil soup has as much good protein as a beefsteak. In fact, he emphasized that meat is not a good food, and his family does not use it more than once or twice a month. He said milk causes many problems and that people should eat as much raw food as possible—raw fruits, vegetables and nuts and seeds. He advised that foods processed by humans should be avoided, and he specifically' mentioned the lack of nutritional value of boxed cereals. He declared that when a person gets sick, there is always a diet, component in the cause, and he advocated fasting one to four days for alleviation of minor problems.

It is true that it is possible to experience a protein deficiency on a poorly-planned diet. An adequate supply of protein in the diet is indispensable to normal health and well-being, and a protein-deficient diet will certainly not contribute to your health and longevity. But an adequate diet is not dependent on animals for food, nor is it necessary to play a numbers game with amino acids at each meal. My book, *"The Happy Truth about Protein,"* gives more details on this subject.

In fact, humans are dependent on the plant kingdom for their nourishment. If they do not get it first-hand by eating plants, they get it secondhand by eating animals that have eaten plants.

A study by the Washington, D.C.-based Environmental Defense Fund revealed that the breast milk of vegetarian women contained significantly lower levels of pesticide residues than that of meat-eating women. This could have a relationship to the ability of the fiber in the plant foods to help in the removal of pesticides from the body. Another reason for lower pesticide residues in the bodies of vegetarians is the fact that plants contain lower levels of pesticides than do flesh foods.

Vegetables and nuts contain about 1/7 the pesticide residues of flesh foods, fruits and legumes about 1/8 as much, and grains about 1/24 as much. This is due to the *concentrating* factor, as the contaminant goes through the additional link in the ecological chain, and the animal concentrates the pollutant in its body.

Actual tests in Great Britain have shown the pesticide level to be highest in meat-eaters, lower in lacto-vegetarian (that is, vegetarians who use dairy products) and lowest in total vegetarians.

The Environmental Protection Agency did a study (about 1979) with laboratory rats, showing that dietary fiber helped remove pesticides from their bodies. The study pointed out that fiber is not just an inert substance that provides "roughage," but has some qualities that are just coming to light.

This particular study showed that pectin (a form of fiber found in fruits and succulent vegetables) could significantly affect the body's metabolism of at least one pesticide—lindane. (Organic Gardening, July 1979)

The best source of dietary fiber is whole foods. The use of a fragmented food, such as bran, in an attempt to add supplementary fiber to a deficient diet, only causes more problems. It is not in a form readily acceptable by the body without stress, may cause a loss of vital mineral elements, and its action is similar to that of a laxative, ultimately resulting in inhibition of the body's ability to act for itself.

An intelligently planned vegetarian diet has none of the disease problems associated with the use of meat, and provides a dependable source of all the nutrients, including protein.

If you eat a generous amount of raw food and include approximately two to four ounces of nuts and seeds daily, as well as sprouts, greens and fruits, you cannot help but get an adequate supply of protein, vitamins, minerals, enzymes, hormones-and chlorophyll, such as only green plants can supply. And this is a foolproof diet that will contribute to health improvement and longevity.

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2. Let's Go Shopping

Even those who have a sizeable organic garden must track down and purchase many of the foods they require. When the weather is warm, take along a picnic coder with ice for transferring perishable food. Much damage can result from alternately cooling, warming, and again cooling your produce. It is even a good idea to carry a cooler when the weather is cold if your car is heated.

Your greatest concern will be produce—good quality fruits and vegetables. It is sometimes possible to locate organically grown produce, but if not, get the freshest, best quality obtainable and you will still come out ahead, as there will be much less waste. Sometimes you can, just by trying and not giving up, locate individuals in your own area who are growing organically for their own use and have some surplus to share. If your local health food store has a bulletin board, you might try to reach these local growers by expressing your interest there in contacting them.

It is not always practical to have fresh produce shipped in from distant cities, but there are some instances when it is advisable to do this. If you live in a climate where the growing season is short, produce can be shipped by air freight from California but the transportation cost may be greater than the cost of the food. If you join with other people and buy in bulk quantities, it might be more economical.

Even when buying food locally, you may find that starting a food-buying co-op would be very worthwhile if this enables you to buy direct from a wholesale food distributor in your area.

You can grow some of your own food. I once grew lettuce in a large crate on the porch. You can find some local sources of organically grown food. Locally grown produce, in season, is always the best—fresher, better-tasting because it is not picked prematurely, and more economical. You can at least obtain organically grown nuts and seeds from distant shippers, and sometimes from your local health food store.

For that portion of your food that you cannot obtain organically grown, just get the best quality obtainable, selected, stored and eaten in accordance with Hygienic principles, and, as previously indicated, you may rest assured that your health will be far better than that of those on conventional diets.

Shop around and find the stores or produce departments that do the best job in your area. Get friendly with the produce people and they will cooperate with you in your efforts to locate the best produce, especially when they learn that you do all your major purchasing in the produce section. You might even be able to persuade the owner of a produce business to keep his eyes open for organically grown food from local farmers who come to the wholesale produce markets, or even to locate organically grown produce in distant cities, and have it shipped in to sell at retail. We developed such a source in our area in Florida and enjoyed a plethora of organically grown produce for five years—last year the man retired, and we are still trying to replace him.

In season, shop the transient roadside truck merchants—early in the morning, before the sun has done its wilting job on the produce. You will probably have to shop the supermarkets for some of your produce. Most produce managers will allow you to break open the pre wrapped packages of produce and select the best, especially if you are a good customer. Sometimes, if you ask, they will bring out fresher produce from the refrigerator and allow you to select directly from the crates.

This lesson will continue with information on how to judge and select your produce and other foods. You will not need to be greatly concerned about additives in packaged, frozen or canned foods, because you will not be using these items. If you do buy anything that is packaged, frozen or canned, be sure to read the labels and don't buy anything that contains chemicals.

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3. Fruits

Fruits are the most delightful of foods. They are also of great nutritional value because they possess most of the essential minerals and vitamins necessary for optimal health.

A variety of fresh fruits are available throughout the year. Fortunately, bananas are always in season. They are a staple part of the Hygienic diet, being high in nutritional value and even containing 1.1% protein, about the same as mother's milk. Most other fruits have a season in which they are most economical and flavorful.

Good watermelons start coming in May. Pineapples and strawberries are also in season at the same time, and the oranges and pears are still available and reasonable in price.

In June, a plethora of fruits appear: a variety of all kinds of melons, peaches, cherries and berries. As oranges and pineapples dwindle—around July—the grapes, nectarines and plums come in. All through the summer, you have a veritable horn of plenty of many varieties of fruit.

Then, in the fall, the apples are in season, along with the citrus and pears, while the grapes are still available.

The information in this lesson about the peak seasons of specific fruits and how to choose them wisely will help you not only to get the best for your money, but also the best for your health and nutrition.

Since the average diet is too high in protein, adding fruit to the diet is beneficial. A fruit diet is "cleansing" because it is lower in protein. This results in the cells drawing upon the body's store of nutritional reserves, and initiating the elimination of the accumulated wastes and poisons, much of which are the by-products of the over-consumption of protein. The fruit, though, is not itself cleansing; it merely causes less burdening of the body than most food, and allows the body to do its own "cleansing."

Fruits contain large percentages of sugars and free acids that are favorably utilized by the body, unless consumed in greater amounts that can be processed efficiently.

Claims are made that certain fruits have "curative" or "magical" properties—that such fruits as apples, apricots, papayas or grapes will "cure" what ails you. Hygienists know that food is used for its nutritional value, not for some hoped-for special influence on the body. Apples, apricots, papayas and grapes are excellent fruits and should be used, along with other varieties of fruits, as they become seasonally available.

3.1 How to Judge and Select Fruits

General Suggestions:

1. Buy in season when quality is highest and prices lowest.
2. Don't buy more than you will use before they perish. The sooner you use your ripe fruit, the more flavor and nutritional value it will contain.
3. Don't buy damaged fruit unless damage is slight and you will use it immediately.
4. Handle displayed fruit carefully so you don't ruin it for others.
5. Fruit should be eaten when ripe—not green or overripe. Some fruits may be purchased green and ripened at home. This information will be included under specific fruits.

The trouble with many fruits available today is that they are picked while still immature and thus never have a chance to develop properly to their full potential of taste and nutritional value.

The season for marketing fruit has been overextended, and out-of-season, expensive and tasteless fruit is often available. Don't buy fruits out of season.

Unfortunately, most fruits are grown in soil that is fed chemicals to increase productivity, and the fruit is sprayed with chemical pesticides. The thick rind of pineapples, melons, bananas, mangos and avocados gives the underlying flesh natural protection against most of the chemical sprays. For other fruits, you cannot do much more than give them a thorough washing and scrubbing, and hope for the best. Peel them, if you like. If you must peel your fruit, don't cut too deeply; try to discard the thin skin only. The greatest concentration of nutrients is just under the skin.

Grapes and cherries have no protection against high levels of chemical residues. Don't eat large quantities of these fruits unless organically grown, and don't eat them every day, in season.

Apples, pears and plums are commonly waxed to give them a glossy look—it is best to peel them.

Fruit is most luscious if it is picked from the tree when it is just at the peak of its ripeness. Wherever you live, try to have and nurture some of your own fruit trees. No store-bought fruit can approach freshly picked ripe fruit for flavor and quality.

Whenever possible, buy fruit from the farmer—you may get fruit almost as good as you could grow yourself. You might even be fortunate enough to find a local organic fruit farmer.

Most people are dependent on markets for most of their fruit. It is necessary to cultivate the ability to judge the ripeness and quality of the fruit you buy. This ability will come with experience, though the best of us can sometimes still be misled.

There are several things to check. First, if it's fresh, it looks fresh, not wrinkled or blemished. The color should be characteristic of the ripe fruit. If it is misshapen, it is usually inferior in taste and texture, and there will be more waste. Medium sizes are generally better than very large or very small.

Ripe fruits, regardless of whether they belong to the acid, subacid or sweet classification, possess a certain sweetness, and, in most instances, it is possible to judge ripeness by appearance, fragrance, touch, and, of course, taste.

Unripe fruit is highly indigestible and usually quite unpalatable. It may contain starch and other carbohydrate substances which are distasteful and unwholesome. Overripe fruits may be even worse. When decay begins, the sugar is changed to carbon dioxide, alcohol and acetic acid (fermentation) and the fruit rapidly deteriorates in wholesomeness, nutritional value and taste. It loses water and becomes spongy, mealy and insipid.

Fruit is potentially alkaline, that is, it produces an alkaline ash after it has passed through the process of digestion. If the fruit is of poor quality, or unripe or overripe, especially if it is fermented, it produces an acid reaction in the body and its absorption creates many unpleasant symptoms, such as nervousness and insomnia, as well as digestive and "allergic" problems.

If fruit doesn't taste right, discard it. It is better to "waste" some food than to waste your health.

Since vine-ripened fruit is too soft to withstand much handling en route from farm to supermarket, most fruit bought in the market was picked when mature (we hope!) but not yet ripe. Most of the fruit available in supermarkets is not intended to be eaten immediately, but needs a day or two at room temperature to fully ripen. Problems in attaining proper ripeness occur when fruit is picked before it is fully mature. Usually, an indication of the beginning of the ripening process is a signal to pick the fruit for marketing.

Most ripe fruits have lost all traces of hard spots, but are not mushy. Many ripe fruits exude a delightful, but delicate fragrance. As a rule, you should buy fruits which are almost ripe, and eat as soon as flavor peak is reached (or refrigerate when ripe and eat as soon as possible thereafter).

Bananas, avocados and some other fruits may be purchased green and ripened at home. Fruits which are to be ripened at home may be "displayed" on trays on the kitchen counter during the day, and put into brown paper bags at night, to shelter them from insects. To accelerate ripening of very hard fruit, put it in a brown paper bag with an apple or banana (day and night). Apples and bananas emit a kind of natural ethylene ripening gas.

Most fruits will be discussed specifically in this lesson. When available, varieties of specific fruits are listed, no attempt is made to list every variety grown. For such complete listings, see Rodale's *How to Grow Vegetables and Fruits by the Organic Method*. Some exotic tropical fruits which are not generally available in the marketplace are omitted, principally because no first-hand information is available about them, other than that which is included in Dr. Esser's Dictionary of Man's Foods and other reference books which give no marketing information.

Specific Varieties of Fruits (alphabetically):

Apples

The peak season for apples is October through March. The principal varieties of eating apples include Golden Delicious, Red Delicious, Pippin, Golden Grimes, McIntosh, Jonathan and Winesap. The peel is rich in vitamins, but, if purchased in the supermarket, it will probably be waxed and contain pesticide residues. In fact, I myself never use commercially grown apples. It is my understanding that more pesticides and chemicals are used on apples than on any other fruits, and that the tree itself is poisoned, so that any insect that bites the apple will die. The human who eats the apple will survive, but I choose not to eat such apples.

Winesap, McIntosh and Golden Grimes apples are available in the fall, Jonathans and Delicious in the winter. Delicious apples are the sweetest.

Apples should be firm and crisp with bright and shiny skin. Color is a sign of maturity in apples—high color indicating maturity—and only apples picked when mature will have good flavor and texture. Apples that yield to pressure on the skin will have soft, mealy flesh. Bruised areas are usually a sign of rough handling or exposure to frost.

The apple is an excellent food, nutritionally speaking. It is also one of the most practical, since it can be shipped and stored for many months, though, of course, long storage results in some loss of nutrients.

Apricots

The peak season for apricots is June and July. Apricots are a nutritionally excellent food but they have a very short season and a very short life. Look for (but you will seldom find) plump, juicy-looking apricots, with a uniform golden-orange hue. When ripe, they will yield slightly to gently pressure. If the fruit is hard, pale yellow or greenish yellow, these are indications that it was packed too soon and will never progress to the proper ripeness and delicious taste. They will simply become mushy or rot.

Larger apricots tend to ripen more quickly. Avoid fruit that is green at the stem end. Apricots are ripe when they turn from yellow to orange.

Once I found a crate of "just-right" large apricots at the wholesale market in Tampa, in time to be served at a Hygienic luncheon for the members of our local American Natural Hygiene Society chapter. That was about seven years ago, but I still remember the luscious taste. It is almost impossible to find such apricots in the markets, unless you happen to be in the right place at the right time, and know enough to recognize and quickly acquire them. Apricots are rarely found in the markets at their best, because of premature harvesting.

Ordinarily, we must settle for sun-dried, organically grown soaked apricots, which are an acceptable substitute, and much better than the disappointing "fresh" apricots usually available. Buy dried apricots from Jaffe Brothers or at a health food store. Dried fruit sold at supermarkets has usually been treated with sulphur dioxide or hydrogen peroxide, to preserve the fruit and retain the bright color. These substances destroy the value of the food and cannot be washed off, since the chemicals are absorbed into the fruit.

Experiments conducted by dr. H. W. Wiley, formerly chief chemist of the U. S. Department of Agriculture, demonstrated that the use of sulphurous acid in food is always harmful. It degenerates the kidneys, retards the formation of red corpuscles, and destroys the vitamins in the fruits.

Avocados

California avocados are available all year, with a slight peak in December through June. Florida avocados are available July through March. California avocados have a thinner skin and are more buttery and less watery than Florida varieties; they also have a better flavor and contain perhaps twice as much protein.

It is very important to eat the avocado when just ripe, when it has a buttery consistency and a mild flavor. When unripe, it is hard and practically inedible. It is best to buy your avocados hard and firm, so that ripening conditions can be controlled. Ripen at room temperature in a tray on your kitchen counter—this usually takes two or three days. When there is a slight yielding to gentle pressure on the skin, it is time to enjoy them. Dark avocados are somewhat soft to firm when ripe—if very soft, with black spots, they are usually rotted. Green avocados are softer when ripe (while still retaining their characteristic green color).

Select avocados of uniform color and free of cracks. Irregular brown markings have no effect on the inside of the fruit. Don't buy avocados with dark, sunken spots in irregular patches or cracked surfaces, which indicate decay. By law, avocados cannot be picked before a date that is supposed to insure that the fruit will be mature before being harvested, so commercially grown avocados should always ripen properly. With careful handling, they do ripen properly most of the time, although sometimes you get a "bad batch" which darkens and rots.

Fortunately, the thick, tough skin of the avocado affords some protection against chemical sprays, though it is true that the roots of the tree itself are bound to absorb chemicals from the fertilizers and sprays. The rule for avocados is the same as previously indicated: Use organically grown fruit whenever you can get it—otherwise, do the best you can. But, with avocados, at least the flesh has not been exposed to poisonous sprays.

An interesting fact about the avocado: An acre of land will yield a larger amount of food when planted to avocados than it will when planted to any other tree crop known at present. (Dr. William L. Esser)

Dr. Esser maintains that the avocado is one of the most valuable foods which nature has given to man and is of special value to vegetarians. It is higher in protein and fat than any other fruit (except nuts). Of course, the fat is more digestible than animal fat. In Guatemala, the avocado is used in place of meat. (Avocados, though botanical, members of the fruit family, are also classified as fat/protein food.)

The principal difference between avocados and nuts is that avocados are about 75% water, and nuts contain only about three to five percent water. Further, all nuts except the almond (and the coconut and chestnut, which are not classified as true nuts) are acid in metabolic reaction, while avocados are alkaline. The diet should predominate in alkaline foods, such as fresh fruits and vegetables—perhaps 80% should be alkaline in reaction. However, the high fat content of the avocado should be a signal that it should not be used excessively. One-half of a medium-sized avocado at a sitting should be adequate, and they should not be used every day.

Bananas

Bananas are available all through the year. It is best to buy them green for ripening at home, where ripening conditions can be controlled. Bananas are usually "gassed" to facilitate ripening. Sometimes it is possible to buy "ungassed" bananas, but it is somewhat doubtful whether they truly have escaped the gassing process. They may have been acquired before having been subjected to "ripening chambers" in this country, but is my understanding that some of the fruit has already been gassed on the vessels carrying them from the tropics.

Bananas, at least, have a good protective skin, so the flesh isn't exposed to chemical sprays. I usually buy the greenest bananas I can find. I put them in a brown paper bag overnight, and expose them to air during the day (on my kitchen counter).

Select bananas free from surface bruises, with skin intact at both tips. Ripen at room temperature. When the skin is bright yellow speckled with brown, the starch will be changed to fruit sugar, and the fruit will be tender, sweet, and easy to digest. Fruit that ripens with brown speckles may not have been gassed, as I have been told that gassed bananas ripen with dark streaks and blotches instead of the brown speckles. I have found that speckled fruit uniformly delightful in taste, so I am inclined to give some credence to this speculation.

Don't buy bananas which are bruised, discolored, or dull and grayish, which means they have been held in cold storage and will never ripen properly. Sometimes bananas that are ripe and ready for eating are sold at reduced prices. We usually are glad to get them, though they must be used that day or the next day. Overripe parts can be cut away; the rest is fine.

We have two stools of banana trees in our yard (in Florida) and harvest small, flavorful bananas some years (when the previous winter's frost has not been too severe).

Blackberries, Blueberries, Raspberries, Mulberries, Loganberries, and other small berries

Peak season June through August. Although they differ in shape or color, these small berries, which often grow wild, are similar in general structure and buying considerations. Freshness and ripeness are prime concerns. Good bright color for the species, plumpness and tenderness, indicate ripeness. Usually, however, the problem is over-ripeness. The berries are also easily mashed. The small containers of berries are expensive and may contain a large percentage of moldy, spoiled berries. If the container is stained or wet, don't buy it. Don't wash the berries until you are ready to use them. They are very fragile and perishable and won't keep long. Ripe raspberries drop their cores, leaving little hollow cups. Blackberries don't. When blackberries are red, they are not ripe.

Cactus Fruit (Prickly Pear)

Fruit season August-September. Available occasionally. Cactus fruit grows on a very large type of cactus. The fruit is smaller than an average sized pear, purplish in color, and covered with small thorns (or spines). The edible, juicy, pulpy fruit is red, and somewhat enjoyable, but not necessarily worth the trouble of dealing with its thorny coat, which makes it difficult to assess its ripeness. I have not seen the thornless variety developed by Luther Burbank. The taste of cactus fruit is slightly tart and it has many fine seeds. It is necessary to cut out the areas with the little spines in order to handle the fruit.

Cherimoyas

This is practically unknown in most U. S. markets, because it is very delicate and does not withstand shipping. I am including it although I have not yet been successful in ever tasting this fruit. Dr. Esser says it surpasses all other fruits, and I encourage you to try it if you ever find it available to you. It is prolific in tropical countries, haying originated in Ecuador and Peru, and spreading to Mexico, the West Indies, Africa, India and Polynesia. Weak attempts to cultivate it in some parts of the U.S. have not been particularly successful. This fruit attains its highest perfection on the slopes of the Andes.

The shape of the cherimoya is irregular, sometimes round, sometimes cone-shaped. The skin is delicate, dark green when ripe. The edible part is whitish yellow, juicy and filled with many brown seeds. The taste reminds one of the pineapple, though it is perhaps more delicious and delightfully fragrant.

Cherries

The peak season for this fruit is June and July. Eating cherries appear in May, but one should wait until June for the dark, sweet, flavorful ones, which will also be priced lower by then. Small size cherries are not a good buy; the pit is the same size as in the larger cherries. The most important sign of maturity and sweetness in cherries is a very dark color. They should be bright, glossy and plump and the stems should not look dark and withered. Cherries decay rather quickly, and should be used soon after buying. If you see soft leaking spots or surface mold, don't buy them. Tart cherries are not suitable for eating. Remember that cherries are heavily sprayed and have no tough, peelable skin for protection. Wash them thoroughly and eat sparingly—not every day during the season.

Citrus Fruits

Oranges

Peak season, December through June. Color of the skin is no indication of quality or ripeness. The skin of the first crops of mature oranges in November is green or greenish, but mature oranges are ready for harvest and eating, even when the skin is green. They are, however, not as sweet as oranges harvested a month or so later on. California growers "orange" their green fruit by gassing; Florida shippers put the oranges through a colored wax bath (a "non-toxic" food coloring and wax), because they believe the added color will make the fruit more saleable and the wax will improve the keeping quality. Some fully ripened fruit even turns green again late in the season. Lucky people who live near orange groves can get uncolored, freshly picked oranges, and, possibly, even organically grown oranges. Organically grown oranges are usually the sweetest.

Organically grown oranges are available if you want to go to the trouble and expense of having them shipped in. See addresses in an earlier part of this lesson.

Firm, heavy oranges are full of juice. Avoid lightweight fruit and very rough surface, which usually signifies a thick skin and a smaller orange. There are many varieties of oranges. In Florida, we get navels, temples, tangelos, valencias, tangerines, and pineapple oranges. There are several varieties of tangerine oranges, including the mandarin, the honey murcott and the satsuma. Tangerines are best when they are a little loose in their skins, but not pulpy around the ends. Tangerines peel very easily, the skin being very loosely connected. Temple and tangelo oranges are also rather easy to peel.

Florida oranges disappear from the market about May, but oranges from California are available all through the year. Several varieties of California oranges are usually available, including navels and valencias. Oranges grown in the United States outside of California, Florida and a small strip of southwest Arizona, must either be very hard varieties, or must have artificial winter protection or heating. Some oranges are thus successfully cultivated in southern Texas, the northern interior of California, and elsewhere. I have received brochures offering shipments of Texas oranges. Jaffa oranges from Israel are sometimes available.

Grapefruit

Peak season, November through April. Grapefruit are really available throughout the year, and are ripe and of consistently good quality, though the price will be higher when they are out of peak season. This is one fruit in which color and blemishes have little relationship to quality, although it is said that rusty looking marks on the skin are an indication of sweetness.

Grapefruit should be firm, thin-skinned and heavy for their size. The smoother the skin, the thinner. A coarse surface and pointed end are signs of thick-skinned, less juicy fruit, but it may still taste good. Wrinkled and rough skin will indicate tough, dry fruit. Skin defects are of no importance, except for large, soft, wet spots. If discolored at the stem end, or if the skin breaks easily, decay has begun. Popular varieties are Marsh, Ruby Red and Duncan. Although the Duncan has many seeds, it is the best in delicious flavor. Indian River (Florida) fruit is considered superior in flavor and quality.

Kumquats

Available in the south in the fall and winter. Some are suitable for eating, some only for making preserves. Some are ovoid, some spherical. A spherical variety native to Florida is very sweet and one can even eat he skin, which is thin, sweet and spongy.

Carambolas

The major crop becomes available in the spring and summer; they are sometimes available in November-December. Available mostly in southern markets. They are usually lemon-colored (unripe) and the clear, watery pulp is too tart and astringent, and they seldom ripen satisfactorily. When orange-colored, they are ripe and pleasantly acid-sweet, with an agreeable flavor. If picked at full maturity, they are good eating.

This fruit is somewhat of a novelty to behold. It has a waxlike surface with deeply ridged sides, and when hanging on the tree, carambolas resemble lanterns. A cross-section or slice of the fruit is star-shaped, since the fruit has an oval, five-angled shape. Carambolas are not citrus fruit, but are acid fruits resembling the citrus in appearance and taste of the flesh.

Lemons

Available throughout the year. Peak season May through July. The habitual use of this strongly acid fruit is not advisable. It can not only cause erosion of the dental enamel, but it tends to retard digestion. Use of lemons in salad dressing is less objectionable than vinegar, but it is better not to use salad dressing at all. Recipes for salad dressings made without vinegar or lemon will be given in Lesson 26. Lemons with a rich, yellow color, reasonably smooth skin and heavy for their size are the best.

Limes

Available year-round, peak season June-July. Comments about lemons also apply to limes.

Cranberries

Peak season, October through December. Cranberries are not recommended for use as food because they contain considerable quantities of malic and benzoic acids. Benzoic acid is a white, crystalline acid used in perfumes, dentrifices and germicides, and to season tobacco. Cranberries cannot be enjoyably used in their natural, raw state unless considerable amounts of sweetening are used, or unless combined with other sweeter fruits, such as oranges. Cranberries are classified as acid fruit, but are best excluded from the diet.

Currants

Not usually available, except in the dried state, or in jellies and jams. Currants grow wild and in gardens in temperate climates. The wild species are small and very sour, but the larger garden varieties have an agreeable acid flavor. The currant resembles a tiny grape, or when dried, a small raisin. There are three varieties, red, white and black. The red variety is richest in mineral content.

Dried Fruits

Available all year. Dried fruits are rich sources of natural sugar, plus all the vitamins and minerals in the fresh fruit. The drying process preserves the fruit by removing about 50% of its water. Almost all of the nutrients remain. Dried fruit is particularly high in iron.

Select only fruit which has been sun-dried, and which does not contain sulfur dioxide or other additives. Fruit which has been dried by artificial dehydration (heat evaporation) is usually dipped into a sulfur dioxide bath to keep it from darkening. Golden raisins, and any dried fruit that is light in color, have been treated with sulfur dioxide. Almost all dried fruit is fumigated during storage or shipping. Dates are usually, pasteurized to prevent molding. Preservatives are not necessary in these products, but some processors add sorbic acid as a preservative, and some add corn syrup or honey to keep them from drying out. Don't buy any dried fruit that contains sorbic acid, sweeteners, or any additives.

Dates

Dates usually only reach us in the dried state. The Calavo and Dromedary brands, available in supermarkets, don't have any additives. The varieties available in health food stores usually don't have any chemicals or sulfur dioxide, but they are sometimes honey-dipped. Some of the popular varieties are Deglet Noor, Medjool, Khadrawi, Barhi, Halawi, Zahidi and Bread dates. Some of the varieties are very large and of superb flavor, but they are seldom available, and quite expensive. I usually buy my organically grown dates from Jaffe Brothers, and "fill in" by purchasing a few at the health food store.

Figs

The two most popular domestic varieties are Calimyrna, the native California variety, which is light in color and sometimes large and succulent; and Black Mission figs, which are purplish black, with pinkish meat, and are usually small. Calamata strings, imported from Greece, are uncured. Smyrna and Kadota figs are sometimes available. We have a Kadota fig tree on our property, and get a large crop of figs of large size and excellent flavor. We eat figs every day when they are ripening, give large quantities away to friends and neighbors, and freeze the rest, without heating or sweetening. We eat them just barely thawed, and they arc not as good as freshly picked raw figs, but they are a welcome addition to our fruit meals in the winter. We buy organically grown dried Calimyrna figs from Jaffe Brothers, and sometimes buy dried figs from the health food store.

Raisins

Sun Maid Thompson seedless raisins (except the "golden"), and Sun Maid muscats, sultanas and currants, are sun-dried without the use of chemicals. S&W raisins (the dark kinds) are also free of sulfur dioxide. Monukka raisins are large choice raisins available in health food stores. I buy my raisins from Jaffe or Covalda or the health food store.

Apricots

Sun-dried, unsulfured apricots are usually very tough and dry and must be soaked overnight to make them palatable. I am very fond of soaked, dried apricots, because they have an excellent flavor and are less sweet than most dried fruit. If dried apricots have an even color and bright, attractive appearance, they have been sulfured.

Prunes

No unsulfured prunes are available in supermarkets, but some are available from Jaffe, Covalda and health food stores. Prunes are high in oxalic acid and their usage should be limited.

Dried Dark Cherries, Dried Bananas, Dried Apples, Dried Peaches and Dried Pears are also available at times. Select only unsulfured fruit.

Dried Litchi Fruit and Dried Carob Pods are also sometimes available. The dried litchi tastes somewhat like the raisin. The shell surrounding it looks like a small brown ball (the shell is red in the fresh state), and the fruit surrounds a large, hard seed. Dried carob pods are hard, stringy, and chewy, but if they are not too dry they have an agreeable taste. The color is dark brown and the dry fruit encloses a number of small, hard, shiny seeds. Carob powder (available at health food stores) is often used as a replacement when a flavor similar to chocolate is desired.

Fresh Foods, continued...

Figs (Fresh)

Peak season, July and August (but rarely available). Figs should be plump and fairly soft, but not mushy, and with no breaks in the skin. The softer they are without being rotten or fermented, the sweeter they will be. If they are fermented, they will smell vinegary. Buy for immediate eating—they are extremely perishable. Figs can be green, yellow, pink, violet, brown or black. In chemical composition, the fig closely resembles that of human milk, especially in regard to the proportion of mineral salts. (See article on figs in this lesson.)

I have found fresh figs for sale about five or six times in my entire life, where I have lived in Indiana and Florida. They may be available more often in other areas of the country. Now that we have our own Kadota fig tree, we enjoy this delicacy regularly; we have one major crop in the spring, and a minor crop in the fall-winter season. We harvest enough to share with friends and neighbors, and put some in our freezer to enjoy during the winter. Our Kadota figs are green until ripe, when they swell, turn yellow and soften. (See "Dried Fruits" for additional information about figs.)

Gooseberries

Seldom available. The wild varieties are covered with spines, but the large cultivated varieties are completely smooth. American varieties are mostly inferior in size and quality to European species, some of which are almost as large as hen's eggs. Really good ripe gooseberries have a delightful, acid-sweet taste, but I have never found these good gooseberries.

Grapes

Peak season, July through November. The most common varieties are Thompson seedless (early green), Tokay and Cardinal (early bright red), and Emperor (late, deep red). Other varieties are Ribier (dark blue), Red Seedless, Concord, Catawba, Salem, Delaware, Jessica, Muscadine, Malaga, Muscat and Sultana. The first grapes will not be as sweet as those available later. Green grapes are sweetest when the color has a yellowish cast. Red grapes are best when deep red. All grapes should be well-colored, firm and plump, and still attached to the stem. Look for the powdery "bloom." Avoid bunches with small undeveloped berries (they're sour). When the best grapes are available, around early fall, we find Thompson and Red Seedless to be the sweetest and most flavorful, with Ribiers running a close second. Later in the season we have to settle for Emperors, which are usually fairly good. We don't care much for Tokays, but use them occasionally, because they are available late in the season when the other varieties are gone.

Grapes are nutritionally among the best of fruits, but it is too bad that they are so heavily sprayed that they should be eaten sparingly, after thorough washing. You might want to go to the trouble of peeling them, to at least get rid of the worst of the chemicals.

Kiwifruit

Available through the year. The New Zealand kiwifruit is about the size of a hen's egg. It has a thin brown furry skin. Squeeze very gently to check ripeness—it should give a little. The kiwifruit is growing in popularity. If you have never tasted a kiwi, you are in for a treat. When cut in half or sliced, it has a surprising, unusual and attractive appearance—emerald green flesh, with tiny seeds clustered around a light, creamy center. It has a wonderful, delicate, strawberry-like texture and a fresh, tangy flavor all its own. This fruit was formerly known as Chinese Gooseberry. Although most of the kiwis are imported from New Zealand, California is also growing the fruit, with about a thousand acres now in production. The November 1, 1981 Florida Market Bulletin contains a picture of a pair of kiwifruit growing in Florida—it didn't say just where. The article says that, as far as the editor could tell, these were the first pair of kiwifruit to be documented growing in Florida.

Litchi Fruit (Fresh)

Fruit season mid-June—mid-July, seldom available. The fresh litchi (also spelled lichee, lychee, leechee, lichi, laiche) is a grape-like fruit which hangs on the tree in beautiful red clusters, and is luscious when fully ripe. Some of the trees are grown in yards in southern and central Florida. The skin is a thin, leathery shell (hence the name litchi nut, which is often used), purplish-red to bright red when ripe. The flesh is white, similar to the grape, with a sweet taste, jelly-like consistency, and excellent flavor and aroma, surrounding a large hard seed.

Loquats

Peak season January-April, but seldom available in markets. They are grown in yards in southern and central Florida. We have one in our yard which yields a large crop of excellent fruit. The loquat is sometimes called the Japanese Plum, looks more like a small apricot, and tastes slightly acid, or subacid when totally ripe. Loquats are one to three inches in length, have a pale yellow to orange color and somewhat downy skin. The flesh is also yellow to deep orange in color, and the fruit generally contains three or four seeds. The loquat is very juicy and has an excellent flavor when fully ripe.

Mangos

Peak season, May through August. Mangos can be bought green and ripened at room temperature. It is best to select mangos which are starting to show some signs of ripening, rather than totally hard and green, or totally ripe. Completing the ripening at home under controlled conditions will usually result in better-tasting fruit. The color of the flesh varies from light lemon to deep apricot. In the best varieties, the flesh is smooth and juicy, with an excellent flavor. Such a properly ripened mango, eaten at the peak of its rich, pungent flavor, is delectable. The flavor is somewhat reminiscent of peaches, but much more exotic.

The Haden is a superior variety. The Kent is notable for its smooth texture. In some of the less desirable varieties, the flesh is full of fibers and the flavor unpleasant. The excellent Haden fruit is plump and oval-shaped and often has a rosy blush. When ready to eat, it is yellow and orange, only slightly firm, yielding to gentle pressure. The Haden has a fair amount of fiber, but excellent flavor. The Carrie is a large, green variety of good flavor and texture, and is fiber-free. It turns a paler green and develops dark speckles as it ripens. When ripe enough for full flavor and enjoyment, it is slightly firm, yielding to pressure. Mangos have a tough peel which is a good protective coat against sprays.

Melons

Cantaloupe

Peak season, June through August. Medium to large cantaloupes are usually sweeter and tastier than small ones. Heavy fruit will be juicier, but not necessarily sweeter. Pleasant aroma is the key to ripeness and superior flavor. The melons should yield to pressure, especially at the blossom end. The network of veins in the rind should be thick, coarse and stand out in bold relief, and the rind color should be a yellowish shade, not green. Avoid cantaloupes with smooth spots. If a cantaloupe was not mature when picked, some of the vine stem will adhere to the fruit. In order to be sweet, the mature cantaloupe must be free of the stem, with a smooth, shallow depression where the stem grew. If the melon is mature when picked, it will reach excellent eating quality if ripened at room temperature for a few days.

Don't buy overripe melons, indicated by widespread softening. They will be tasteless and watery. Small bruises are not significant, but large bruises will affect eating quality.

Persian Melons

Peak season, August and September. These melons are a variety of Musk Melon, and look like oversized cantaloupes, but are somewhat rounder with a finer netting. They can be grouped with cantaloupes for selection and use information. As the Persian melon ripens, the dark green rind under the netting turns lighter green and the rind gives under light pressure. Avoid those with dark or greenish black netting. Persians have a dark orange flesh.

Casabas

Peak season, July to November. They are best in September and October. Casabas are not netted like the cantaloupes, nor smooth like the honey dews. Instead, they are profusely marked with longitudinal corrugations. Skin color varies with the variety. Golden Beauty casabas are pointed at the stem end, with green skin that turns to yellow at maturity. They will have a yellow-gold color and a slight springiness at the blossom end when fully ripe. The ripe flesh of a casaba can be either white, yellow or orange in color. Although sweet flavored, the flesh is not as sweet as a honey dew, nor does it have the musky aroma and flavor of the cantaloupe. Casabas do not "slip" from the vine at maturity; rather they are harvested by cutting the stem when the melons are reasonably mature and held in storage until the blossom end becomes soft. The flesh of an unripe casaba tastes like a cucumber.

Crenshaws

Peak season, August and September, although available July through October. The crenshaw (not cranshaw) is a variety of the casaba. It is a slightly wrinkled, dark green fruit that turns pale yellow-tan at maturity. It has shallow furrows, but the rind is much smoother than that of the Golden Beauty casaba. When fully ripe, it is golden yellow, yields to slight pressure, and has a strong, sweet aroma. The flesh of the ripe crenshaw is a rich orange color, and it has a juicy, rich, rather spicy taste. The crenshaw is large, up to nine pounds, with a rounded blossom end and pointed stem end.

Honey Dews

Peak season, July through September. The best honey dews start coming in July. Before then, the tendency is to pick them too soon and they never progress to the lovely, delicate sweet flavor that is characteristic of a good honey dew. This melon is quite large and may be oval to round in shape. The rind is smooth and firm. When at the peak of flavor, sweetness and ripeness, honey dews are creamy white with yellow areas—with no green at all—and have a velvety surface and a sweet aroma. It is best to buy honey dews fully ripe, rather than to depend on ripening them at home. If there is "give" at the blossom end, and the color is right, take it home and use it in a day or two. Patches of slightly raised netting mean exceptional sweetness. If honey dews are stark-white or greenish, or if they feel hard, or look shiny and smooth, they were picked too soon. The flesh should be light green and very juicy, and sweet! A good honey dew is the queen of melons. Small damaged areas will not lead to further deterioration, if you plan to use the melon immediately.

The smaller round Honeyball melon has much the same characteristics as the honey dew, except for its size.

Watermelon

Peak season, May through August. Look for a slightly dull green appearance (not shiny and not really dull), with a velvety bloom on the rind. Dark green or shiny watermelons are unripe. The underbelly, where it has rested on the ground, should be yellowish or amber, not stark white or greenish. The melon should be symmetrical, with full, round ends. These signs are not totally reliable, but if used as a criterion, will usually result in the selection of a good melon. Some people use the thump test—a flat, dead sound when thumped is said to indicate ripeness. If the melon is cut, it is easier to choose—select firm, juicy flesh, with a good red color and no white streaks or mealy or softening areas; seeds should be dark brown or black.

Miscellaneous Melons

There are a number of other exotic varieties of melons, which are available from time to time. If in doubt, or inexperienced with these expensive melons, look for one that has been cut open.

Nectarines

Peak season, July and August. The nectarine tastes like a peach, but has the smooth, glossy skin of a plum. The color ranges from a red blush to completely red. If the color is rich and bright, it will be sweet. In recent years, I have found most nectarines to be dull in color, very hard, and impossible to ripen to an acceptable state. These nectarines have probably been picked too soon. If the color is right, but the fruit is too firm, it should ripen properly. The flesh of the ripe nectarine is yellow, like the yellow-fleshed peach. Don't buy dull-colored or shriveled fruit, or fruit with evidence of soft spots or mold. I prefer peaches, but good quality, tasty nectarines, without the fuzzy skin of the peach, are welcome.

Olives

Since olives are not available raw, all of them having been either pickled or salted, and the bitterness having been removed by potash or lye, they are not recommended for use as food. Dr. Esser says it would be a fine food in its natural state, fully ripened on the tree and sun-dried, so that some of the bitterness would be naturally removed.

Papayas

Some of this fruit is available all year. Small Hawaian papayas are available most of the time. Larger Florida papayas are best during the months of July through October (or later), depending on the weather. Papayas are also grown in Texas, and some in California. The fruit on our papaya tree usually starts ripening in the late fall, and then it is a race between the ripening and the frost (which can kill all the fruit). Size and shape of Florida papayas vary; they may weigh from one-half pound to ten pounds. The flesh may be yellow to orange-red. Select fruit that has some golden yellow or orange streaks, which is a sign that it has not been picked too green and will be apt to ripen properly. If you select papayas with at least 35% of the skin streaked yellow, they will ripen completely in two to three days at room temperature. When a papaya is totally yellow to orange and yields to gentle pressure, it is ready for eating. Don't buy mushy papayas, or fruit with dark patches, which signify age and decay. If not picked too soon and if ripened properly, the flavor is sweet and luscious. Otherwise, it may be bland and tasteless.

Pawpaws

Not usually available in markets. The trees usually grow in thickets along river banks in central U.S. valleys. We picked some in Indiana. It is an odd looking fruit, cylindrical with obtuse ends, from three to five inches long and from one and a half to two inches thick. The skin is brown, with dark patches when ripe. The flesh is creamy yellow, very soft, somewhat gritty and very sweet; it contains two to eight large glossy black seeds. It is somewhat similar to the cherimoya.

Peaches

Peak season, June through September. Select peaches with areas of yellow and no green at the stem, and that are fragrant, plump and fairly firm or beginning to soften. The best place and time to buy excellent, flavorful peaches is in Georgia in the summer. Don't buy hard, green peaches which were picked too soon and will never ripen properly. Ripe peaches turn reddish instead of yellow and feel soft to the gentle touch. The flesh is usually yellow, though there are some white-fleshed peaches. If you buy peaches that are ripe or almost ripe, you may find that they have deteriorated by the time you get them home. Don't buy bruised peaches. Unless used immediately, they will soon be garbage. If possible, buy local tree-ripened peaches that are slightly underripe. If you can get them organically grown, good for you! Peaches are heavily sprayed, but they can be peeled, which helps somewhat. European peaches are said to be superior to American varieties. California produces more peaches than any other of the United States.

Our peach tree produces large quantities of delicious white-fleshed fruit.

Pears

Peak season, September through November. Cold storage Anjou, Bosc and Cornice pears are available as late as May. The more fragile Bartlett pears are available through November. Select firm unblemished pears. If they are too hard, they may not ripen, so there should be just a little "give" to slight pressure.

Avoid wilted, shriveled pears. Spots on the sides or blossom ends indicate an overripe or mealy pear. A ripe, crisp pear is flavorful eating, but you probably will not enjoy a hard or mealy pear. Some pears are somewhat gritty. This grittiness is not consistent by variety and may sometimes be found, in different varieties. The tiny seckel pears available in the fall are an excellent flavor treat and are never gritty. The Bartlett—a medium early pear—is large, green to yellow, and is the most popular commercial pear, though its flavor is only medium, and it becomes quite mealy if not used at its peak of ripeness. It turns yellow when ripe. The Anjou is medium to large, has smooth green skin with a faint blush. The flesh is white and sweet, with a fine flavor. It is one of the later pears. The Bosc has a long, tapering neck and a russet skin. It is juicy, with a rich aroma and fine flavor. It is a late pear. The Cornice is a choice, flavorful pear of high quality. It is available in midseason, and is large, roundish, green-yellow to yellow, with a delicate blush. Pears are not usually waxed. Scrub well before eating.

Persimmons

The small native persimmon is seldom available in markets, but the trees grow wild, and if you can spot these trees, the persimmons are free for the taking in October, November and December. They are hardy, and grow in tropical or temperate climates. The fruit averages about one inch in diameter. The peak season for Japanese persimmons is October-November. They are grown in our southern states, appear in the markets in the fall, and are available for only a short time—a month or two. They are tomato- or conic-shaped, up to four inches in diameter and three inches high (sometimes wider than they are high) and orange-colored. A thin, membranous skin covers the orange-colored flesh. Persimmons are astringent when green, but become sweet when fully ripe. The flesh, when ripe, is very soft (sometimes almost liquid) and of very sweet and pleasant flavor. Japanese persimmons may have as many as eight elliptic, flattened, dark seeds, or they may be seedless. Some varieties have dark flesh, which is crisp and meaty and never astringent. These are edible before maturity. Some of the entirely dark-fleshed varieties improve as they soften, like Hyakume and Yeddo-ichi; others are best when still hard, like Zengi. But the more common, light-fleshed Japanese persimmons, or those with mixed light and dark flesh, should not be eaten until they reach the custard-like consistency of full ripeness. The "puckery" substance in the immature persimmons is tannin. As the fruit ripens, the tannin forms into crystals which do not dissolve in the mouth, and the astringency disappears. When they are thoroughly ripe, persimmons are very soft and difficult to handle. They should be picked when still a little firm, and the ripening finished at room temperature. Most of the Japanese persimmons available in the markets are picked too soon, and though they will still soften and ripen at room temperature, they never attain the optimal flavor of the persimmon which is picked at the proper time, just before they are ripe.

The small native American persimmons may also be harvested just before they are ripe, or they may be left hanging on the tree into the winter months. Even if frozen on the tree, the fruit is of excellent flavor when thawed. If the fruit is left to ripen and drop, it is at its peak, if it can be rescued quickly from the ground.

Pineapples

Peak season for this fruit is March through June. Good pineapples may also be available at other times during the year. Unless pineapples are mature when picked, they will not ripen properly. They may become soft, but never sweet. They may simply rot. Select pineapples that have begun to display some gold, orange-yellow or reddish-brown coloring. Some varieties are ripe when still green, but the best and most flavorful pineapples display the change in color from the base up, as they ripen. If the yellow color has spread to 15 or 20% of the fruit, then it's ripe. A ripe pineapple should have a fragrant (but not fermented) odor and a slight separation of the eyes when ready to be eaten. The spikes should pull out easily and the fruit should be plump and heavy for its size. Soft spots or an unpleasant hint of fermentation in the odor are signs of overripe fruit. Pineapples with pointed or sunken eyes, dull yellow-green color and a dried-out appearance are immature. Fruit allowed to ripen completely before picking is a flavor treat most people in temperate climates never experience. A considerable amount of pineapples used to be produced in Florida, as much as half a million crates, but this Florida commercial pineapple has disappeared. Most of the fresh fruit now comes from Puerto Rico, Honduras and—especially—from Hawaii. I have found Dole pineapples, air-expressed from Hawaii, to have the best flavor. They are the most expensive, but are almost always deliciously sweet and juicy. The Dole Company maintains that all their pineapples are plant ripened and that the Dole pineapple is ripe and ready to eat—regardless of shell color. I still try to pick one which is turning orange-yellow—I believe they taste best; and I always pick one that has the characteristic pleasant fragrance.

Plantains

Available intermittently. These look like oversized bananas, but they must be cooked before they can be eaten. Green and yellow plantains are very starchy. They must turn black before they are mature enough to be sweet, and they must still be cooked.

Plums

Peak season, July through August. Varieties of plums differ in flavor and appearance. The skins may be green to purple-red and the flesh yellow to red. There are many varieties of plums, and sometimes as many as six to eight varieties are available at the same time. During the course of the season, as many as thirty different varieties of plums may be featured in markets. Some are juicy and hard; others are soft and sweet; still others have a rich flavor. Select unblemished plums that have good color for the particular variety, a slight glow to the skin, and that yield to gentle pressure. Most plums are picked prematurely and will never reach their optimal delicious flavor. Avoid immature fruit, which is hard and poorly colored. Even if it softens, it will be very tart and lack flavor. Of course, don't buy overripe fruit which is soft, leaking and decayed. Plums are commonly waxed to give them a glossy look. It is best to peel waxed fruits. Plums should be eaten in limited amounts, because of their high content of oxalic acid.

Pomegranates

Peak season is in the fall. The fruit season is all year in south Florida. Fruit is picked after it has changed color to yellow and/or dark red, and is held in cold storage to ripen. If permitted to ripen on the tree, it may split. The fruit is round and flattened, irregularly six-sided, about the size of an orange. The tough, leathery skin encloses numerous small, red, juicy flesh bodies which contain small seeds. The flesh becomes quite sweet when thoroughly ripe. Some people don't bother with the pomegranate, feeling it is too tedious and difficult to eat. A simple way to eat the pomegranate is to carefully squeeze or knead it until soft, without rupturing the skin, but liquefying the red, sweet flesh. Carefully puncture the skin to avoid squirting and suck out the delightful sweet-acid juice. When ripe, it is easy to rupture the flesh bodies with slight pressure of the thumb.

Rhubarb

Peak season, March through June. Rhubarb is not recommended for use as food, because it cannot be eaten raw; even cooked, it requires much sweetening, in addition, it is a poor food because it is quite high in oxalic acid. The plant bears red petioles (fruitstalks) with large leaves, and bears no fruit in the usual sense. The fruitstalks are cooked into preserves or sauce or pie filling, and, therefore, most people think of rhubarb as a fruit, although, botanically, it is a vegetable. Diced rhubarb is usually combined with strawberries or apples for pie filling. The leaves are not used at all, as they contain large amounts of oxalic acid salts which may be fatally poisonous. As indicated above, the fruitstalks also contain enough oxalic acid to be rejected as food.

Strawberries

Peak season is April through June. In the far south, strawberry plants may be set out either in the fall or early spring, but the fall plantings yield a small harvest. Strawberries are usually expensive and of poor quality when out of season. Medium to small berries are sweeter than large ones, as a rule. Select dry berries with stems attached, showing full, red color, bright luster and firm flesh. They should be all red, with no whiteness around the tip, and with a bright green cap. If most of the berries in a basket are of reasonable quality, it is probably the best available. Be sure to sort out any decaying or green berries as soon as possible. Don't wash them until you use them.

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4. Storage Of Foods

Foods that are refrigerated should be handled with special care. Bacteria in such foods can multiply rapidly under adverse conditions. Most of your fresh produce should be kept refrigerated (unless it needs ripening at room temperature).

Dry mixes—like Vegebase (dried vegetables used as seasoning)—which can be safely stored in a cabinet, should not be kept in cabinets above the stove.

Don't taste any food that doesn't seem right. You don't even have to swallow the food to be poisoned by the toxins produced by certain types of bacteria. In some cases, even the food's taste is no indication of safety. *When in doubt, throw it out*.

Don't expect your refrigerator to do things it was never meant to do. You may have thought that refrigeration would destroy most harmful bacteria in food. Refrigeration *will* retard the growth of the bacteria found in food, and inhibit their multiplication and ability to spread or produce a poison, but bacteria or poison present in food may still be there even after refrigeration.

The same is true for freezing, probably even to a greater extent. Freezing does not kill bacteria in food; it simply stops their spreading. The bacteria will become active and again continue to spread as the food is thawed. Food should be used as soon as possible after thawing.

Cooked foods deteriorate rapidly, even in the refrigerator. It is important to have accurate thermometers in your refrigerator and freezer. The refrigerator should be set at about 42 degrees, the freezer at zero. The motor and refrigerating unit should be kept free of lint and dirt. These substances cut off the air supply, overwork your refrigerator, and reduce efficiency.

The gaskets (the rubber insulation) around the doors should be flexible. Stiff, cracked and damaged insulation allows air seepage. Make a test with a dollar bill. Hold it halfway in the door, shut the door, and see if you can easily pull the bill out. If so, the gasket is allowing air to escape and should be replaced.

Check your freezer. Frost buildup of one-fourth inch or more actually serves as insulation against keeping foods well frozen. All items to be frozen should be tightly covered or wrapped in a moisture-resistant material.

Where you place the food is important. Some foods should be kept colder than others, and food placement affects air circulation and efficiency of the refrigerator. Keep in full view, so that you won't overlook them, those foods which should be used quickly.

It is best not to stack foods on top of one another if you can avoid it, and refrigerator shelves should not be covered with material which reduces or prevents air circulation.

Produce should be kept in the lower compartments to prevent crystalization. Food should be arranged so that the oldest is used first. This is important for safety, flavor, texture and nutrition.

Of course, the refrigerator should be kept clean and free of odors. An open box of baking soda, changed every few months, will absorb odor.

A Hygienist soon learns that it helps to have two large refrigerators. We keep the extra one in our garage. While the ideal would be to pick or obtain food for each day as needed, most of us cannot readily attain this ideal.

In order to buy and store organically grown apples by the bushel; fifteen pounds of organic potatoes and carrots at a time; a year's supply of nuts in the harvest season; a good supply of citrus fruit when the citrus season is waning, etc., these precious foodstuffs must have the best of storage facilities. This will not only minimize food losses, but will preserve as much as possible the food's value and flavor. As well as being refrigerated, they must be watched and culled, being sure to use them before they have a chance to degenerate. All of these foods store quite well, with an occasional apple or orange starting to break down prematurely. By and large, we have learned to minimize waste, and we enjoy a maximum supply of excellent food the year round, much of it organically grown.

Dr. Esser recommends that, wherever possible, the best idea is to build a large walk-in refrigeration unit in a shady spot or a place where the storage room can be set into a hill, or underground with steps leading down to the door. He gives specifications for building such a unit in his book, *Dictionary of Man's Foods*. He suggests, as one alternative, a storage room in the cellar of your house, and also gives specifications for this type of storage room. He suggests other alternatives, among which is the method we use—an extra refrigerator or two in a garage or basement.

Fresh fruits and vegetables call for careful handling. Most of them keep at maximum freshness in a refrigerator where it is cold and humid, and the sooner they are refrigerated after purchase, the longer they will stay fresh.

In discussing the storage of fresh fruits and vegetables, reference will be made to using pliofilm (plastic) bags for storage. Some Hygienists advise against the use of plastic bags or plastic anything. I don't use plastic dishes or plastic water jugs, but I still use plastic bags and plastic wrap. It is my opinion (or perhaps it is wishful thinking) that no significant transfer from plastic to food occurs, except in the presence of heat or acid. I use covered glass jars or containers whenever possible. If protecting a cut watermelon with pliofilm, people who feel very strongly against its use may thinly slice away the surface that has been in contact with the pliofilm.

The plastic storage bags available in supermarkets have proved indispensable in my kitchen. It is a good idea to double these bags, squeeze the air from the bags and close them tightly with wire "twists."

Perhaps you will like Dr. Vetrano's suggestion: Put a fine mist of water on your vegetables, put them in a brown paper bag, and then in a plastic bag.

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5. Storage Of Fresh Fruit

Do not wash any fruit before storing, and don't remove stems first. Sort it carefully and use any damaged pieces immediately. Fruit that is purchased locally should not be bought in large quantities. A week's supply should be the maximum; more perishable fruits like peaches should be purchased in smaller amounts.

Most fruits should be held at room temperature (out of direct sunlight) until they reach the desired degree of ripeness, and then refrigerated for a few days if necessary. (Ideally, the fruit should be used as soon as possible after it is fully ripe.) Thin-skinned fruits ripening in the kitchen must be covered at night, as they may attract insects. Fruits with tough outer coverings (bananas, avocados) need not be covered. Use brown paper bags for this purpose, not plastic bags, which cut off air. Don't wash fruit until you are ready to eat it.

Apples may be stored in the refrigerator without prior ripening. If they were mature when picked, they will ripen in the refrigerator, and most apples will keep well—some varieties better than others. Much depends on their condition when they are stored. Usually Delicious apples are not considered good "keepers" but we have had excellent experience with our Golden Delicious apples. Maximum storage time is supposedly a few weeks, but we have ordered large enough quantities to last two months or longer, with good results.

Most ripe fruits keep best at quite low temperatures (above freezing, of course). If you set your refrigerator at about 42 degrees, it will be suitable for most of your foodstuffs.

There is one important precaution to take when storing apples. They emit a kind of ripening gas, which can spoil other foods. Therefore, apples should be stored covered, or in pliofilm bags, if there is any other unwrapped food in the refrigerator. Unwrapped apples will also absorb odors from other produce, and they will keep longer if stored covered or bagged.

Some fruit, such as *grapes*, *pineapple* and *watermelon*, will not ripen after picking. These should be stored unwashed in the refrigerator as soon as possible, and used within a few days. Maximum storage time for grapes in good condition is five days, but they need to be culled daily. Grapes may be stored in an open container. We use an oblong plastic refrigerator storage box. A whole ripe watermelon may be used gradually over a period of several days. A ripe pineapple should be used in a day or two.

As previously indicated, it is best to buy a ripe *honeydew melon*, instead of trying to ripen it at home. I have had the frustrating experience of holding honeydew melons for weeks—if you buy melons that do not have the signs of ripeness previously described, they may never get ripe. *Other melons*—other than watermelon and honeydew—can be ripened on your kitchen counter, then stored in the refrigerator. When ripe, use as soon as it is possible, within two or three days.

Ripe unwashed *peaches* and *nectarines* will keep fairly well in the refrigerator for a few days (if just barely ripe and not overripe). Peaches and nectarines must be carefully watched and culled.

They may be stored in an open bin or container.

Other ripe fruits may be stored in the refrigerator (*cherries, apricots, papayas, plums*) from several, days to a week, depending on their condition when you move them to the refrigerator. Keep watching, culling and using them. Most fruits may be stored in open bins or containers.

Berries are very perishable, and should be bought for immediate use. Strawberries may keep a day or so, a little better than blackberries or raspberries. Blueberries, if in good condition, may keep a few days. Berries, including strawberries, must be tightly covered.

Japanese persimmons should be eaten when ripe; they do not keep well. They may be stored in the refrigerator a day or two after fully ripe, in a covered container. If you have too many to use before they spoil, they may be frozen successfully, but with some loss of flavor. The *small native persimmons* freeze very well; they may taste even better after having been frozen, if eaten before they are thoroughly thawed.

Fresh, ripe figs need to be eaten immediately—they are extremely perishable—you might be able to store them for one day in a covered container.

Once *bananas* are ripe, their life can be prolonged for several days by storing them in the refrigerator. Bananas (like apples) emanate a ripening gas and should be covered or bagged if other uncovered foods are stored in the refrigerator. Bananas also emanate a strong odor. Bananas stored in the refrigerator will turn black and look unattractive, but they will still be "good eating" for several days. If you have too many to use up quickly, they may be frozen. Recipes for different ways to use ripe bananas will be given in Lesson 26.

Avocados may be stored in the refrigerator after ripening, but not too long—about three days maximum. If you find that they have gray, black or brown spots when you cut them, cut the darkened areas away and test the good-looking green part by taste. If you have too many avocados that will ripen too fast, try storing them in the refrigerator in their hard state and bring them out to ripen as needed. They will last quite a long time. This will be fairly consistently successful with avocados and will sometimes also work with *mangos*. Other fruits will usually not ripen successfully after having been chilled.

Citrus fruit will keep well for several weeks, sometimes much longer. They may be stored in open bins or containers in a cold room or the refrigerator. Do not store in closed bags.

Kiwifruit may be stored in the refrigerator for two or three days after it feels soft enough to eat. *Litchi fruit* is a little tart when mature and freshly picked. It sweetens as it ripens and should be used before the bright red outer covering starts to deteriorate. It may be stored in the refrigerator for a few days after it has attained its full sweetness. *Loquats* are tart early in the season but have a bright orange color when ripe; they are firm with a little yielding when pressed. Ripe loquats may be stored in the refrigerator for a few days. These fruits may be stored, covered or uncovered.

Mangos may be stored in the refrigerator when ripe, depending on their condition, and may last for quite some time, if they are still a little firm when stored. I recently had a mango that I kept in the refrigerator for two weeks after ripening and it was still perfect, sweet and luscious when it was used by my husband, Lou, the day after breaking his 29-day fast. The mango season was about over and I had saved it for him, hoping it would not deteriorate; he said it was the best one he had ever tasted.

Ripe *pomegranates* may be stored in the refrigerator for a week or so.

These storage tips are generalized, of course. You will need to develop judgment and expertise in nurturing your fruit, which will come through practice.

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6. Storage Of Dried Fruit

All varieties of dried fruits will last a long time if properly stored in the refrigerator. Refrigerate your basic supply as soon as it arrives. Store it in tightly closed containers or pliofilm bags, transferring small amounts for current use to smaller, more accessible containers, so that the larger supply will not be subjected to frequent "out-again and in-again" changes of temperature. I have never noticed any loss of flavor, nor had any spoilage, even when I have occasionally had supplies almost a year before they were all used. I buy them mostly from Jaffe, and buy a good supply when the varieties we like are available. Of course, you should always use the oldest supplies first.

7. Nuts And Seeds

In nutritive value, nuts are superior to any other food that we know. According to scientific investigations by Professor Myer E. Jaffa, of the University of California; Professor F.A. Cajori, of Yale University; Van Slyke, Osborne, Harris, and others, the proteins in nuts are superior to those of animal origin.

Nuts are clean, sterile and free from putrefactive bacteria and the waste products that abound in flesh foods (uric acid, urea, etc.). Nuts are free from trichinae, tapeworm and other parasites and infections due to specific organisms.

The planting of nut and fruit trees, wherever possible, would serve a triple purpose: 1. beauty, 2. shade, and 3. excellent food.

The importance of the thorough mastication of nuts cannot be overemphasized. The nut is a dense, concentrated, high protein food and its digestion is more complicated than the digestion of fruits and most vegetables. It is important that every particle be thoroughly masticated—the stomach has no teeth, and even small particles pass through the alimentary canal undigested, because of the inability of the digestive juices to penetrate hard substances. For those with dental problems, nut butters or ground nuts, made from fresh raw nuts, are a suitable substitute.

Nuts should be regularly included in the diet, approximately two to four ounces daily, or in greater or lesser amounts, according to individual needs. Lactating mothers, and people who have undergone prolonged periods of fasting, might need a greater amount (if not beyond their digestive capability) in the initial post-fast period. People on all-raw food diets with the greater nutritional potential of all raw food, might get along well on less. People who use legumes and grains as sources for some of their protein (or cheese) should use similar amounts of nuts. The nuts, of course, should not be used at the same meals as legumes, grains or cheese. The amount of nuts used is an individual matter, subject to some experimentation.

7.1 Purchasing Nuts and Seeds

It is best to buy nuts in the fall, when the new crops are available. The growers, wholesalers and retailers will be handling and storing the nuts until the next fall, in any event, and it is best to obtain your annual fresh supply and do your own storing.

We buy most of our nuts from Jaffe Brothers in October. If we must fill in later, we patronize the local health food store, which does an excellent job of maintaining refrigerated supplies of shelled nuts.

Some people buy a majority of their nuts in the shell, some prefer the convenience of shelled nuts. Unshelled nuts keep longer, but shelled nuts, if properly stored, usually stay reasonably fresh all year. It is difficult to judge the quality of nuts in the shell, and some nuts are difficult to shell.

It is often possible to contact growers of locally grown nuts and purchase those nuts in season directly from the growers. If you do this, you will probably need to dry or "cure" them. This is done by spreading them in an airy place for two or three weeks. Then they will require storing in a cool, dry place. The kernels should be removed from the shells and processed as soon as possible. This is done by putting the kernels into a large flat pan (preferably in a single layer) and into a 140 degree oven for four to five hours, until they feel perfectly dry. Then they can be stored in a covered container, in the refrigerator. These fresh nuts, well-processed, will stay in top condition until the next harvest, or even longer, with no apparent loss of flavor. Not everyone is willing to go to all this trouble, and, of course, there will be varieties of nuts you wish to use that are not grown locally. When you purchase unshelled nuts, presumably they have been put through some kind of drying or "curing" process.

If you buy nuts from your local health food store, you can usually get a discount for a quantity purchase of ten pounds or more of the same variety. Sometimes, if you are a regular customer, you can get the 10% discount, even when you buy, say, only five pounds at a time.

It is usually inadvisable to purchase your nuts in supermarkets, but there are some exceptions. The shells of most unshelled nuts sold in supermarkets have been bleached, treated with lye and gas to soften and loosen the kernels, and possibly colored and waxed. Some supermarkets do carry untreated nuts and seeds. Read the labels for some guidance, but I am not sure how reliable that is.

Shelled nuts in supermarkets are not refrigerated, and unless you purchase them when the shipments first arrive, are subject to more rapid deterioration than refrigerated shelled nuts.

Since nuts are not as perishable as produce, it is a good idea to buy the best, by mail, from Jaffe Brothers or some other reliable source. They have shelled or unshelled nuts available, some organically grown, and all much better quality than are available elsewhere.

Of course, all of your nuts should be raw and unsalted. So-called "roasted" nuts are actually "French-fried" and heavily salted. You should not use "dry-roasted" nuts either. Heated fats may be carcinogenic, and nuts are high in fat.

7.2 Selection of Certain Varieties of Nuts and Seeds

Pumpkin seeds and such nuts as *macadamias*, *pignolias* (pine nuts) and *pistachios* are excellent, but usually so expensive that it is much more practical to utilize *sunflower seeds* and such nuts as *pecans*, *almonds*, *filberts*, *Brazils*, *walnuts*, *Indian nuts* and *cashews*. You can use any nuts that are raw and unsalted.

If you particularly like any of the more expensive varieties, you could have some on hand for use in small quantities, as a treat, along with other less expensive nuts. It is a good idea to use as many varieties as possible (not all together!) from time to time, because the different varieties of nuts and seeds vary in their content of nutrients, particularly certain amino acids. For example, Brazil nuts and filberts (hazel nuts) contain greater amounts of the essential amino acid, methionine, than any other nuts, while the almond contains a greater amount of the essential amino acid, valine, than do other nuts.

The bitter almond contains considerable quantities of prussic acid and is not recommended. Other varieties of almonds are excellent food, but the brown skin still contains small quantities of prussic acid, so it is best to blanch them. Blanched almonds are sometimes available, but it is much better to do your own blanching. (Instructions in Lesson 26.)

The almond is one of the best of all nuts, and a rich source of protein. It is the only one of the true nuts that has a somewhat alkaline reaction in the body.

The cashew is not really a nut—being the pistil of the cashew apple, which has been heated to make it edible—but it is used and classified as a nut.

Peanuts, *coconuts* and *chestnuts* are in different categories than the nuts mentioned above.

Peanuts belong to the legume family. They are not as good food as true nuts, nor do they have as good a flavor in their raw state. Some people enjoy raw peanuts and use them, but they are subject to some of the same problems encountered with other legumes (difficulty in digesting, producing gas in the digestive tract). Some Hygienists use raw peanuts (and raw peanut butter, which, when used, "should be made fresh at home and used quickly, so it does not become rancid). Ordinary supermarket peanut butter should not be used. The peanuts are made indigestible by long periods of roasting and large amounts of salt are often added. Then the peanut butter is hydrogenated, so the oil will not separate and rise to the top. Those who do not enjoy the flavor of raw peanuts and raw peanut butter sometimes use peanut butter made to order from slightly roasted peanuts in the health food stores. This is much better than the heavily roasted, salted, hydrogenated variety, but is still not recommended for regular use.

Coconuts contain the only saturated fat in the plant kingdom. Coconut meat is best when it comes from the, fresh coconut. Dried coconut which has not been treated with chemicals is available from Jaffe, Walnut Acres or your health food store. Coconut meat is alkaline in metabolic reaction.

Fresh coconuts are available in supermarkets. Their peak season is October through December.

Coconuts should be heavy for their size and sound full of liquid when shaken. Examine the eyes (the three small circles at one end). If you detect wax over one or more eyes, or any evidence of tampering, the coconut has been opened, the coconut liquid drained and the coconut refilled with water. The extracted liquid is used in manufacturing certain pharmaceuticals.

Chestnuts are available in supermarkets In the fall and early winter. The chestnut is usually roasted before eating, though some varieties (those not bitter) can be eaten raw. The chestnut is alkaline in metabolic reaction. Instructions for preparation will be included in Lesson 26.

Peanuts, coconuts and chestnuts all contain starchy protein.

The principal edible seeds are *sunflower*, *pumpkin*, *sesame* and *squash*. We use mostly sunflower seeds, which are the best buy and are very high in nutritional value. A meal containing, sunflower seeds and dark, green lettuce plus tomatoes and other nonstarchy vegetables, is excellent. If you are really concerned about getting all the nutrients at one sitting, including all the essential amino acids, this is about as close as you can get. Of course, Hygienists know that it is not necessary to get all the nutrients at one meal, and most attempts to do this result in overeating and some atrocious food combinations.

Actually, no conventional meal supplies all the nutrients, not even the much-vaunted "complete and high quality protein." Much of the food served in conventional meals is cooked or otherwise processed, thus destroying all the enzymes, and damaging and altering all the other nutrients. The so-called complete protein of animal foods would only apply to the entire animal. Muscle meats (most commonly consumed) and organ meats are deficient both in protein and calcium. After separation and heating, the amino acids from enzyme-resistant linkages, and the biological value of the protein has dropped some 50%.

A well-planned Hygienic diet does provide all of the nutrients, and provides a very favorable sodium-potassium ratio and a favorable calcium-phosphorus ratio.

No food is complete in itself, but sunflower seeds come very close. These little kernels contain practically the whole spectrum of important nutritive elements, including quality protein. They also contain about every known vitamin except Vitamin C—and even develop this one when sprouted.

Moreover, sunflower seeds contain highly digestible polyunsaturated fatty acids. They contain Vitamin E, which prevents the rancidity of the oils contained in the seeds, and this is one of the few sun-following plants which contain Vitamin D. Sunflower seeds contain generous amounts of Vitamin A, B-complex factors, Vitamin K, and a bonanza of minerals and trace elements, including potassium, iron, calcium, phosphorus, magnesium and zinc.

The American Indians used sunflower seeds for food long before white men arrived. In Middle Eastern countries, they're included as a regular course at meals, much as we serve salads. In Russia, sunflower seeds are the national snack, as regular as popcorn and peanuts here. Russian czars are said to have fed their soldiers successfully on two pounds of the seeds daily in their rations.

Sesame seeds pose some problems. They are small and perhaps difficult to masticate, and therefore some people like to grind them and sprinkle them over the salad. Unhulled, or brown, sesame seeds are somewhat toxic and should not be used. The usual hulled, white sesame seeds are even worse, because bleaches and toxic solvents are used to remove the hulls;

Acceptable hulled sesame seeds, hulled mechanically, are now available. If you want to use sesame seeds occasionally, these are the ones to get.

8. Storage Of Nuts And Seeds

If you buy the best and freshest nuts available, in season, you can store them until the next year's harvest. Unshelled nuts may be held at room temperature for a few months, sometimes as long as six months, except in very warm weather.

Formerly, I stored my reserve supply of nuts in the freezer, where they remained stable and fresh-tasting. We never observed any loss of flavor or texture. Of course, nuts do not freeze, even in the freezer, because their water content is very low.

When a food is frozen, its water content expands, causing bursting of the cell walls, and spilling of the contents, thus destroying the cell. When the food is thawed, a loss of texture is observed. A loss of nutrients also occurs, due to oxidation. Decomposition speedily follows thawing if thawed food is not used immediately. There is also some deterioration which occurs while the food is frozen.

Nuts do not contain enough water to expand and burst the cell walls. Nuts which have not yet been harvested seem to suffer no damage from being stored at freezing temperatures and remain fertile after having been exposed to below freezing temperatures. The question is, does the situation change after harvesting, and can the freezing temperatures then have adverse effects?

Calvin Arnold, director of Agricultural Research in Monticello, Florida, says that freezer storage is the best way to maintain the quality of pecans, in or out of the shell. He says that if they are frozen soon after harvesting, they can last several years. He warns that you should not ever try to refreeze them after thawing. This would seem to indicate that changes do occur as a result of freezing.

In March 1977, I read a report in Consumers Digest which led me to change my practice of storing nuts. This report pointed out that nutrient loss is caused by very high and very low temperatures, and that freezing temperatures particularly destroy Vitamin E. Since Vitamin E is a significant factor in nuts and seeds, I decided to discontinue the storage of nuts in the freezer. Results: excellent!

As of this writing, November 1981, I have just finished last year's supply of shelled pecans, which had been stored in moisture-proof pliofilm bags in my refrigerator, and started on my fresh supply. Amazingly, they both tasted about the same: fresh, tasty, crisp and flavorful. There was no sign of rancidity and no loss of flavor or texture from the year's refrigerator storage at about 42 degrees.

We buy our seeds (sunflower, sesame, pumpkin) as needed, usually five or ten pounds at a time, from Jaffe or the health food store, and store them in the refrigerator of course. We use more than sixty pounds of sunflower seeds in a year (two people), so we don't attempt to buy the whole year's supply at one time. We use sesame and pumpkin seeds in quite small quantities.

If you are still "sold" on storing your nuts in the freezer, you might compromise by storing a several months' supply in the refrigerator and the balance in the freezer.

Chestnuts are quite perishable. They lose moisture and spoil. If fresh, they will keep in the refrigerator, tightly covered, for up to a week.

Fresh coconuts, in the shell, will keep at room temperature for a month or more. They will keep longer, in moisture-proof pliofilm bags in the refrigerator, depending on how fresh they are. After a coconut is opened, the coconut meat will stay fresh a few days in a jar, submerged in the liquid from the coconut, or submerged in water. For longer storage, fresh grated coconut can be submerged in the coconut liquid and frozen in containers.

Dried coconut may be stored in the refrigerator, in a moisture-proof bag, for a month or longer; in the freezer, almost indefinitely. It is never a good idea to store food in the freezer more than six months to a year.

Peanuts, shelled or unshelled, will keep in moisture-proof containers in the refrigerator for at least several months. Peanut butter is a different story, of course. If you use peanut butter, it is best to make it or get it fresh in very small quantities, as peanut butter, or any nut butter, is subject to rancidity. If necessary, nut butters may be stored in the refrigerator for about a week.

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9. Questions & Answers

Are English walnuts and black walnuts preferred varieties?

> They are both more acid in metabolic reaction than other nuts, so it would be advisable to use them only occasionally.

I find sesame seeds difficult to chew. Is it advisable to grind them?

> It is all right to grind and sprinkle them on your salad. Some people are able to chew them well, but if you don't, they will pass through your system without assimilation.

Is it better to use frozen organically grown fruit, or fresh fruit that is commercially grown?

> If it is your own fruit, and you have rushed it from the tree to the freezer, without heating, sugar or other additives, and you eat it just barely thawed, it is quite a good product, but never as good as the freshly picked fruit, eaten ripe and fresh from the tree, with no loss of flavor, texture or nutrients. If you use this frozen fruit, you should also use some other fruit that is not frozen—even though it is not organically grown—to be certain to obtain from this fruit whichever nutrients may have been damaged or destroyed in the freezing and thawing process.

In the winter in the north, there are few varieties, of good quality fresh fruit available. What should I do about fruit meals at that time?

> I can tell you what we do. Of course, citrus is available all winter, and it is possible to have organically grown citrus shipped from Florida. We live in Florida and use citrus regularly until melons are again available. We do realize that people who live in the north may not find citrus as agreeable or well-tolerated as people who live where the citrus grows.
>
> I have told you how to get organically grown apples. We get enough to last most of the winter. We use some grapes, and some pears. Bananas are always available. Avocados are usually also available. Kiwifruit is now available through the year, and you can usually find pineapples also.
>
> In the winter we usually use more dried fruit. When a variety of good fresh fruit is available, we use dried fruit only occasionally. In winter, we like to use more of the less-sweet varieties of dried fruit, such as organically grown dried apples (when we run out of fresh ones), organically grown raisins (when we don't have grapes), organically grown dried cherries, and soaked organically grown dried apricots. We also use some dates and figs, sparingly, because they are so sweet. We use only one variety of dried fruit in the course of one day.

We also use some of our frozen peaches and frozen figs from our own trees.

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Article #1: Does Freezing Harm Foods? By Marti Fry

We know for certain that heating foods (that is, cooking) destroys foods by changing their chemical and organic structure. Proteins are coagulated (fused and hardened) and their amino acid molecules are broken up (deaminized), thus making them unusable. Carbohydrates (starches and sugars) become partially or wholly caramelized, though this is not readily detectable in the earlier stages of cooking. Caramelized sugars are indigestible, hence toxic to the body. Minerals are changed to their unusable and poisonous inorganic state and vitamins are largely, if not wholly, ruined.

The question arises whether the opposite extreme, freezing, likewise alters the chemical and organic structure of foods. Let's pursue this method of food preservation.

First, we should note that freezing does not affect foods of little water content—nuts, seeds, dried legumes and dried fruits lose nothing by freezing. In nature, seeds and nuts remain fertile no matter how cold it gets. The more water a food contains, the more it is adversely affected by freezing.

When a food is frozen, its water expands. This causes two immediately destructive occurrences:

1. The cell walls burst and the cell contents are spilled due to the internal water expansion; hence the cell's life is lost.
2. Oxidation occurs where air reaches the frozen foodstuff; hence nutrients are lost.

In addition to bursting the cell walls of foods and thus allowing oxidation to occur, two other things happen:

1. When the cells burst, certain of their organelles release self-destruct enzymes called lysosomes. While these enzymes are not active during freezing (and some are even destroyed), those which remain intact will speedily decompose the cell contents upon thawing. Lysosomes are in cells for the purpose of self-destructing dead cells so the dead cells will not create problems for the organism.
2. Whether oxidized or deranged by its own lysosomes, dead cells become soil for bacteria and fungi when the temperature becomes favorable again—bacteria are active at just above freezing up to temperatures around 160 degrees.

Oxidation of burst cells is the foremost cause of food deterioration during frozen storage. Frozen foods never taste as good to an unperverted palate as their fresh counterparts, even if no additives and pre-freezing treatments are employed. This is, of course, due to their deterioration while frozen.

While microorganisms such as bacteria are also inert during freezing, they become active just as soon as they are thawed. Hence, frozen foods, once removed from the freezer, decompose much more rapidly than do fresh foods. As mentioned, this is because of the bursting of the cell walls of the food when its own water expands and because of the subsequent decomposition through oxidation, self-destruct lysosomes and the final cleanup crew, bacteria.

It is well to repeat that food is rapidly destroyed when cell walls are burst, whether by cooking, blending, juicing, mashing or freezing. Oxidation occurs when cell contents are exposed to the air, and if temperatures are favorable, the cells' own lysosomes self-destruct its components.

Does this mean that banana "ice cream," fruit "smoothies" made with frozen bananas, and other frozen foods aren't truly healthful? Well, unfortunately, YES! Frozen foods have a similar effect on our organism as lightly steamed foods. Frozen foods should be used in moderation if at all. They may be helpful in inducing people to change over to their natural diet, especially people who are not willing to give up frozen treats such as ice cream Or some kind of dessert. Banana "ice cream" is a fair substitute and is far less harmful than frozen products containing additives, sugar, milk, honey, etc.

Also, remember that in our stressful environment, foods which digest quickly give us fewer problems than foods slow to digest (cooked foods, frozen foods and foods rich in oils and proteins such as nuts and seeds).

Frozen food must remain our stomach until it is warmed to body temperature. This delay can lead to fermentation of fruit sugars before the food reaches the small intestine for absorption. If we become emotionally upset (angry, irritated, annoyed, frustrated, etc.) while there is food in our stomach, digestion will be suspended and discomfort may follow.

Easily and quickly digested foods such as fresh fruits, on the other hand, will result in much briefer and less intense discomfort if you experience any stressful emotions.

Whenever you wonder which foods are best for humans, just look to nature for answers. Nature's only food storage and preservation method is drying. Fruits and berries will dry on the tree or vine if birds, insects or humans don't get to them first. Peas, beans and other legumes will dry when left in their pods. Dried foods which are frozen are not harmed because of their extremely small water content: there's not enough water to expand and burst the cell walls.

Nature provides us with food during every season. Thanks to modern transportation and refrigeration methods, people in northern climates can eat relatively fresh food the year round. Unsulphured dried fruits are available in many health, food stores. In most cases we are better off using fresh or dried foods than foods which have been frozen.

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Article #2: Your Probing Mind By Dr. Virginia Vetrano

I heard that sunflower seeds must be regarded as a cereal product and that, although they contain good protein, etc., they really are not good Hygienic fare and should not be used very much. What is your opinion?

> Although sunflower seeds are plant seeds, they are not grass seed. The chemical composition of cereal and sunflower seeds is quite different. Most cereals contain from 60-70% carbohydrate, 7-16% protein, approximately 7% fat and 1-3% mineral matter. The composition of sunflower seeds is 19.9% carbohydrates, 47.3% fats and 24% proteins. There is a higher percentage of protein in sunflower seeds than in cereals and a much lower percentage of carbohydrates. Sunflower seeds also contain more fat than ordinary cereals, thus making their composition more like nuts than cereal. They are very easily digested and should definitely be used in the Hygienic diet.

I have just read of the unhealthful effects of food packaged in plastic. Is plastic next to food truly detrimental to our health?

> Yes. Foods, being composed of semi-solid materials and most of them containing acids, will

have a tendency to absorb some of the poisonous chemicals from the plastic. Food that has been adjacent to plastic should not be eaten.

Carbon, hydrogen, oxygen, chlorine, and sulphur are some of the common elements used in making plastics. The plastic chemist gets his elements from such substances as coal, petroleum, and cellulose from cotton fiber. Salt, air and water are also used. Fillers are added to the plastic resin before the finished product is made. Some fillers which are added are wood flour, cotton, asbestos, mica, and cold plasticizers are often added to make what would normally be a hard plastic into a soft pliable plastic. Coloring agents are also added. Transparent sheets of plastic are usually basically composed of formaldehyde and urea. If used with acid foods, the plastic tends to dissolve into the food and render it toxic. No fumes seem to exude from cold plastics. However, allergic dermatitis and other ailments are often developed in those working with the chemicals used in the manufacture of plastics.

Although carnivores, whose digestion is adapted to flesh, can live successfully on a frugivorous diet, the frugivores do very poorly on a flesh diet. Is the above statement entirely true? If so, could you explain why?

It is a well-known fact that carnivorous animals living naturally in the jungles partake mainly of fruits during certain seasons of the year. Otto Carque and many other naturalists think that, in the beginning of life, there were no carnivorous animals, and that they became so because of the ice age or other stressful changes in the environment. We see a change in dietary habits today in the anthropoid apes. As they are squeezed out of their natural grazing areas by civilization and forced to live in too small a grazing area, a few of the group will be found partaking of eggs, or termites, or ants or sometimes they will kill a smaller animal and eat it like a carnivore.

The observation indicated by the question is quite true. Carnivorous animals can be fed vegetarian diets and thrive in excellent health as a result of the diet. The reason for this is that vegetable fare produces less wear and tear on the organs of purification and elimination than does animal fare. The kidneys, liver and digestive glands are worked less and the animal is better nourished by vegetables than when he is fed flesh and animal products, cooked and lacking in alkaline minerals.

When you place man on a diet for which he is not adapted, this places a stress on his organs of purification and elimination. As he has never adapted to the carnivorous diet, his liver is smaller than that of a carnivore and he cannot detoxify and purify the poisonous products inherent in flesh food as well as a carnivorous animal. His kidneys are also smaller and become diseased from the overwork caused by a diet too high in protein and toxic material incident to the consumption of flesh, eggs and other animal products.

Please comment on the current craze for high roughage foods, like eating bran every day.

Many years ago Graham and other health-minded pioneers emphasized the importance of whole foods, containing all of their natural bulk. It was their idea to teach people to eat unprocessed foods such as fruit, vegetables, nuts and whole wheat containing all its bran. Constipation, they said, stems from eating foods which have been robbed of their bulk by processing.

Commercial-minded citizens soon found a means of exploiting this idea. "Put some bran in your diet and ban constipation forever." From then until now people have been prodding their bowels to action by using bran. This was not the idea behind Graham's education. He was urging that the entire diet be changed and that it include the bulk of all natural

> unprocessed foods. He was not advocating fragmentation of foods.
>
> Actually, using a lot of bran overworks the bowels, and it is totally unnecessary if one is on a natural diet containing all unprocessed and uncooked foods. Bowels will function as they should when foods natural to man's digestive tract are eaten. The whole wheat berry contains the bran natural to it. The bran is the skin of the wheat. It should be taken in proportion to the wheat if wheat is eaten, not as a fragment of a part of the wheat.

Is the transparent skin covering each section of grapefruit and orange of any nutritional value? Should it be eaten?

> The skin covering sections of an orange may be and should be eaten with the orange, but the skin of the grapefruit has a bitter quality, and the general Hygienic rule is that if a substance is bitter to the normal unperverted palate, then it usually has a toxic quality to it and should be shunned as food, even though it may contain minerals and vitamins. The blossom of the poppy plant, containing opium, also contains minerals and vitamins. Just as the animals in the wild rely on their taste buds to guide them to their natural food, so man must rely on his sense of taste. Instinctively we do not like bitter things and would shun them if we were not wrongly educated.

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Article #3: Figs

What a treat figs are when picked fully ripened from the tree. I have experienced this a number of times and cannot think of a meal more satisfying.

Historically, the fig has been used as food for thousands of years by many cultures throughout the Mediterranean area. This is considered to be its native habitat, although it can be cultivated in all warm, temperate zone climates.

There are four main commercial varieties: the Black Mission, the Adriatic, the Kadota and the Smyrna, of which the Calimyrna is a variety. These can be distinguished from one another by their unique coloring. The Black Mission is dark purple or black-skinned with pinkish meat; the Adriatic is green-skinned with meat resembling raspberry jam; the Kadota is also green-skinned but the meat is light colored; and the Calimyrna is gold-skinned with light brown meat. (I am not familiar with other Smyrna varieties.)

In chemical composition, the fig closely resembles that of human milk, especially in regard to the proportion of mineral salts. Quoting from Otto Carque in his masterful treatise, *Rational Diet*, he says, "While the percentage of fat in mother's milk is higher, the fig contains more fruit sugar, thus furnishing the same amount of heat units per ounce. It will also be noted that the important elements of sodium, iron and sulphur are contained in larger proportion in the fig than in milk and wheat."

"The growing child, on account of increasing muscular and mental activity, needs more of these elements to carry on the process of oxidation and elimination. These elements must be more frequently renewed than others, and a sufficient supply of them in our food is a matter of great importance. In all cases of physical and mental exhaustion, the fig is, therefore, of exceptional value in replenishing the vital forces of the body."

So if you are fortunate enough to have access to this exceptional taste treat, please enjoy figs as a, fruit meal with other sweet fruits, or better yet, eat them alone and appreciate their unique flavor.

Reprinted from Fruition, Issue 6

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Article #4: Imagine Avocados—As A Dieter's Delight By Lincoln Kaye

Avocados have an image problem.

Everybody knows they're good, but this isn't enough.

Say avocado, and most weight-conscious people say "no thanks." Let's face it—they have a lot of calories. But it's not as bad as you thought; you get a lot of nutrition for those calories.

A 1-pound avocado supplies 70 percent of an average adult's daily needs for Vitamin C, a fifth of needed Vitamins A, B1 and B2, a third of the daily Vitamin B3 requirements, and generous portions of such vital minerals as iron, phosphorus and magnesium.

All this comes at a relatively high calorie cost-about 480 calories in the 1-pound Florida avocado. This reflects the avocado's makeup, which is about 12 percent oil and 8 percent carbohydrate—more like a nut than fruit.

But, as fattening foods go, an avocado's calories are relatively "clean." The fats occur in simple, easily assimilated molecules that are cholesterol-free and low in sodium.

Avocados are among the most ideal between-meal snacks for dieters, according to experts at the Institute of Bariatrics (fat studies) at Cedars of Lebanon Hospital, Miami Beach. Since most people eat them fresh, "the essential fatty acids in the avocado remain unrefined. They retain the nitrogen compounds that act as chemical 'tags,' to let the liver know how to break down and use them.

"The fats in the avocado will not be turned into bulge. They'll become energy reserves, lining membranes for the nerves... The same goes for the carbohydrates in the avocado. They're complex carbohydrates of the type that everybody needs. The body knows what to do with them." But many remain skeptical. As one Weight Watchers International director explains it, "I'm no more of a nutritionist than anyone else in our group. We're all just former fat people."

"But I DO know that avocados are definitely off our list, at least in the beginning stages of our weight-loss program. They're simply too fatty."

The avocado is still largely unknown outside the Western Hemisphere. Europe's culinary Bible, Larousse Gastronomique, dismisses it as a nut-like fruit "much prized by the Americans."

But Latin Americans have traditionally taken a different view from Europeans, esteeming the avocado even in pre-Columbian times.

Legend has it that the 16th century Aztec emperor Montezuma entertained Hernando Cortes with a feast featuring avocados upon the conquistador's arrival in Mexico.

The Spaniards, entranced with the new fruit, were supposed to have murmured "bocados", meaning "what a mouthful!" Which accounts, we are told, for the avocado's name.

The Random House Dictionary of the English Language offers a different—and more plausible-story of the word's origin. "Avocado" is reportedly a corrupt pronunciation of the Nahuatl Indian word for testicle.

If so, the allusion might be to the fruit's appearance or its supposed aphrodisiac properties.

Unripe supermarket avocados can be hurried along if buried in a bin of flour or rice or put in a paper bag.

They're ripe when they yield a little to the touch. Don't wait until they start developing dark or soft spots; that means they're starting to spoil.

Never cut an avocado before it is ripe; the flesh will be hard and bitter and will never mature. Fully ripe avocados will keep for a few days chilled. They don't freeze well unless pureed.

If you're only using half an avocado at a time, leave the seed in the remaining half to keep it from spoiling in the refrigerator. After it has been cut, the fruit will discolor a little; scrub it with a slice of lemon or lime to somewhat restore its bright chartreuse color.

The avocado's leathery shell makes a natural—even elegant—dish from which to spoon the tender flesh. A halved avocado, garnished with just a little lemon juice if desired, can make a satisfying light lunch or snack unto itself.

Part of what makes it so elusive is the chameleon quality of an avocado's flavor. The cup-shaped depression left when the pit is removed is an ideal spot for adding whatever you wish. The fruit also takes on some of the flavor of whatever you add.

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Article #5: "Natural" Foods By Joanne Will

Definitions and Standards Vary Among Food Companies

What are "natural" foods? It depends with whom you talk. The term has varied meanings to consumers. Food companies have established definitions to suit their own products. Retail outlets from food stores to health food outlets have their own idea of what "natural" foods may or may not be.

The federal government has no established standards for the use of the term, though guidelines for its use have been proposed in the food advertising regulations of the Federal Trade Commision (FTC), expected to be acted upon by Congress this fall.

But for now the term is up for grabs, and that's a confusing situation.

"Natural foods are those that do not contain any man-made substances or any chemical preservatives," says Dick Peterson, a food shopper who seeks out "natural" foods. "Fresca is a totally unnatural drink," according to Peterson. "I gave up drinking, it when I read the ingredients listed on the can," he said. "It's just like Chemistry 101."

Another consumer also described the term by what it isn't. In her mind, Jell-O with its artificial coloring, flavoring and sugar, is exemplary.

Others see "natural" as foods which are organically grown with natural fertilizers. Artificial coloring is prohibited in some people's definition. Added sugar is considered a no-no by others.

Ever since the term natural became a selling point, food companies have tempted shoppers with products so labeled. But definitions and standards vary among food companies. Quaker Oats, for example, has developed a definition of natural as it applies to its products. It states that "A food or a blend of foods derived entirely from components as they are found in nature (water lost on dehydration excepted) may be considered as natural. Such food or blend of foods may be processed to the extent that inedible or non-nutritive substances are removed, or if only inconsequential amounts of nutrients are removed, or if only the form of the food is changed."

Pillsbury discourages the use of the term natural when referring to its products, although two of them, bottled apple juice and unbleached flour, are touted as natural. Its use of the term relates to a product that has a minimal amount of processing, or as with unbleached flour, the product is "naturally" aged. Kraft uses the term natural on its cheese products to distinguish them from the processed variety. The company also has a group of dairy products promoted as natural. These products are formulated with ingredients that are not synthesized. "We try to use the term natural only as we think consumers perceive it," a legal spokesman for the company said.

If the FTC food regulations are adopted as proposed, a standard for the use of the term in advertising would provide these boundaries for determining the claims in food advertising: "Advertising shall not represent that a food is natural or a natural food if: (1) Such food has undergone more than a minimal processing after harvest or slaughter, where minimal processing may include: the removal of inedible substances, the application of physical processes (e.g., cutting, grinding, drying or pulping) that change only the form of the food; and/or processing necessary to make the food edible or safe for human consumption or to preserve it; (2) Such food contains any artificial flavorings, color additive or chemical preservative (as defined by the Food and Drug Administration) or any other artificial or synthetic ingredient; (3) Such food is composed of two or more ingredients and one or more of such ingredients could not be represented as natural or a natural food in accordance with this paragraph."

But these probably are not the final standards for advertising natural foods in the FTC regulations, which also address the use of such terms as energy and calories, organic foods, health foods, fatty acids and cholesterol. The FTC proposal has yet to be modified to reflect the opinions of consumer, food company and health food groups who responded during the public comment period.

There is concern by the FTC staff as well as such groups as the Institute of Food Technologists that if a food is labeled "natural," it will imply the product is superior to processed foods in terms of nutrient content and safety.

The Department of Agriculture in the state of Maine recently passed a regulation introduced and supported by the organic farmers and gardeners association in the state, which wanted to police their own industry. The law establishes guidelines for the use of the terms natural and organic on food labelling or advertising, and sets down definitions of "minimal processing" and "raw agricultural commodity."

It prohibits the use of the term health food on product labeling or in advertising, but allows the use of the term to identify a store or restaurant as such. Additionally, it prohibits that a food advertised as natural or organically grown make claims that it is superior in nutrient content or safety.

In Maine, growers, processors and sellers must keep records of crop locations, additions to soil, ingredients and suppliers for two years after the food is sold and which must be supplied on demand to the State Department of Agriculture.

Enforcement is left to the courts, but there are some loopholes in the law, according to Daniel Harlan, assistant to the commissioner of agriculture. The law allows for certification but does not say who will do the certifying of products. It also states that the Department of Agriculture has no "affirmation obligation" to enforce the regulation. The regulation does not go into effect until January 1980, and Harlan expects some adjustments will need to be made as "we get experience."

Whatever the outcome of the Maine regulation and the proposed federal guidelines for advertising, it's likely that fewer products will carry the term "natural" in the future.

Chicago Tribune

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Lesson 25 - Selection And Storage Of Most Wholesome Foods, Part II

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1. Vegetables

Vegetables are a very important part of an optimally nutritional diet, and can be the most enjoyable part of a meal if properly chosen and prepared.

Dr. Shelton says, "A large raw vegetable salad with each dinner is one of the most important elements of the diet. As a preventive of disease, it is far superior to all the vaccines and scrums ever devised."

Vegetables are anabolic (bodybuilding) foods, yet, unlike most protein foods, they are almost consistently alkaline in reaction, have very little fat and contain adequate amounts of dietary fiber.

Green leafy vegetables are the richest source of chlorophyll, as well as minerals and vitamins. They also contain small amounts of protein of high biological value, which is easier to assimilate than concentrated proteins.

A diet containing excessive amounts of protein and carbohydrates would not be nearly so harmful if balanced with a generous amount of vegetables.

Vegetables add variety to the menu and play an important role in the nutrition of humans.

1.1 How to Judge and Select Vegetables

General Suggestions:

1. Buy in season when quality is highest and prices lowest.
2. Don't buy more than you will use before they deteriorate. The sooner you use your vegetables, the more flavor and nutritional value they will contain.
3. Handle displayed vegetables carefully so you don't damage them for others.
4. Buy the freshest and best quality available—it will taste better, you will have less to discard and you will get more usable food for your money.

Vegetables are best when eaten immediately after they are picked from the garden. Try to at least grow some of your own lettuce (many vegetables can even be grown in crates, if there is really no garden space available), or find someone in your area who can share with you. Green leafy vegetables are so important that it is worth going to some trouble to assure a supply of the best available. All vegetables have the most to offer nutritionally and have the best flavor when organically grown and eaten in the raw state immediately after harvesting. The more time that passes after harvesting, the more chemical changes occur which alter the nutritional composition and the taste.

Fresh vegetables are usually transported rapidly from field to market in chilled vans to keep them at maximum quality. If handled properly at the wholesale and retail levels, they can reach you in fairly good condition. Unlike fruit, the concern is freshness, not ripeness. It is incumbent upon you to learn to pick the freshest and best, and to reject poor quality vegetables that have been mishandled or that have just been on hand too long. Even when you must depend on conventional sources for your produce, you can become a wise, canny, selective, knowledgeable shopper, and you and your family and dinner guests will eat the best food available.

If it's fresh, it looks fresh—not wilted, wrinkled, drooping or otherwise blemished. The color should be characteristic of the variety. The degree of maturity is also important. Most vegetables are best when slightly immature; if large and mature, they are usually tough.

As with fruits, most of the vegetables available in the markets have been treated with heavy doses of chemical fertilizers and pesticides. Washing can somewhat decrease those that remain on the outside surface, though nothing can remove the residues which are absorbed through the roots. Some vegetables can be peeled, but it is sad to have to remove the skin and thus lose the nutrients which lie immediately beneath it.

Some vegetables have their own protective coating, like podded peas and beans. Vegetables like lettuce can be washed only lightly to remove dirt and sand, and used "as is." Unless you grow your own, or obtain organically-grown vegetables, that's the best you can do. You will still be healthier and better nourished than nonvegetarians, and, as previously explained, chemical residues in the bodies of vegetarians are considerably lower than in the bodies of meateaters.

Some vegetables may also be waxed. Watch for the wax coatings on cucumbers, tomatoes, peppers, parsnips and rutabagas. Either try to buy unwaxed vegetables, or peel them. If you must peel, don't cut too deeply. Try to discard only the thin skin. The greatest concentration of nutrients is just beneath the skin.

Red coloring may be added to sweet potatoes or to some new white potatoes. Don't buy colored vegetables.

Potatoes and onions are frequently treated with an anti-sprouting chemical. If the potatoes look fresh and good, and a few are showing signs of tiny sprouts, that would seem to indicate that they have not been treated. I pick those that are not sprouting, of course.

Tomatoes may be picked green and gassed in the van on the way to market. You can tell by the color and the taste. Tomatoes that were not picked prematurely will ripen to a deep-glowing red color, the flesh will not be mushy, and the taste will be superb.

If you locate a source of "organically grown" vegetables, check the source to try to find out if they really are as represented. Usually, there are certain indications, certain differences in appearance and taste. In any event, don't accept vegetables that are poor quality or old just because you have been assured they are organically grown.

Keep trying to find organically grown produce, but in the meantime these lessons can help you pick the freshest and best of what is seasonably available.

Specific Varieties of Vegetables (alphabetically):

Artichokes, Globe (or French)

Peak season is March through May. Artichokes are grown in California and, while they are shipped all through the year, they are best from March through May. This vegetable is usually cooked. Select firm, compact, tightly closed heads that are heavy in relation to size, with green, fresh-looking leaves. Size is not related to quality or flavor. You may sometimes find artichokes with frost discoloration on the outer leaves. The inner leaves are still good and unaffected. Reject artichokes with brownish soft spots near the stem or on leaf edges.

Artichokes, Jerusalem (or ground)

This plant has potato-like tubers which are delicious eaten raw. It is crisp and tastes a little like a fresh water chestnut. It also has a delicate flavor when cooked. Dr. Vetrano has expressed the opinion that the starch in Jerusalem artichokes is not readily absorbed by the body.

Asparagus

Peak season is March through June. Asparagus is usually cooked, but it is delicious raw. Select deep green, well-rounded spears with compact, tightly closed tips. The young slim tips are the most tender and best tasting. Avoid wilted, limp, flat or angular stalks. They are usually tough and stringy. Use asparagus as soon as possible; it is very perishable. Dr. Esser says the wild asparagus is a real delicacy. He also says that cultivated asparagus is the choicest of all spring vegetables and should be in every home garden. However, Dr. Burton has expressed the opinion that the fact that the eating of asparagus causes the urine to emit a foul odor, is indicative of this vegetable's unfavorable reaction in the body, and that he would recommend using it sparingly, if at all.

Beans (Fresh)

Snap Beans (Green or Wax), Pole Beans, Italian String Beans

Peak season is May through October, particularly June and July. Available all year, but of poor quality out of season. Select beans with both ends intact. They should have a pliable, velvety feel, not hard or tough. The color should be fresh and bright-looking and the pods should be young and snap easily. If they are limp and flexible, shriveled or dull, with brown rust spots and serious blemishes, don't buy them. Young snap beans are delicious raw.

Fresh Podded Beans

Lima or cranberry beans in the pod are sometimes available. Sometimes other podded beans are available, such as fava beans. Baby limas can be eaten raw. Mature limas, cranberry beans and fava beans have a rather tough skin, and are usually cooked. Cranberry beans are very easy to hull for cooking. Fresh podded beans require no soaking, and cook in half an hour or less. Select fresh-looking unblemished dry pods.

Beets

Peak season is June through August, but they are available all year. Small beets are young, sweet and tender and can be eaten raw. The roots should be firm with a smooth surface and dark red color. Wilted leaves indicate less freshness, but the bulbs, if firm, are still satisfactory.

The tops (leaves) are high in oxalic acid (like spinach) and it is not advisable to use them often. A few young tender leaves may be used in the salad. Remove the leaves as soon, as you get the beets home.

Allowing the leaves to wilt while still attached to the roots robs the roots of some nutritional value.

Broccoli

Peak season is October through May. The quality of broccoli available at other seasons is not as good. (Select firm stalks with dark green or purplish green compact clusters of buds, tightly closed and not on the verge of flowering. None of the buds should be opened enough to show the yellow flower. Stems should not be too thick or tough. Avoid buds that are spread, yellow or wilted. The leaves and tender buds may be eaten raw.

Brussels sprouts

Peak season is September through February. These look like miniature cabbages, but the raw flavor is not as good as that of sweet raw cabbage or broccoli. They can be eaten raw by chopping and mixing into the salad. Select tight, firm, unblemished heads with a bright green color, and no faded yellow soft or wilted leaves. If crisp and green, the outer leaves may be a little loose.

Cabbage

Available all year. Supply peaks in January and runs low in August and September. Select heads that are compact and heavy, with outer leaves that are deeply colored (green or red) and free from blemishes. The outer leaves may be loose and are usually discarded, since they are very tough. If the outer leaves are missing, the cabbage is not fresh, and will probably not be sweet enough to be eaten raw. When green cabbage turns white, it is old. Dark spots also indicate age. Cabbage should be light green (or red for that variety). The three varieties of cabbage are the common green variety, red cabbage, and green savoy cabbage, which has crinkly leaves. Red cabbage and savoy cabbage are usually more expensive, but we prefer a nice, sweet, fresh head of green cabbage. Although darker colored vegetables usually contain more nutrients, Dr. Vetrano says that green cabbage is of greater nutritional value than red cabbage. Avoid cabbages that have had the butt end excessively trimmed, because this causes dehydration. Do not eat bitter cabbage—it contains irritants.

Carrots

Available all year. Organically-grown carrots are often available through health food stores, but they are usually very large, overly mature carrots suitable for juicing, which is why the health food stores carry them. Young, tender carrots fresh from your garden are the best for eating raw. Carrots with the green tops still on are sometimes available in certain produce sections and, of course, they are fresh. Otherwise, select firm, smooth carrots with a good, rich, orange color. Avoid flabby or shriveled carrots, or those with large green areas. Good carrot taste comes from the bright orange area where sugar is stored. The nutritional value of the carrot makes it an important vegetable.

Cauliflower

Peak season is September through November, low May through August. Cauliflower is available all year, but its price and quality are better in season. Select compact to solid heads with white to creamy white clusters (and fresh green leaves, if they have not been removed). Cauliflower accumulates black smudges as it ages. If not too many, they can be scrubbed or cut off. Cauliflower eaten raw should be the freshest possible. If it is spotted, or the green leaves are getting dark and withered, it's old.

Celery

Available all year. Select crisp, thick, unblemished stalks with as many green leaves as possible. If the stalks are cracked or loose, don't buy them. Avoid limp, rusty celery. Celery is one of the best of the salad vegetables, being succulent and juicy. Try to find celery that is medium green in color. If it is dark green, the taste is very strong, and if it is white (blanched), it is of low nutritional value.

Celery Cabbage (Chinese Cabbage)

Available all year. This is an excellent salad vegetable, if not too mature and tough. Select crisp, light green heads, with no wilted, yellow leaves.

Chayote

Occasionally available. This is a member of the squash family. It is light green, has white, juicy flesh, and is delicious eaten raw, like a cucumber. It is native to tropical America, but can be grown in gardens on the southeast coast, from South Carolina southward, and in southern California.

Chinese Vegetables

Various Chinese vegetables are available in some supermarkets. *Celery cabbage* (listed separately) is also known as *Chinese cabbage*. The *water chestnut* (also listed separately) is another Chinese vegetable. *Bok choy* and *suey choy* are quite frequently available. Bok choy looks a little like celery cabbage, but has very dark green, wide leaves at the top. Suey choy looks like a shorter, plumper version of celery cabbage. Neither of these is as good in the salad as some other vegetables, but they are popular for use in chop suey and give a wider variety of ingredients for vegetable chop suey. Young shoots of the *bamboo* plant are much like asparagus, but are seldom found fresh in this country except in areas with Chinese and Japanese populations. Other unfamiliar but excellent Oriental vegetables, such as *Arrowhead*, *water bamboo*, and unusual squashes, may be found near these communities. Chinese vegetables are interesting and nutritionally valuable additions to the menu.

Chives

A mild member of the onion family, perennial and hardy. Sometimes available in markets growing in pots. Hygienists do not recommend onions, which are irritants when eaten raw. Chives may be mild enough for occasional use by people with unimpaired digestions. Easy to grow in the garden. May be dug up, in the autumn, in small clumps, potted and kept growing in the house.

Corn

Peak season is May through September. Best months vary according to local season in your area. Don't buy corn out of season. Corn begins to lose its delicate, sweet flavor immediately after harvesting, and unless it is really fresh and in its prime, it will have tasteless, starchy kernels, instead of kernels filled with sugar-sweet milk. In fact, corn is considered a green vegetable when freshly picked, and converts its natural sugar to starch in only two hours, so that it then must be classified as starchy. When freshly picked, it is delicious raw. People who buy their corn in supermarkets rarely know the fine flavor of fresh corn, but, occasionally, I have been lucky enough to be on hand for a fresh shipment of sweet, tender corn which we could enjoy without cooking. Select corn with rich green tightly folded husks, and brown dry silk. The stem should not be dry or discolored. Pull down the leaves a bit to check the kernels, which should be plumb and milky, uniform in size and color, with no bare spots. If the kernels are large, the corn is usually tough. Small, delicate kernels are the tenderest. If the milk spurts from a pierced kernel, the corn is fresh and sweet. Don't buy ears of corn which have been husked; this causes the flavor and nutritional value to dissipate rapidly. Color varies from white to yellowish to yellow, and is not a reliable indication of quality.

Cucumbers

Available all year with a slight peak in May and June. If you buy cucumbers in season in your area, you will be more likely to find them unwaxed. The European or English cucumber is long and slender, has few seeds, and sometimes reaches a length of more than three feet. It is almost seedless because it is asexual, grown wholly in greenhouses. The common garden variety comes in many sizes and shapes. Small, young cucumbers are best for flavor and quality. Some supermarkets feature packages of fresh "pickling" cucumbers, which are unwaxed, small in size and contain small, tender seeds. Inspect these packages carefully; if you get them shortly after packing, before they have had a chance to deteriorate, they are excellent. If you must buy waxed cucumbers, select the smaller sizes, and be sure to peel them. Don't buy cucumbers which are beginning to turn yellow, or which have withered ends or mushy spots. Cucumbers are low in nutritional value, since they are more than 96% water, but they are good food, nevertheless, containing valuable nutrients, and are delightful additions to the salad, offsetting other more concentrated foods. Foods with high water content, like cucumbers and watermelon, help to comprise the water-sufficient Hygienic diet.

Eggplant

Available all year, with a slight peak in August. The tough skin of eggplant affords it some natural protection against chemical farming. Although the skin is edible, I usually peel eggplant, because it is often waxed. If it doesn't feel waxed, and you want to use the skin, scrub it as best you can. Select firm, bright, shiny, heavy eggplants with a uniform rich purple color, with no brown or bruised spots, or cracked or shriveled skin. Select small-sized eggplants whenever possible. The larger ones are apt to be over-mature, perhaps bitter, and containing large hard seeds that are best removed. Small, soft, light seeds are fine and add to the tastiness of this food. Some people use raw slices of eggplant as a sandwich with tomatoes, sprouts and other foods as a filler, but unless the eggplant is quite young and tender, with very tiny, soft seeds, it will probably be best cooked.

Garlic

Available all year. Members of the onion and garlic family are irritants when eaten raw, due to the presence of considerable amounts of mustard oil. Habitual use can impair the digestive system and weaken the organs of elimination.

Superstitions about the curative powers of garlic and onions are not based on fact. A great "purifying" process does occur when raw garlic and onions are eaten, which is a Herculean effort of the eliminating organs to get rid of the poisonous allicin and irritating mustard oil contained in these bulbs. Allicin is similar to digitalis, in that the body's reaction to the poison creates a stimulating effect to certain organs. Both of these substances get into the cells, tissues and blood. Since the body cannot make use of such poisonous substances, it calls upon the kidneys, lungs and liver to try to dispose of them, which abuses, overworks and impairs these organs. Garlic and onions are useful as companion plants in the garden to repel insects.

Greens (other than lettuce)

Available all year. It is advisable to avoid foods which contain harmful substances in significant amounts —for example, foods high in oxalic acid. This poisonous substance is a calcium antagonist, and forms crystals which may develop into gallstones or kidney stones in some individuals. Please don't interpret this information to mean that if the analysis of a plant reveals minute amounts of undesirable substances, it must be stricken from the dietary. If this were true, we would be left with few foods, since some minute amounts of such substances may be found in many good foods. For instance, some over-zealous researchers have been advising against the use of lettuce, because it has been found to contain microscopic amounts of a substance resembling laudanum, a sedative. Hygienists emphatically advise the use of dark green leaves, with the exception of those containing large amounts of oxalic acid or other toxic substances. The dark green leaves of romaine, Bibb, Boston and leaf lettuce are excellent foods and should be used in substantial quantities. *Beet greens*, *spinach*, and *Swiss chard* are so high in oxalic acid that it is inadvisable to use them as food. Small immature leaves of spinach and beet greens are lower in oxalic acid, and a few may be used in the salad. Mature *mustard greens* contain large amounts of mustard oil, an irritant. Very small mustard green leaves may occasionally be used in the salad. *Watercress* is too strong and pungent to the taste. Dr. Vetrano says that it is probably due to the large amount of sulphur it contains. Any vegetable that is strong and has a pungent, unpalatable flavor is not eaten by Hygienists. The bitter and pungent taste is nature's way of warning against them.

Young, sweet *garden chicory*, *endive* and *escarole* are suitable for salads—when mature they are bitter and contain concentrated acids and irritants. *Sorrel* has edible leaves, but should not be used because it contains much free acid, especially oxalic acid. *Pokeweed* has young purple shoots, which resemble asparagus, and is used in salads by some people. It is high in oxalic acid; contains toxic substances, and should not be used. *Comfrey* does not form a part of the Hygienic diet because it has astringent qualities which occasion actions by the body to dispose of these substances. Any plant that occasions vital abnormal actions of the body (as does comfrey) is toxic and should not be used. It is well to be alert against the potential harmful effects of the so-called herbs, which are said to have "curing" properties. Hygienists do not accept the premise that certain plants have such properties. They believe that only the self-healing power of the body, and its continual efforts toward self-preservation, can help to restore health. If certain substances cause a reaction by the body, it is because the body acts to eliminate the threat of those substances. In 1978, the English organization which had been promoting comfrey sent out a warning, saying comfrey had been found to contain pyrrolizidine alkaloids, which possibly can cause liver cancer "if eaten over a long period of time." Dr. Vetrano has been warning about the poisonous alkaloids in comfrey for a long time. Hygienists use only foods which are pleasant-tasting and mild, which have no irritating properties, and do not cause the body to react in any way other than to digest and metabolize them. So which greens (other than lettuce) does that leave that are truly good and can be recommended whole-heartedly for use in salad? Small, tender leaves of broccoli and the small tender leaves of kale are the best. Collard, dandelion and turnip leaves are also excellent when sweet, tender and immature. The mature leaves of broccoli, kale, dandelion and turnip may be cooked. If not too mature, bitter or stringy, endive and escarole may also be cooked.

Kohlrabi (turnip rooted cabbage)—sometimes available.

This is grown as an annual spring and fall vegetable. It has a pale green or purple turnip-like swollen stem which grows just above the ground. It has a wonderful flavor when eaten raw and is excellent for salads. It may also be cooked.

Leeks

Peak season is September, November and in the spring. The taste is similar to that of onion—only milder and sweeter, more delicate and tender. The mature plant produces a stem two inches or more in diameter, and from ten to twelve inches tall, resembling a large, over-sized scallion. As with all members of the onion family it contains the irritant, mustard oil, and should not be eaten raw unless very mild and sweet. It is usually served cooked or used to flavor soups and stews. Select crisp, firm leeks with medium-sized necks and an even, light green color.

Lettuce

Peak season is March through August; available all year. *Iceberg lettuce* has a crisp texture, and the head is easier to wash than other leafy varieties that must be washed one leaf at a time. It is also the most-readily available, but it is certainly not the best. It lacks much taste, and is much lower in nutritional value than the varieties of lettuce which open to the sun's rays and produce dark green leaves. *Romaine (Cos) lettuce* has broad, tender dark green leaves and a loose head. *Butterhead lettuce*, including *Boston* and *Bibb*, has soft, waxy-looking leaves, and is quite succulent. For those with impaired digestion, or chewing difficulties, butterhead lettuce has little fiber and is crisp and crunchy.

As an illustration of the greater nutritional value of romaine and butterhead over iceberg, consider the following figures:

	Protein	Calcium	Iron	Potassium
Romaine	1.3%	68 mgs. per 100 grams	1.4 mgs. per 100 grams	264 mgs. per 100 grams
Boston	1.2%	35 mgs. per 100 grams	2.0 mgs. per 100 grams	264 mgs. per 100 grams
Bibb	1.2%	35 mgs. per 100 grams	2.0 mgs. per 100 grams	264 mgs. per 100 grams
Iceberg	0.9%	20 mgs. Per 100grams	0.5 mgs. per 100 grams	175 mgs. per 100 grams

Iceberg head lettuce has a few outer dark green leaves, which are usually discarded, and the blanched interiors are used, most of it pale, almost white. *Leaf lettuce* or any variety of *garden lettuce* is excellent. Even iceberg lettuce grown in home gardens is greener than that found in most stores, and all the outside leaves are used.

Select fresh looking lettuce with no rusty or wilted leaves and with a minimum of damaged edges. The softer the lettuce, the sooner it should be used. Buy butterhead or leaf lettuce for immediate use. Romaine will stay crisp longer. Several varieties of lettuce should be used, varying it from salad to salad, to insure more complete mineral intake. Lettuce should be used in generous quantities.

Mushrooms

Available all year with a peak season from March through May and a low July through September. Dr. Esser says that mushrooms are indigestible and generally pass through the digestive system unchanged, and although fairly rich in nutrients, little of them are usable. He says that mushrooms may be eaten, but there are many other true foods which are more deserving of a place on the menu than this edible fungus. If you use them as a novelty, or for the taste or flavor, select young (small to medium) mushrooms. The caps should be closed around the stem, and should be cream-colored or white. As the mushroom ages, the cap pulls away from the stem. Avoid wide open caps and dark "gills" (under the cap), those seriously pitted or discolored, and those with a spongy texture.

Okra

Peak season is June through September. Okra is grown and marketed primarily in the south. Small, young pods may be eaten raw, but some people find them unpleasant and "slimy." Various methods of cooking reduce or neutralize the sliminess, especially by combining with tomatoes. Select small, young green pods, free from blemishes and with tips that bend with very slight pressure. They should be under three inches long, preferably smaller. Avoid pale pods and tough pods with stiff ends. As okra begins to age, it turns yellow-white, then black.

Onions

Available all year, peak May through August. Ordinary yellow globe onions, which are mostly used for cooking, are quite uniform in quality. The outer, paper-like layers are thin on fresh onions, thicker on those from storage, but there isn't much difference otherwise. White onions fall into two categories—grano, which are round and granex, which tend to be flat. In general, the granos are hotter than the granex. The larger Spanish onions (yellow or white-skinned) and Bermuda onions (purplish red) are milder and somewhat sweeter than other varieties, and are often used raw. However, as previously indicated, raw onions are irritating because of their content of mustard oil.

Oyster plant: (See Salsify)

Parsley

Available all year, slight peak October through December. Unless very young and sweet, parsley contains an excess of oxalic acid. It is usually as a garnish, but if young and sweet, it should be eaten since it is rich in nutrients. Select bright green, crisp leaves.

Parsnips

Peak season is October through April. This is really a winter vegetable, but is on the market throughout the year, generally waxed. I don't buy waxed parsnips, but watch for the unwaxed ones. This vegetable is usually not tasty and tender enough to be eaten raw, unless very young. Select small or medium-sized, well-shaped, firm parsnips, free of surface blemishes. Avoid large ones which can be tough and woody, and those that are flabby.

Peas (Fresh)

English green peas in the pod or black-eyed peas in the pod. Peak season is March through June. Small, young, fresh, bright green, recently harvested peas have the best and sweetest flavor. These will be delicious in the natural raw state, straight from the pod. Overripe peas have a flat, starchy taste, similar to raw peanuts. Select pods that are bright green and velvety to the touch. Be sure to check to see if they snap open easily. They should be well-filled without being swollen. Black-eyed peas in the pod are sometimes available, but are not popular because they are very difficult to hull. Can be eaten raw if young and fresh.

Edible podded peas (snow peas)

This is a gourmet treat, somewhat expensive to buy, but very easy to grow in the garden. Use when just barely mature—they are really delicious. Select bright green, unblemished peas whose green color has not begun to fade.

Peppers, Sweet Bell (Green or Red) and Pimentos (red)

Peppers are available all year, mostly green. Slight peak is June through September. Red sweet bell peppers are available intermittently, pimentos rarely. Although most of the sweet peppers on the market are green, those that are fully ripe, and much sweeter and more flavorful, have a bright red color. Buy sweet red bell peppers for immediate use since they deteriorate rapidly when red-ripe. Check carefully around the stem for softness and mold. Green peppers will keep longer. Peppers are frequently waxed. Peppers and pimentos are excellent salad vegetables and are high in Vitamins A and C. Select firm, bright, heavy, unblemished peppers with strong color and full, plump shape. Pimentos are squat-shaped, and when fully ripe, are even sweeter than ripe red bell peppers. Hot peppers, e.g., bananas, chili, jalapenos, are not recommended.

Potatoes

Available year round. "New" potatoes are small potatoes, freshly harvested and often not fully matured. The outer skin is very thin. A little peeling of the skin is normal and does not affect quality. New potatoes can be white or red (or dyed red). They are very tender, high in sugar and low in starch, and spoil rather rapidly. "All-purpose" potatoes are used in various ways, while "baking" potatoes are considered most desirable for producing the best baked potato which is not mealy or dry. As potatoes age, the skin becomes thicker, more wrinkled and drier. A smooth skin indicates a freshly-dug potato; otherwise it has been stored. It is best to bake oval, brown-skinned potatoes from storage.

Look for firm, solid potatoes with no green areas. Green areas mean the potatoes have been exposed to sun while growing, or exposed to light too long. These green spots, as well as potato sprouts from the "eyes", contain solanine alkaloids which can cause a variety of symptoms, from mental confusion to cardiac depression. If the potato has very small green areas, they can be cut off, but if they are widespread, the potato will be bitter (and toxic!) and should be discarded.

As previously indicated, potatoes have sometimes been treated with sprout-retardant, so try to find organically-grown potatoes. Otherwise, do the best you can, selecting your potatoes in accordance with instructions previously given earlier in this lesson. It is better to buy "dirty" potatoes; pre-washed ones have lost some vitamins and absorbed some water. Besides, if they haven't been washed, they may not have been treated with sprout retardant.

Immature new potatoes from the home garden are a gourmet treat. White potatoes are not suitable for eating raw; the starch should be dextrinized by heating.

Radishes, red or white

Available all year, slight peak May through July. Unless young and sweet, radishes contain enough sulphur (similar to mustard oil) to irritate the digestive tract. Larger radishes are pungent in flavor and contain woody fiber which is difficult to digest and creates gas. When they are too hot to be eaten entirely alone, it is best to avoid them. People, with impaired digestions should avoid radishes altogether. If you use them, select medium-sized, firm radishes. Avoid large, flabby or spongy ones. Small red radishes may be sharper than the medium-sized.

Rappini

Available intermittently. Similar to broccoli, but much stronger in flavor. It grows in long, slender stalks. We prefer the milder flavor of broccoli.

Rhubarb

(Described under FRUIT—Lesson 24).

(Note: The leaves are not used at all, as they contain large amounts of oxalic acid salts which may be fatally poisonous).

Rutabagas: (see turnips)

Salsify (Oyster plant)

Sometimes available. The fleshy white roots resemble parsnips, and they taste is said to be reminiscent of the oyster. If the leaves are young and crisp, they may be eaten with the salad.

Scallions

Also called green onions. Pick in May. These are a special variety of hardy onions which do not form bulbs. If young and sweet, they may be used occasionally by people with good digestions. They are usually harvested when eight to ten inches high and half an inch thick. The outer leaves are peeled off and the inner leaves with the white stems are used. If you use them, select fresh firm scallions with bright green leaves.

Squash

Summer Squash (Soft-shelled)

Some forms available all year. Popular varieties include *green zucchini*, *yellow crookneck*, *yellow straightneck*, and greenish-white *pattypan* (scalloped cymling squash). The small, immature squash are tender and flavorful and are excellent in salads. All parts, including seeds and skin, are edible. Select those with good color, that are heavy for their size, with a rind soft enough to puncture with a fingernail. Buy for immediate use—they don't keep well. Avoid zucchini with damaged or black spots, and yellow squash that is starting to turn orange.

Winter Squash (Hard-shelled, with flesh resembling sweet potatoes)

Peak season is October and November. Popular varieties are *acorn* and *butternut*, available all year. There are many other varieties available during the winter season. Some are *buttercup*, *hubbard*, *delicious*, *banana*, *turban and spaghetti squash*. Select squash that is heavy for its size, with a tough, hard rind. These keep well for weeks.

Sweet potatoes and yams

Available year round, peak in November, low May through July. Yams are moist and sweet with a bright orange flesh. Regular sweet potatoes are paler, less moist, and less frequently available. Select small or medium-sized ones, without cracks or damp areas. They're best if they taper at both ends. Plump ones are the most moist. They should be firm, well-shaped, with a smooth, bright and evenly colored skin, and with no wax or artificial coloring. Shriveled discolored ends, sunken, discolored areas, and wet soft spots are signs of decay. Sweet potatoes and yams decay more rapidly than white potatoes and should be bought for use in the near future.

Tomatoes

Peak season June through August. Tomatoes are on the market all year, but most of them are not worth buying. The best tomatoes are generally the locally-grown varieties, which have matured and begun to ripen before picking. Tomatoes which show some red on the vine are mature. The poorest quality tomatoes are those which are picked green and ripened by ethylene gas; they are either hard or mushy, and tasteless. The crates and cartons in which such tomatoes are shipped are labeled vine-ripened, but the tomatoes are generally packed green as grass.

The skin of a good tomato is smooth, glossy and bright; the flesh is firm, but not hard. Vine-ripened tomatoes develop a deep-red color and a fresh tomato fragrance. When poor quality hothouse tomatoes are the only ones available, it is better to do without. If, on occasion, you just must have tomatoes, the hothouse varieties are better than the prepackaged hydroponic tomatoes. Hydroponic vegetables are grown without soil, using only water and chemicals. The resulting product should be avoided. Ripe tomatoes should be eaten as soon as possible. If you're selecting them to eat another day, select partially ripened tomatoes and finish the ripening at home. The small cherry or plum tomatoes are very perishable and should be used quickly. Some are highly acid, while others are almost sweet. Some are very juicy, while others are meaty and almost seedless. There are many varieties of tomatoes. The yellow and orange varieties are said to be less acid-tasting. I have never seen any white tomatoes, but I have read about them, and I understand they contain less acid than the other varieties.

Turnips and rutabagas

The most popular turnip has white skin with purple shading at the top. The flesh is white. When small, tender and fine-fleshed, they are suitable for use in salads. The tops are not usually available in markets; if occasionally available they are large and mature and not suitable for eating without cooking. The best turnip roots and leaves are the young and tender ones, fresh from the garden. Turnips should be used sparingly, because they contain a large amount of sulphur. Rutabagas are large and white or yellow-fleshed (the yellow are more common). They are members of the turnip family, but have a sweeter taste. They are usually coated with paraffin, and are not usually eaten raw. Fresh sweet rutabagas, when available without the paraffin coating, would be fine in the salad. Select turnips that are small to medium in size; firm, smooth and fairly round. Select rutabagas that are not too large and are heavy for their size, firm and round to slightly elongated. Large turnips may be strong in flavor, and coarse, pithy and fibrous. Cooked rutabagas have a characteristic taste, a little strong, enjoyed by some, disliked by others. The larger rutabagas tend to be pulpy, quite strong, tougher and harder.

Water chestnuts

Available all year. Fresh water chestnuts are available in supermarkets, but very expensive. This is a delicious vegetable, with a soft, shell-like outer covering, and a sweet, white, crunchy flesh. Most people are familiar with the canned variety which is used in Chinese and Japanese cuisine. Canned water chestnuts have an unusual characteristic: they retain their crunchiness. We occasionally buy fresh water chestnuts. They sell for about $1.50 for a container of six to eight. They are each about the size of a macadamia nut, and after paring the black shell-like skin, they are even smaller. The sweet, crisp, juicy taste is a treat.

Miscellaneous Vegetables

Bags of cut-up vegetables are available in supermarkets for use in salads or chop suey. *Don't buy them*. Some contain preservatives; even if they don't, they are oxidizing, turning rusty and rapidly-losing freshness and nutritional value.

It is better to serve most salad vegetables without cutting them up in small pieces. For vegetable chop suey, cut up your vegetables as you need them. Enough nutritional value will be sacrificed in the cooking process, without starting out with limp ingredients.

I have seen sealed plastic bags of shelled black-eyed peas in water and vinegar. You will probably not be tempted to buy them, as they will most likely appear rather strange and unappetizing, just as they did to me. They are much worse than either frozen or canned black-eyed peas. As previously indicated, fresh black-eyed peas in the pod are sometimes available.

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2. Storage Of Fresh Vegetables

Lettuce should be as fresh as possible. Of course the ideal would be to have lettuce picked fresh from the garden before the meal. If you are buying lettuce, get a three, or four days' supply, but wash only as needed. (If you don't want to wait to wash the lettuce at meal time, wash enough for a day or two and store in tightly closed pliofilm bags in your crisper. The stored lettuce should not be wet, nor totally dry. It will keep best if slightly moist.) Your unwashed supply of lettuce may also be stored in pliofilm bags in your crisper. The softer the lettuce, the sooner you should use it. Bibb, Boston and leaf lettuce wilt sooner than romaine.

If it is necessary to store lettuce for longer periods of time, a different method may be used. When we lived in Indianapolis, we ordered organically-grown lettuce from California in the winter once a month, and we kept it fresh with very little deterioration for a week or longer, by storing in layers in the crisper drawer, covered by damp paper towels, watching and culling daily, and adding water to moisten the towels as they dried.

Sweet red ripe bell peppers and *cucumbers* are very perishable and don't keep well in bags. They tend to become slimy when bagged. I store them loose in the crisper drawer; they seem to last longer this way. Sweet green bell peppers last a little longer. I also store *tomatoes* loose in the crisper drawer.

Store *celery* or *celery cabbage* in pliofilm bags. Add a few drops of water to the bag. Don't buy more than you can use in three or four days.

Broccoli turns yellow in a few days. If very fresh when you get it, it may last an extra day or two. I have a very large-lidded plastic refrigerator storage box, which I find convenient for storing broccoli, *cauliflower*, *summer squash*, *brussels sprouts*, *eggplant*, etc. Always put summer squash, broccoli and eggplant on the top layer, since they are more fragile than other items. If you don't have such a box, use pliofilm bags.

Cabbage will stay fresh for a week or longer if stored in a pliofilm bag in your refrigerator.

For best quality *corn*, buy it the day you plan to eat it. If it must be stored, leave it in the husk, and put in a tightly-closed pliofilm bag; store it in the refrigerator.

Eggplants damage easily. Store in the refrigerator, but protect from bruising, as indicated previously. They will keep well for only a few days.

Store *peas* in pliofilm bags in the refrigerator; shell immediately before using. Use within a few days.

Green beans lose their bright green color and deteriorate rapidly. Store in a pliofilm bag in the refrigerator; use as soon as possible. The same applies to *wax beans*, *pole beans* and *Italian green beans*. They all deteriorate rapidly and should be used within a few days. If freshly picked, they may last a little longer—but if you are lucky enough to get freshly-picked beans in any of these varieties, you ought to eat them the same day, if possible, to take advantage of the freshly-picked flavor and optimal nutrition. And, since they are so fresh, you will be able to eat them without cooking.

Globe artichokes and *asparagus* deteriorate rapidly—use as soon as possible. Asparagus may be stored a day or two, fresh artichokes a little longer. If you must store asparagus, wrap the butt ends in a damp paper towel and place in a pliofilm bag in the refrigerator. Store artichokes in the refrigerator in a pliofilm bag.

Jerusalem artichokes will keep in the refrigerator in a pliofilm bag for about a week, sometimes longer.

Okra is quite perishable, but will keep for two or three days in a pliofilm bag in the refrigerator.

Parsley will stay green a few days in a pliofilm bag in the refrigerator.

Fresh water chestnuts are very perishable. If you buy these sweet, juicy, expensive treats, eat them right away.

Fresh podded beans (cranberry beans, lima beans, etc.) can be stored in the refrigerator in pliofilm bags for a few days, depending on how fresh they are. It might be better to remove them from the pods, where they tend to become slimy, if you must store them for several days.

The chayote will keep well for a week or more in the crisper drawer.

Greens (kale, collards, etc.) do not keep well and should be used quickly. They wilt and grow yellow. Store in pliofilm bags for two or three days.

Kohlrabi keeps well, like a root vegetable. Remove the tops and store in a pliofilm bag in the refrigerator.

Mushrooms are very perishable—it is best to use them within a day or two after purchasing; store in a pliofilm bag in the refrigerator.

Potatoes: Some experts on the storage of vegetables say that potatoes should be stored in a cool, dry place, but never in the refrigerator, although some of them do advise that freshly dug or new potatoes with thin skins keep best in the refrigerator.

The Department of Agriculture says that white potatoes will keep several months if stored in a cool, dark place with good ventilation at 45 to 50 degrees. Higher temperatures will cause shriveling and sprouting, and exposure to light will cause greening (evidence of the presence of solanine, a poisonous alkaloid). As previously indicated, don't buy potatoes with the "sunburned" spots. If potatoes are stored at below 40 degrees, they will dextrinize—that is, develop a sweet taste as starch changes to sugar, after which they will spoil rapidly. Cooking potatoes also serves to dextrinize the starch.

If you live in a warm climate—or for summer storage of potatoes or other root vegetables anywhere—where are you going to find a constant, dependable temperature of over 40 degrees and under 50 degrees? I have heard about root cellars for this type of storage, but, lacking a root cellar, my only solution is a refrigerator with the proper storage temperature. If I try to store them in my kitchen or on my patio, I lose them right away. My refrigerator preserves them very well. I store them in tightly-closed pliofilm bags.

Sweet Potatoes, other root vegetables, miscellaneous: Other root vegetables, such as carrots, turnips, rutabagas, and beets also keep best at around 40 degrees and a relatively high humidity—in the refrigerator, of course, in tightly-closed pliofilm bags. Be sure to cut the tops off your root vegetables before storing them, because the roots deteriorate as the greens wilt. If you set your refrigerator at about 42 degrees, it will be safe for all your food.

Sweet potatoes and winter squash are another matter—they require warmer, drier conditions, not lower than 50 degrees. It is best to keep them in a cool place in the kitchen or on the patio. Sweet potatoes will keep a few days to a week, hard-skinned winter squash a little longer.

Summer squash is quite perishable, but may be stored in the refrigerator in pliofilm bags for several days.

3. Purchasing And Storing Seeds For Sprouting And Ready-To-Eat Sprouts

Alfalfa seeds, *sunflower seeds*, *mung beans*, *soy beans* and *lentils* are the most popularly used for sprouting. They can be purchased from Jaffe or your health food store. Instructions for sprouting a variety of seeds and legumes will be given in Lesson 26.

Sprouting seeds may be stored in moisture proof containers for a long time.

It is best to sprout your own, but ready-to-eat sprouts are available in health food stores, most supermarkets, and (more and more, of late) on salad bars in restaurants.

In buying ready-to-eat sprouts, the key is freshness. Check to be sure they are crisp, not wet and slimy(thus fit only for the garbage). Good, fresh alfalfa sprouts are often available in plastic containers. Sometimes mung bean sprouts, or mixed sprouts, are also available. The alfalfa sprouts usually have the desirable green leaves; the mung beans usually do not. The mixed sprouts are not as good as individual varieties; first of all, when you sprout alfalfa, lentils, radishes, watercress, wheat and sunflower seeds together, some of them will be sprouted for too long a period for their variety, and some not long enough. (See Sprouting Instructions, Lesson 26). The mixture is also a bad one from the standpoint of food combining, and the radish and watercress sprouts are too strong, with too much irritating bite.

If you sprout your seeds at home, they may be stored in covered containers in the refrigerator for about five days. If you buy your sprouts, be sure they are fresh and dry, and store them in your refrigerator, but don't count on their remaining in edible condition for longer than several days.

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4. Selection And Storage Of Dried Grains And Legumes

Cooked grains and legumes may be used in the transitional diet but should be phased out as soon as possible. They are acid forming and difficult to digest.

A large variety of dried grains is available. Rice is the most popular but, unfortunately, most people use the bleached variety. Brown rice is of much greater nutritive value and does not contain poisonous bleach residues. It also is a better value, because a cup of raw brown rice will produce considerably more cooked rice by volume than will a cup of raw white rice. Long grain rice cooks up light and fluffy; medium grain rice is slightly more starchy and moist; short grain is even stickier.

Other whole grains are available (particularly in health food stores), such as millet, barley, wheat and rye. Triticale is a hybrid between wheat and rye. Cornmeal made from corn which has not been denatured is available in health food stores, but corn and other foods which have been ground into flour or meal are not recommended, because such products are subject to rapid rancidity.

Buckwheat groats are grouped with the grains, although not really a grain, and not a "wheat." They are actually the fruit, rather than the seed (as most grains are) of the buckwheat plant.

Wild rice is the aristocrat of grains. It is very expensive. I watch for ads in *Organic Gardening* magazine and buy it directly from producers in Wisconsin or Minnesota. Wild rice is higher in protein than brown rice.

Brown rice is probably the best of the grains (except, possibly, wild rice) and is the staple article of food in the diet of more than half of the world's people.

But all grains are excessively acid-forming and require much time and energy for digestion. Wheat, rye and buckwheat may be sprouted and eaten raw. Lesson 26 will discuss methods of cooking the various dried grains.

Jaffe Brothers carries organic brown rice, organic millet, organic whole kernel wheat, organic whole kernel rye, organic whole kernel buckwheat for sprouting, organic buckwheat groats for cooking and organic popcorn (not high in nutritional value, but relatively harmless when unsalted and not buttered).

The variety of dried legumes is large. Beans: lima, white beans (marrow, great northern, navy, pea and peanut bean), kidney, pinto, garbanzo, cranberry, azuki, black turtle, fava. Soy and mung beans are not usually found in supermarkets, but are available in health food stores. Peas: whole or split green or yellow, black-eyed, chick peas (another name for garbanzo beans). Lentils are legumes which are similar to peas.

Organically-grown unfumigated green split peas, soy beans, mung beans and lentils are available from Jaffe Brothers.

It is better to use fresh beans and peas, when available, since they have an alkaline rather than an acid reaction. Fresh legumes are easier to digest than those that have been dried, and their nutrients are more easily assimilable by the human digestive system. Dried beans become more digestible when they are sprouted. Bean sprouts may be eaten raw. Lentils seem to be tolerated somewhat better than beans by most people, but it is best to use them sprouted and eat them raw. Lesson 26 will discuss methods of cooking dried legumes.

Store grains in moisture-proof containers or bags in the refrigerator where they can be stored for a long time. It is never a good idea to store any food for longer than six months to a year. Buy supplies as available and needed and try not to buy more than you will use in a few months. Use grains intermittently, rather than regularly; their keeping qualities are an important factor, so that several varieties can be on hand.

We prefer to use fresh lima or cranberry beans, when they are available, and of course we use fresh peas in the pod regularly, and sometimes, fresh edible podded peas.

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5. Bread—General Information

Bread is not recommended. Grain is not a Class A food, being difficult to digest, and causing "allergic" problems. Wheat, rye, barley and oats contain a substance called gluten, which is the source of many of these problems. The best way, to use grains is to sprout them and eat them raw. Wheat and rye berries and oat groats may be sprouted—the soaking and sprouting is said to neutralize the gluten, but some people still have problems with wheat and rye, even when sprouted. Oats seem to cause fewer problems, and rolled oats may be eaten raw.

Grain, ground into flour, and baked into bread along with other ingredients, including yeast and sweeteners, is not recommended. Some gluten-free breads are sometimes available, but, while these cause little or no "allergic" problems, they are still not the best food.

Oils: Eat your salads without dressings. We have been loving our salads "undressed" for many years and I make dressings only occasionally when we have guests, at which times we eat them also, and on the next day, gladly go back to our undressed salads. When I do make these salad dressings for my guests, I don't use any oil, but make them by combining, avocados with tomatoes or cucumbers. Recipes for such salad dressings will be included in Lesson 26.

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6. Butter And Oil—General Information

Butter is sometimes used to a minimal extent by Hygienists who use cooked food, but it is not recommended. If you use all raw food, you will have no need for butter.

Vegetable oil margarine is hardened by hydrogenation (see definition), and many other ingredients are added to produce an imitation of butter, resulting in an artificial product that is difficult, or impossible, for the body to deal with efficiently. Nickel is used as a catalyst when hydrogenating oils, and traces of contamination with this metal remain to be ingested. Margarine is definitely not recommended, even for occasional use.

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7. Sweeteners

These will be discussed in detail in a future lesson. For the purposes of this lesson about the proper selection of wholesome foods, it should suffice to say that no sweeteners are recommended, together with a very brief discussion of the contraindications.

The sweeteners are: brown sugar, "raw" sugar, white sugar, milk sugar, maple syrup, molasses, date sugar, cane syrup, corn syrup and honey.

If you are on an all raw food diet, you will have no need for any sweeteners.

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8. Packaged, Frozen And Canned Foods—General Information And Storage

The Dole Pineapple Company published a booklet in 1976 called the "Shrewd Shopper's Produce Guide." It contains much valuable information about the selection and storage of fresh produce, but, even more interesting to Hygienists are some quotations from this booklet which indicate their understanding of the superiority of fresh foods (even though the Dole Company markets canned foods as well). The following quotations could have been written by a Hygienist:

"Fresh produce provides the major portion of essential water-soluble vitamins. These must be replenished daily. Fresh produce provides bulk and fiber to help clear blood vessels of cholesterol and reduce the risk of heart disease, and fresh produce helps keep bowels functioning normally.

"Nutritionally, there is rarely a question about the superiority of fresh over processed produce. The less a fruit or vegetable is changed, including over-washing, the more food value it retains. Yet we somehow think packaged foods are more convenient—in fact, just the opposite is the case.

"Convenience" refers to the time and energy spent in preparation. Since there is very little time spent preparing fresh produce in its more nutritious, best tasting, lushest form, it certainly is one of the most convenient food forms.

"Many Americans have no idea how rich, varied and delicious fresh vegetables can be, quickly steamed...or even crisp and raw.

"One drawback with frozen vegetables is their expense. Another is that improper blanching before packaging may destroy up to 50% of the Vitamin C in vegetables; cooking destroys even more. Also, packages usually call for salted water to bring out flavor. If salt is added to vegetables during cooking, juices that carry water-soluble vitamins (like Vitamin C), minerals, sugars and flavors are drawn from the vegetables. Which means you pay more for less flavor and nutrition.

"Canned vegetables lose much of their color when they are cooked in the canning process...Each time a vegetable is reheated, it loses more of its precious water-soluble vitamins and minerals.

"Compare the cost of a ten-pound bag of potatoes with freeze-dried, instant or frozen potatoes. You may pay up to eight times more for packaged potatoes which may have lost at least 50% of their Vitamin C. Processors 'enrich' their products, but can't duplicate valuable trace elements. Moreover, because no human nutritional quantity values have been established for trace elements, there are no guidelines. Which means fresh produce is even more essential."

The advice of the Dole Pineapple Company is clear. Buy and utilize fresh produce. That is also the advice given in this lesson, and the practice of all Hygienists.

It is not recommended that packaged, frozen or canned foods ever be used, but there are always the inevitable questions about exceptions and compromises, so let's deal with them here.

Sometimes even fresh produce comes pre-packaged. Although that is not the best way to buy produce, you may occasionally buy some of these pre-packaged items. Be sure to look at the dating code.

You might buy pre-packaged dried fruits, legumes, or grains in your health food store. Read the labels. Don't buy anything containing preservatives or chemicals—or anything you don't understand.

When buying any prepackaged item, be sure the package hasn't been tampered with, or broken open.

It is possible you might be tempted to buy frozen food in an emergency. Think well before doing so. Frozen foods may have been partially thawed and refrozen in shipping and handling. And what has been added? How will it taste, compared to fresh food? If you still want to consider buying it, *read the label*. You might change your mind.

If you ever do buy frozen food, select clean packages that have no signs of having been partially thawed and refrozen.

But always remember, any time you compromise and decide to use anything other than fresh food, you are doing it for some reason other than to provide the best nutrition. *Are you sure that is what you want?*

Storage: If you do ever use packaged, canned or frozen food, you will need to know where and for how long you may store them. Packaged foods should be stored according to directions given for the specific item involved, usually in the refrigerator, tightly covered or bagged to keep out moisture. The fewer packaged foods you use, the better.

Frozen foods must, of course, be stored in the freezer. It is best to buy no more than you will use in the immediate future. Frozen produce is not subject to as many dangers as frozen flesh foods, but there can still be deterioration and spoilage. The fewer frozen foods you use the better.

Canned goods will, of course, keep quite a while if properly processed and if the can is not bulging, rusted, dented or otherwise damaged. *If it is bulging, don't open it, don't taste it, don't even let the contents touch your hands. The bulge indicates botulism*.

Undamaged canned goods are said to keep almost indefinitely, but it is best to use them within six months to a year. Better yet is not to use canned goods at all.

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9. Questions & Answers

I have a large organic vegetable garden and several fruit trees. Every year I have a surplus of produce in season, and share with my friends and neighbors, but still, I always have much left over. I usually freeze my wonderful organically-grown figs, peaches and strawberries without any sweetening or heating, and we eat them just barely thawed. They are delicious that way. You don't approve of buying frozen foods which may be blanched, sweetened, or otherwise treated, but what do you think about these home-frozen fruits?

> I do believe that this a good way to have some of your excellent organically-grown fruits out of season and, since there is so little loss of taste, it would be a shame to waste them. If they

are frozen quickly, immediately after picking, the vitamin loss would also be minimized. However, do not depend on your frozen fruit for your entire supply of fruit in any season. You should also use as many fresh fruits, of good quality, that you can incorporate into your diet, so that you will be sure to also get a good supply of whichever nutrients are damaged or lost by the freezing temperatures. Freezing, however, is less damaging than cooking.

I have heard that foods which are members of the nightshade family should not be used.

Tobacco is one member of the nightshade family. But a group of foods habitually used by Hygienists are also members of this family. These foods are white potatoes, tomatoes, bell peppers and eggplant. It is claimed that certain arthritics are "allergic" to these foods and experience remissions when they are omitted from their diet. It is also claimed, principally by advocates of macrobiotic vegetarianism, that these foods should not be used by anyone.

They advance the contention that all of these foods contain solanine (see definition). Hygienists agree with warnings against the use of potato sprouts or green areas on white potatoes, because of the concentration of solanine they contain, but not that the foods mentioned should not be used. Thousands of Hygienists do use these foods, and do not suffer with arthritis. We have used these foods frequently for many years, and we have no symptoms of arthritis or other disease.

If people who are suffering with arthritis wish to experiment with eliminating these foods from their diets for a period of time, there is no reason they cannot do so, as there is a plethora of other Hygienic foods from which to choose.

The macrobiotic diet is considered by Hygienists to be grossly inadequate, even dangerous. It consists principally of cooked grains, especially brown rice, with very small amounts of other foods. They favor the elimination of salads and fruits. They make the astounding declaration that the best diet would consist of 100% grain, but for those not eating all grain (probably no one actually does eat all grain), they allow sauteed vegetables and soup. They favor the use of salt and soy sauce, and, in spite of the thirst-producing diet of cooked food seasoned with salt and soy sauce, they recommend that very little water be taken, less than one-half pint daily.

Hygienists use very little water, since the Hygienic, mostly raw-food diet, without seasonings, is a water-sufficient diet. But it would be very difficult to abstain from drinking on the diet recommended by advocates of the macrobiotic diet.

If I must choose between wilted, organically-grown lettuce, and fresh, crisp commercial lettuce, which is better?

I really don't like to make such a choice, but would be inclined to say that probably the fresh, crisp commercial lettuce may taste better and have more nutritional value. If the wilted outer leaves of the organically-grown lettuce can be stripped off, exposing some green, crisp lettuce beneath it, that could be used. But if it is broken down all the way through, it is not much good.

Article #1: Well! You Wanted To Know By V.V. Vetrano, B.S., D.C.

Is using vinegar or lemon juice, and honey with salads, then eating it with a starch, a bad food combination?

Yes. Starches and acids should not be mixed. The enzyme, salivary amylase (ptyalin) digests starches in an alkaline medium and for a very short time only in a neutral medium. It is quickly destroyed in an acid medium. Therefore, vinegar, which contains acetic acid, interferes with starch digestion because it inactivates salivary amylase.

The reason it is necessary to insure good digestion of food is because if it isn't digested, bacteria decompose it in the stomach and intestines with the formation of toxic products. Since bacteria are living cells, they form waste products and these are very toxic to humans. These, unfortunately, are absorbed in the small intestine and cause enervation. Not being useful nutrients, these toxic wastes must be expelled from the body at a great expenditure of nerve energy, thus producing enervation. The toxemia which ensues from enervation, which checks elimination, causes destruction of normal functioning tissues of the body. Disease is the result. In addition these waste products are irritants and cause gastritis which after many years may result in ulcers and finally cancer.

Lemon juice is an acid and also upsets or impairs starch digestion. Lemon juice is not a poison, however, and if you are not eating a protein or a starch you may indulge once in a while in a little unrefined oil with lemon juice on a salad. But, if you are eating either a starch or a protein with your salad don't indulge in a dressing. For more perfect digestion it is best to always eat salads without dressings of any kind.

Strict Hygienists never use oil. Oil is a fragmented food and never as wholesome as the whole food. The term "cold-pressed" should never be taken literally. It only means the first pressing, not that the food has not been heated. Foods are heated to extract the oil from them. Heated oils become carcinogens if heated long enough, and should never touch the delicate membranes of your gastrointestinal tract.

Oils have gone through many other processes also, such as dewinterizing, deodorizing, and detastizing. These processes are aimed at preventing the oil from solidifying in a cold temperature and to give them a bland tasteless flavor, supposedly "ideal" for cooking. The odor of the original food is also processed out of it for the same reason. After all these processes, oils are no longer fit foods for people.

Honey has a singular history. Hygienists don't use honey because it combines poorly with most foods and contains formic acid (a preservative secreted by the bee), which also impairs digestion and is poisonous. Honey is lacking in the minerals necessary for humans and will cause cavities almost as easily as white sugar, besides creating an acid condition if indulged in excessively.

Modern honeys are mass produced, as are many other of our food products, and because of this, quality suffers. Beekeepers have the tendency to pinch pennies as does everyone else in business, with no thought of the consumer. They purchase old leftover candies from candy manufacturers or other businesses, melt them down and feed them to their bees, including the preservatives, shellac, coloring agents, artificial flavorings and all other poisonous chemicals that go into candy these days. The bees in turn produce a more toxic honey. They also eventually sicken and die and the beekeeper can't understand why. With or without all the poisons, honey is food for the bee, not for people. We must eat those foods which we were designed to eat or suffer disease and die prematurely.

When we learn to eat those things to which we are physiologically and anatomically adapted, instead of searching the heavens, the oceans, forests, rivers and streams for exotic delicacies of the palate, we will begin to glow with health. Instead of wasting time searching high and low for materials out of which to artificially prepare foods for the starving world, we should be planting our gardens and orchards to fulfill this great need.

Fruits, nuts, and vegetables are the foods to which we are anatomically and physiologically adapted, and which have minerals and vitamins in proportion one to the other to meet our special needs, and we don't make a mess of the ecological system by eating them. On the contrary, we are fulfilling our part in the ecological system by eating them. By staying with the foods to which we are constitutionally adapted, we also maintain the proper cycle of the elements. Honey is not among the foods that humans should eat.

Good food combining is not that difficult to learn. Study just a little every day and soon you will know how to make your own Hygienic menus wherever you go no matter what foods are available.

Is the digestion of pasteurized milk difficult?

Pasteurized milk can't be completely digested as can unpasteurized, so in that sense it is harder to digest and handle. The proteins in cooked milk coagulate, come to the surface, and form the skim with which you are familiar. Some protein is lost in the pasteurizing process, because some proteins coagulate. Coagulated protein is harder to digest than that which has not been hardened. Calcium and other minerals in pasteurized milk tend to form insoluble precipitates that are neither digestible nor absorbable, and therefore are lost to us as nutrients. With the idea of improving milk, toxic irradiated ergosterol is added. If you must have milk at least drink it unpasteurized, and take it alone.

Why are the nutritious foods such as watercress, comfrey and parsley not included in the Hygienic diet?

Any vegetable that is strong and has a pungent, unpalatable flavor is not eaten by Hygienists. Any substance that can't be enjoyed by the normal sense of taste is considered toxic. The normal taste buds don't appreciate these substances and warn us against such foods that have toxic substances in them. These bitter and pungent substances are not relished normally and it is Nature's way to cause us to avoid them.

Watercress is too strong and pungent to the taste and any vegetable which is that strong should not be used because of an excess of certain substances. It is thought that the sharp taste of watercress is due to the large amount of sulphur contained therein. An excess of sulphur in foods is not healthful.

Parsley is eaten by Hygienists but it is not eaten in excess because of the high quantity of oxalic acid it contains.

Sorrel is generally used in salads, but Hygienists avoid it because it contains much free acid; especially oxalic acid. It contains between three and four parts per thousand of oxalic acid.

Comfrey does not form a part of the Hygienic diet because it has astringent qualities which occasion wasteful vital actions designed to rid the body of the toxic substance. Comfrey is used as a healing agent by herbalists because of these properties. Any plant that occasions vital abnormal actions is toxic and should not be used.

Do you approve of yogurt?

Hygienists as a rule eat no yogurt. In order to make yogurt, milk has to be heated and this causes a precipitation of the minerals in the milk, rendering them insoluble and not absorbable. Consequently there is an objectionable loss of food value. Pasteurized and powdered milk is generally used for the commercial product, making it doubly poor food.

What is poke-weed?

Pokeweed *(Phytolacca americana)* is a tall herbaceous plant that grows wild in North America, mainly in the Southern States. The weed has juicy purple berries and a purple root, which is used in making some drugs. The young purple shoots, which resemble asparagus, are used by some people in the spring or early summer in salads; but they are high in oxalic acid. It is best to shun any plant used as a medicine, as it always contains toxic substances.

The Hygienic system does not favor foods high in oxalic acid such as rhubarb, cranberries, chard, beet greens, and spinach. What actually is oxalic acid and how does it disrupt the digestion?

Oxalic acid (C2h3O4) is an organic acid that is widely distributed throughout the vegetable kingdom. It is sometimes found combined with calcium in the form of an oxalate, instead of as a free acid. Sorrel, spinach, rhubarb, cacao, black tea and pepper contain from two to four parts per thousand in the fresh material. It was formerly thought that tomatoes were high in oxalic acid but they have been found to have less than .0005 parts per thousand. Their sour taste is due to citric acid. Cashew nuts also contain an appreciable amount of oxalic acid.

Calcium oxalate is found in the leaves of many plants that we eat, such as spinach, beet tops and swiss chard. It is also found in lichens. The oxalic acid from food will be circulated in the body in the form of a free acid or as a salt of the acid, usually a calcium salt. People in good health can oxidize the oxalic acid, that is, their bodies can break it down into carbon dioxide and water as it does other organic compounds. If metabolism is perverted by excess toxins in the body, then oxalic acid cannot be properly handled. In excess it interferes with digestion by inhibiting *enzymic* actions. If the oxalic acid is not broken down chemically before it reaches the kidneys, it may predispose to the development of calcium oxalate stones. Ragnar Berg, the Swedish biochemist states, "The amount of oxalic acid in cocoa and black tea is especially high and an over-indulgence in these drinks combined with an acid-forming diet, will greatly favor the formation, or the deposit, of urates and oxalates in the kidneys and bladder...All conditions that favor the increase of uric acid in the body, such as a high flesh diet, combined with demineralized foods, will also contribute to the formation of oxalates."

What is uric acid and how do oxalic acid and uric acid differ?

Oxalic acid is a natural acid found in foods. Uric acid is a decomposition product. It is an end-product of protein metabolism.

Since the body forms its own nucleic acids and the breakdown products of nucleic acids are purines which in turn are changed into uric acid, there will always be a certain amount of uric acid in the blood, but more than what the body will form itself can be hazardous, as uric acid tends to precipitate into stones.

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Lesson 26 - Preparing And Serving Foods For Best Nourishment, Part I

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1. Evaluation Of The Various Stages And Methods Of Preparation Of Uncooked Foods

1.1 Less Is Better

The less preparation to which foods have been subjected, the better nourishment they provide. Even when foods are not cooked, there are many methods of preparing them which are progressively more damaging to their nutritional value.

Shredding, grinding, blending and juicing all critically impair the nutritional value of the food. Even cutting up the food causes some loss of nutrients, as each cut edge is exposed for oxidation to begin. The smaller the pieces, the greater the fragmentation—the more widespread the oxidation and damage.

1.2 Shredding, Grinding, Blending and Juicing

Shredding, which produces a greater number of exposed surfaces, is obviously more destructive than cutting up. Grinding is even worse, producing smaller particles. Blending breaks the food down even more, and juicing extracts only the juice, discarding all the fiber.

All these processes deprive the body of part or all of the chewing exercise, which is necessary for the secretion of salivary enzymes and for sending signals for the secretion of gastric digestive juices.

In addition, vital food elements are impaired or destroyed. Oxidation of food is intended to occur within the body, and when it is allowed to occur before the food is eaten, the body is deprived of important elements. Blending, grinding and shredding cause significant losses of Vitamin C as the fragmented foods are exposed to the air, and as much as a 50% loss of Vitamin C within a few minutes after food is juiced.

1.3 Over-Washing

Even "over-washing" of fresh foods will result in significant impairment of nutritional value. Fresh foods should be washed as rapidly as possible in fresh, clean water. Fruits should be quickly scrubbed under running water. No food should be allowed to soak; this leaches valuable nutrients.

Green leaves, especially lettuce, lose crispness, quality and nutritional value if allowed to remain in water more than a few seconds. Just swish the lettuce through the water, while rubbing off the sand and dirt with your fingers; a final quick rinse is more than adequate. You don't have to eat "sandy" lettuce, nor limp, overwashed lettuce.

Nor should you use any of various substances in the water to wash off the contaminants; this creates the additional problem of removing the washing compound. If the food is organically grown, there is no problem. If it is not, you cannot do more than quickly wash it in clean water.

Nothing will remove residues of chemical fertilizers or sprays, and your efforts to do so will only further impair the produce. Get the best quality of food that is available to you, wash it quickly and enjoy! If it is selected in accordance with Hygienic principles, your health will still be better than that of conventional eaters, even though not all of your food is organically grown (and, yes, even if little of your food is organically grown).

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2. Priority Of Food Preparation

Recapping the various stages of raw-food preparation prioritizes them in the following order:

1. The best food is that which is eaten raw, whole, and fresh from the garden or orchard, after a quick washing in clean water.
2. A minimum amount of separation of leaves for washing, or cutting of vegetables, performed immediately before eating, will result in minimum impairment of nutritional value.
3. Cutting up vegetables for a tossed salad, or fruits for a fruit salad, will result in considerable impairment of nutritional value, because every cut edge is exposed to oxidation and loss of nutrients. If such vegetable or fruit salads are occasionally desired, they should be prepared immediately before the meal.
4. Shredding, producing a greater number of exposed surfaces, is even more destructive. If shredding is temporarily necessary because of dental or digestive problems, it should be done at the table, immediately before eating. Attractive, efficient shredders for table use are available.
5. Grinding or blending breaks down the food even more. Sometimes, blended salads may be resorted to as a temporary measure, to tide one over dental, digestive, or other special problems, but the habitual use of blended salads is not advisable. If blenders or food processors are used in the preparation of special recipes, for occasional use, it should be done with the full knowledge that the nutritional value of these foods has been greatly diminished. If this is but an occasional practice and the major part of the diet consists of whole, raw foods, the principal negative will be subjecting the organism to digesting foods which do not provide maximum nutritional return.
6. Juicing foods and discarding all the fiber is contraindicated, except for use in breaking some prolonged fasts or where extreme debility makes the use of juiced foods necessary. The occasional use of juiced fruits or vegetables, in small amounts, twenty to thirty minutes before a meal, isn't harmful. Habitual use of large quantities of juiced foods is highly inadvisable. Juices bombard the body with large quantities of fragmented nutrients in much the same way as food

> supplements do, and the effects can be negative and even positively harmful. In addition, the body is deprived of the opportunity to chew, assimilate and metabolize the complete foods which are sources of optimal health.

We receive many requests for special recipes for transitional food programs to provide greater variety in a raw-food diet, and for ideas and instructions in the preparation of special menus and treats. Such menus, recipes, ideas and instruction are therefore included in this lesson.

It is hoped that the student will gradually realize that simple meals are the best, and will come to delight in luscious fruits, vegetables, nuts, seeds, and sprouts. Included in this lesson is a special section on sprouting.

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3. Preparation Of Foods Without Cooking

3.1. Fruits

3.1.1 Fresh Fruits

Most fresh fruits should be served whole after scrubbing under running water. What can rival the appeal to the eye and to the taste than a bowl or tray of beautiful, colorful, fragrant whole fruit?

Apples, pears, peaches, nectarines, apricots and plums should be served whole, with sharp knives for peeling and cutting if necessary or desired. The fruit should be eaten unpeeled whenever possible, but if fruit is not organically grown, it is a difficult choice.

Grapes and cherries, of course, require no preparation other than washing.

Some citrus fruit is easy to peel (tangerines, murcotts, mandarins, tangelos, temples). Other citrus may be cut at the table. No sugar on grapefruit! (Nor other sweetening.)

Berries should be served whole. Serve strawberries with caps and stems attached. No sugar! (Nor any other sweetening.) Fruit that is not sweet enough to eat without added sweeteners is not ripe enough to eat.

Serve persimmons whole—fully ripe, soft and luscious. I like to cut this fruit in half and spoon away from the skin. My husband, Lou, just bites into the fruit, discarding the skin as he eats.

Nature provided bananas with a wonderful coat, protective and easy to remove—no problems there. Serve them golden, brown-freckled and whole.

Cut ripe, buttery avocados in half at the table and eat with a spoon out of the half (or quarter) shell. If you want to peel the avocados, quarter them and remove the skins from each quarter. Serve the sectibus on a platter, or arrange them on lettuce leaves or other salad vegetables. Serve fresh, soft, ripe figs whole.

Serve delightful, emerald kiwi fruit whole. Cut it in half at the table and spoon out of the half shell.

Fresh litchi fruit is easy to peel at the table. Loquats require no peeling.

Florida papayas are sometimes very large. Cut in wedges and remove seeds immediately before serving. I have seen some people eating the seeds of the papaya, and heard them stoutly maintain that the seeds are "loaded" with nutrients and should not be discarded. I believe the taste of papaya seeds is ample evidence that they are not intended to be eaten. The plethora of nutrients which they undoubtedly contain are intended for the fruit which the seeds are programmed to produce.

Just-right ripe mangos are a treat any way you serve them. They can be cut in half, slicing over the large flat seed on both sides and eaten with a spoon. They can be peeled and sliced, but don't waste whatever clings to the peel and seed, though you may have to hang over the sink to eat it.

Joy Gross demonstrated (at the American Natural Hygiene Society national conventions) an attractive way to serve mangos. With a sharp paring knife; score the flesh of the halved mangos in cubes, without cutting through the skin. Invert the two halves (turn them inside out). Beautiful! And delicious!

Melons, of course, will have to be cut immediately before serving. Small melons may be served whole.

Prepare pineapple immediately before serving in the following manner: Cut a thin slice from the bottom. Cut in quarters lengthwise, either leaving the top on as a decoration, or removing it. Prepare each quarter as a separate serving by separating the flesh from the skin with a sharp knife and slicing the remaining wedge into segments. Serve on the rind (pineapple boats). Serve with forks for removal of the segments and serrated grapefruit spoons for scraping out any flesh remaining on the rind. Don't put the rind to your mouth—use a spoon. The eyes of the rind are razor sharp and can cut your lips, mouth and tongue.

Pomegranates may be served whole, and may either be cut and eaten in sections, cutting into segments as you eat, or the juice may be sucked out through a carefully punched hole (look out, it'll spurt all over you) after carefully kneading it until it is entirely soft. Don't be too rough, you may inadvertently break it open.

3.1.2 Dried Fruits

Dried fruit may require some advance preparation.

Dates and raisins may be presumed to be clean enough to eat as they come from a sealed package. For those who doubt this, a quick rinse just before eating may allay their misgivings.

Dried figs are usually soft enough to eat without preparation. Rinse, if desired. If figs are hard, they may be soaked in distilled water for several hours, or over night.

Dried apricots and peaches are greatly improved by overnight soaking. In fact, unsulphured apricots and peaches are almost inedible unless they are soaked.

Dried apples are very tasty—not too sweet. Soaking makes them too mushy.

Dried prunes, cherries and pears may be used either way—as they are, or soaked.

Dried bananas are excellent as they come from the package—soaking is not necessary or desirable.

Dried litchi fruit needs no preparation—just crack open the nut-like outer skin and find the raisin-like fruit inside.

Dried carob pods are sometimes too dry to be really palatable, but usually are soft enough to chew on. I have not tried soaking them.

3.1.3 Fruit Recipes (Without Cooking)

Ideally, recipes (especially for fruit) are not necessary nor desirable. We know that many people will want fruit recipes for a variety of reasons:

1. A nostalgic yearning for "mixtures".
2. For variety.
3. As a replacement for junk foods (to satisfy "cravings").
4. A desire to prepare something "fancy" or "convenient" to serve guests.

5. For reluctant family members.
6. For children (of any age).

These might also work out better for parties or groups of people, because they are perhaps more economical, more convenient, or more "liberal" for conventional friends.

Fruit Salad

Acid Fruit: Oranges, pineapple, strawberries and kiwi fruit. This can be prepared an hour or two in advance to serve to guests. The juice from the oranges should keep the other fruit from drying out or discoloring. Use whole strawberries, fairly large pieces of fresh pineapple, and orange sections. Serve slices of kiwi fruit alongside—don't put the kiwi fruit into the salad. Or use the decorative slices of kiwi fruit as a garnish.

This salad can be served to luncheon guests, along with nuts or avocado along with a salad bowl of romaine lettuce, buttercrunch lettuce and celery. (Of course, these same foods could be served more Hygienically by putting out bowls of oranges and strawberries, platters of pineapple boats and kiwi fruit halves, along with the bowls of greens and platters of avocados or nuts if desired.)

Other Acid Fruit Combinations: Winesap, Jonathan or other tart apples. Put cubes of mild cheese on toothpicks and arrange in a circle on each apple. (Or just serve trays of apples and trays of avocados, nuts or cheese.) Serve with bowls of lettuce and celery.

Oranges, avocados and romaine lettuce—this combination is an excellent meal any time of the day.

Subacid and Sweet Fruit: Combine berries (blackberries, raspberries, etc.—not strawberries) or dark sweet cherries or dark purple grapes with two or three of the following: sliced papayas, peaches, nectarines, apricots, sweet plums, apples, pears.

If this can be prepared immediately before serving to guests, arrange fruits attractively on romaine lettuce leaves, either on platters or individual service plates.

If it must be prepared an hour or two in advance, put together as a fruit salad, and moisten with apple, cherry or grape juice. For this purpose, you may have, to use bottled juice from a health food store, which usually does not contain additives, and will be of quite good taste and quality, although, of course, usually pasteurized. Or add dried soaked cherries or apricots and the juice in which they have been soaked.

This fruit salad can be served with, ripe Japanese persimmons, whole ripe bananas (or you can add sliced bananas to the fruit salad just before serving), and either avocados on the half or quarter shell or platters of dates, figs, raisins or other dried fruit. Also set out a salad bowl of two varieties of lettuce and some celery.

3.1.4 Papaya with Subacid Fruit Salad

Fill halves of large papayas with subacid fruit salad for a party buffet. Or fill wedges of large papayas or smaller papaya halves with subacid fruit salad for individual servings.

3.1.5 Papaya, Avocado and Apple Salad

Arrange wedges of papaya, avocado and apple (sweet or tart) in a circle on a bed of romaine or Boston lettuce.

3.1.6 Party Melon

A very attractive way of serving melon buffet style with less of the mess of rinds is to cut open and shape a watermelon as a basket with a handle. That is, instead of cutting it in half, make the cuts lengthwise a little short of the halfway mark, to leave a handle-like section about three inches wide.

Melon balls can be made of the red flesh, but a better way is to cut small wedges and arrange them in the watermelon basket, along with wedges of several other varieties of melon, such as honeydew, casaba, cantaloupe, etc. Don't mix any other fruit in the watermelon basket. Instead, provide bowls and trays of other varieties of fresh fruit for those who don't wish to partake of the melon, or for those who sometimes mix melon with other fruit at the same meal.

This is excellent for an afternoon reception or evening party.

3.1.7 Other Entertaining "Tricks" with Fruit

(Sometimes combined with other uncooked foods)

Although the following are not cooked, their nutritional value has been substantially impaired by blending, freezing, etc. These recipes are provided as alternatives to conventional cakes, pies, puddings, ice creams and other desserts.

Compote or Pudding: Soak dried figs (or dried apricots) overnight. Remove stems and blend with the soak water. Add fresh (or frozen) bananas and blend. If too thick, add distilled water—if not thick enough, add more bananas. Serve topped with sliced bananas. The fig pudding will be quite sweet, the apricot pudding less sweet. This may also be made by blending bananas with any other subacid or sweet fruit. Keep very cold until served. This may be served with fresh subacid or sweet fruit (not acid fruit or protein).

Apricot-Prune Whip: Soak dried apricots and pitted prunes overnight. Blend the next day with the soak water. Serve plain or with sliced bananas.

Frozen Banana Treats: Break ripe bananas in halves or thirds. Dip in carob syrup (carob powder mixed with distilled water) and then roll in grated coconut, and freeze. These may be eaten without thawing—they do not freeze hard. Remove from freezer about ten minutes before eating.

Raw Applesauce: Wash, quarter and core sweet juicy apples (do not remove skins). Put in blender a few pieces at a time with a small amount of apple or grape juice. Other fruits maybe combined with the apples. This should be prepared immediately before serving, to keep color and flavor, or keep very cold until served.

Banana "Ice Cream": Whenever you have a surplus of ripe bananas, peel and freeze them while in tightly-closed plastic bags. They may be converted to "ice cream" by putting them through a Champion juicer (using the homogenizing blank instead of the juicing screen); or in a blender. The Champion juicer method is preferable. The blender method may require a small amount of liquid to get it started. Other frozen or fresh fruit may be combined with the bananas (peaches, cherries—not strawberries).

3.2 Nuts

3.2.1 Shelled vs. Unshelled

Ideally, nuts should be served in the shell, with nutcrackers, picks and bowls for debris. Some people prefer the convenience of shelled nuts, and, if they are purchased fresh, in season, and properly stored, I must admit to their many advantages—especially in the case of the hard-shelled varieties.

Pecans, almonds, walnuts and Filberts are easy to shell, but the quality of the shelled varieties is more uniform. Shelled nuts, of course, take up less space, and are, therefore, easier to store. Shelled nuts are easier to serve, easier to eat, and there is no debris to clear from the table (and usually the floor, as well).

Pistachios in the shell (whenever available unsalted, which is not often) should be shelled as you eat them. They are so easy to shell that there is no excuse for buying them shelled, unless you just can't find any unsalted, in the shell. Interesting note: Dr. Shelton says that, unlike most other protein foods, pistachios are non acid-forming (alkaline-forming when digested).

Indian (monkey) nuts are tedious to shell. Pignolias (without shells) have a taste similar to that of Indian nuts.

Sunflower seeds are available in or out of the shell. They are tedious to shell, usually done with the teeth.

3.2.2 Shelling Suggestions

Special nut crackers are available which simplify the opening of hard-shelled nuts like Brazils, hickories and macadamias. Black walnuts are a special problem and usually must be opened with a heavy hammer on a large stone. I have heard it suggested that black walnuts be well wrapped and laid in the driveway, so that the car could be run over the package. A vise might be the best solution for cracking black walnuts.

Another suggestion for cracking hard-shelled nuts appeared in *Organic Gardening* magazine. The suggestion is to soak them for ten or fifteen minutes in a hot (or boiling) water bath prior to cracking. If they have been dried and stored for several weeks, sprinkle with water and place with a damp cloth in a tight container for twelve to twenty-four, hours before cracking. This will also soften the nutmeats for removal in larger pieces.

3.2.3 Blanched Almonds

Most almonds should be blanched, as their brown skins contain a strong astringent (prussic acid). Almonds which do not have a bitter taste are relatively safe to consume in limited quantities, but it is still better to remove the skins.

To blanch, put almonds in a large strainer with a handle. Dip in boiling water for about one minute; then dip in cool water. If this does not loosen the skins sufficiently, repeat the process. Skins should slip off easily.

If the almonds are not bitter, and it is not convenient to blanch them at the particular time, the skins may be partially scraped off with a sharp knife. You might also like to scrape some of the brown skin off filberts or Brazils, which may improve the taste, though these skins are not toxic. Dr. Shelton recommends removing the skins of Brazil nuts.

Although most nuts are acid in metabolic reaction, Ford Heritage and other references list almonds as being alkaline in metabolic reaction. Dr. Shelton (*The Hygienic System, Volume II, Orthotrophy,* p. 147) disagrees, and says that almonds are definitely acid-forming, although not so much so as animal proteins. The comparative degrees of acidity of nuts with animal proteins are: walnuts (one of the most acid nuts) 8; chicken, 11.2; beef, 9.8; eggs, 12.

The only nuts Dr. Shelton calls alkaline-forming are the pistachios. Although the skin of the almond contains prussic acid, and should be removed, Dr. Shelton recommends it as one of the finest of nuts.

3.2.4 Ground Nuts and Nut Butters

Sometimes, dental, digestive or other problems may necessitate the preparation of ground nuts or nut butters—or these might be needed for young children. Children should learn to chew their nuts (thoroughly) at as early an age as possible.

Ground Nuts are quite dry. If they are to be used, it may help to use a half grapefruit along with a serving of ground nuts. Squeeze some of the juice over the ground nuts, and roll some of the grapefruit sections in the nuts. This results in quite a palatable meal.

Another possible way to use ground nuts is to eat with whole strawberries, dipping each bite of strawberry into the ground nuts.

Nut Butters: To make nut butters, grind the nuts in nut mill or blender a little longer (beyond the ground nut stage). This produces an oilier mixture which can be patted into a butter with a spoon. The longer and finer you grind the nuts, the oilier they will be. If necessary, add a very small amount of oil after removing from the grinder. Sesame oil (buy cold-pressed) is a pleasant-tasting and more stable oil.

It would be better to make nut butters without the use of added oil. Try a tiny amount of distilled water instead, and see how you like it. Almond, pecan or sesame butter may require a little oil (or water). Cashew butter or peanut butter are oily enough without it. (Peanuts are not really nuts, but are starchy proteins, similar to legumes. Neither are cashews really nuts, being the pistils of cashew apples.)

Brazil nut butter is too oily by itself, but mixes well if ground with walnuts. The taste of each is improved by the combination.

Nuts 'n' Seeds Butter: Sunflower seeds and sesame seeds have an excellent taste when used whole, but, somehow, they are less tasty when ground into butter. They combine well in a nuts 'n' seeds butter. Use one cup of nuts (any kind except cashews or peanuts), one-half cup of sunflower seeds and one-half cup of sesame seeds. Grind together. A very small amount of oil (or water) may be necessary.

Nut and seed butters may be served on celery strips, lettuce leaves, sweet pepper slices, cucumber slices or other nonstarchy vegetables, or they may be eaten with a spoon.

3.2.5 Nut Milk

(Sometimes used for infants or for special problems.)

2 cups water
1/2 cup nuts

Blend as thoroughly as possible. If this is to be used for an infant, it may be necessary to strain it through cheesecloth.

3.3 Coconuts (Classified as Starchy Protein)

To open a coconut, drive a clean large nail through two of the three "eyes" or soft spots, and drain off the liquid. The liquid may be filtered through filter paper (coffee filters are fine) to remove any bits of husk, and it may be drunk immediately or stored in the refrigerator a short time, not more than a day or two. The shell may be cracked with a hatchet or hammer, or in a vise. If the coconut is placed in the freezer for an hour or so before cracking (after removing the liquid), it will crack and come away from the shell more readily.

Break up the meat in small pieces and eat out of hand. The pieces may be stored a short time in the coconut liquid or in water (not more than a day or two).

Peel the pieces before eating if you have trouble with tough skins. Coconut maybe grated if used shortly after preparing. Grated coconut may be used in salads.

Coconut is sometimes used with sweet fruits. (See recipe for nondairy coconut carob ice cream.) While coconut with sweet fruit is not an ideal combination, it seems to work out fairly well, in most cases. Don't use coconut with nuts or with acid or subacid fruits.

Unlike most nuts, coconuts are alkaline in metabolic reaction. Coconut oil, unlike other vegetable fats, is naturally highly saturated.

The only other saturated vegetable fat is palm oil, which you will find included in the labeling of many packaged products. The label usually says "one or more of the following oils has been used in the preparation of this product: corn oil, cottonseed oil, palm oil...." So it is impossible to tell which oil has actually been used. Palm oil, like coconut oil, is highly saturated.

The fact that coconuts contain saturated fat is not a contraindication for their use as food. This information, however, is of value in planning a diversified Hygienic diet. Saturated animal fats are not recommended. Fresh coconut is an excellent food.

3.3.1 Coconut Milk

Some people who find coconut meat difficult to chew may enjoy using this palatable coconut milk occasionally.

Blend two cups warm distilled water with one-half cup fresh peeled coconut, and cool in refrigerator. Blend again and strain through cheesecloth or Nylon mesh. If stored in refrigerator, it will separate, but may be stirred with a spoon before drinking. Do not store more than a day or two.

3.3.2 Coconut Milk Shake

Blend one cup coconut milk with one small banana and/or one tablespoon carob powder and/or several dates and/or two ounces sweet cherry or sweet grape juice. The juice adds an extra "fillip." The amounts and combinations of ingredients depend on how sweet you like it.

3.4 Chestnuts

Chestnuts are starchy protein, and are alkaline in metabolic reaction. They are usually "roasted," but may be eaten raw if they are a nonbitter variety. To remove the thick skins, blanch in boiling water and let stand about two minutes. Remove a few at a time from the water and cool slightly, then peel with a paring knife. Roasting will also loosen the skins. Recipe for roasting chestnuts will be included in the lesson on cooked food recipes.

3.5 Vegetables

3.5.1 Finger Salads

Most vegetables may be served raw and as nearly whole as possible with no dressing as part of a "finger salad." They should be washed immediately before serving.

These vegetables include, but are not limited to, all varieties of lettuce; celery; all varieties of cabbage; celery cabbage; cucumbers; carrots; sweet peppers and pimentos; tomatoes; Jerusalem artichokes; English peas; edible podded peas; young, tender green beans; broccoli florets and leaves; cauliflower; young turnips; young, tender beets; young, tender kale, collard or turnip greens; yellow crookneck squash; zucchini squash; sweet potatoes or yams; asparagus; young, tender sweet corn. A few vegetables are not particularly tasty when used uncooked, such as Brussels sprouts, eggplant, okra, globe artichokes and white potatoes, although some people do use these raw. White potatoes should not be eaten raw, but should be steamed or baked to dextrinize the starch.

Combine three to five vegetables as a salad for one meal.

3.5.2 Salad Dressings, Dips and Spreads

(Vegetables Combined with Nuts, Avocados, etc.)

If you must have salad dressing (get out of the habit as soon as possible), the following are better than bottled salad dressings or the use of vinegar.

1. Blended tomatoes with avocado
2. Blended tomatoes with cashew nuts (or other nuts or seeds)
3. Avocado with diced cucumbers (Optional: add lemon juice or Vegebase)
4. Yogurt or sour cream, Vegebase, diced cucumbers
5. Yogurt or sour cream, avocado! Vegebase
6. Avocado "butter"—(mashed avocado with optional lemon or lime juice)
7. Equal parts of Vegebase and Oil
8. Lemon and oil

Some of these dressings may also be used as dips or spreads (or guacamole—avocado dip).

3.6 Additional Recipes for Vegetables Combined with Nuts, Avocados, etc.

3.6.1 Rollups

For this, use one or two large leaves of romaine lettuce, and choose from a variety of fillings:

Choose one of these:

Avocado
Nuts (Ground or whole)
Seeds (Ground or whole)
Cheese (if you use it)

Combined with one or more of these:

Tomatoes
Sweet Pepper Strips
Cucumber Strips
Celery Strips
Sprouts

Roll up the filling inside the lettuce leaves, wrapping it up. This may be eaten like a sandwich.

3.6.2 Individual Meal-in-One Salad Bowls

Medium-sized pieces of lettuce (two or three varieties)
Cut-up red cabbage
Sliced sweet red pepper or pimento
Sliced celery
Choice of sliced young tender zucchini or other summer squash or a few broccoli florets
Choice of a few edible podded peas or young tender green peas or a few olives

Garnish with pignolia nuts and sunflower seeds and alfalfa sprouts or raw milk cheese slices and avocado slices and alfalfa sprouts.

Serve with Vegebase and oil dressing or cucumber sour cream dressing, if desired.

3.6.3 Coconut Treat

Combine optional amounts of:

grated coconut
grated carrot
grated cabbage
chopped celery

(if desired, a few raisins may be added)

Moisten with coconut liquid or coconut milk (or yogurt, if you use it). This may be served with a large green salad and globe artichokes for a satisfying company meal.

3.6.4 Other Entertaining Salads

For entertaining, you might serve trays of finger salad with salad dressings on the side. Or serve large bowls of salad cut up as little as possible, with salad dressings on the side. Or serve celery sticks with dips.

3.7 Preparation of Salad Vegetables

Leaves of lettuce or other greens may be separated under running water, rinsing away as much of the sand and dirt as possible, assisted by your fingers. A quick dip in a sinkful of cold water and another quick rinse should clean up the sandiest leaves.

The more delicate buttercrunch lettuce varieties (Bibb, Boston) should be handled carefully and washed even more quickly to avoid losing crispness and nutrients.

Lettuce should never be soaked in plain or acidulated water. This will only extract the vitamins and make it limp and unappetizing.

Separate celery strips from the stalk, rinse under running water, dip in cold water, using brush at the same time to dislodge the dirt from the crevices. Another rinse should finish the job. Discard pithy or damaged portions.

Remove the tough outer leaves from cabbage and you will usually find a clean head underneath. Rinse the head if you like, and cut wedges for serving.

Remove celery cabbage strips as needed. A quick rinse and brushing will clean them up quickly.

Scrub cucumbers with a vegetable brush. Remove peeling, if waxed. I don't use waxed cucumbers. Some supermarkets carry packages of "pickling cucumbers" all through the year—small, unwaxed cucumbers with small seeds. If they are fresh (and they often are), they taste like fresh-picked garden cucumbers, and the peel is tender and edible.

Scrub carrots with a brush—don't peel. Small, young ones are best for salad. If you can find them with the tops still on, those are freshest. If you must shred your carrots, do it at the last possible minute.

Tomatoes—ah, tomatoes! When they are good, they are very, very good, and when they are bad they are horrid.

Hydroponic tomatoes? Thumbs down! Hothouse tomatoes? Not much better—sometimes barely acceptable. Deep red, vine-ripened tomatoes? Oh, yes! Wash them under running water, serve whole and enjoy!

If you must slice or quarter tomatoes, do so at the table, or at the last possible minute before serving.

Red or green sweet peppers (preferably ripe and red, which are the sweetest) and pimentos: wash under running water and cut in half to inspect condition. This is necessary, because deterioration may exist without outward signs. If deterioration has occurred, cut away ruthlessly, and use only firm, hard flesh.

Scrub Jerusalem artichokes or sweet potatoes (or yams) vigorously. Serve in small amounts in the salad. The artichokes are crisp and easy to eat. If you must shred the sweet potatoes, do it as close to eating time as possible.

Edible podded peas need only a quick washing. English peas: serve fresh young garden peas in the shell. If they are larger and from the supermarket, you may prefer to hull and cull them.

Broccoli and cauliflower florets need only a quick rinsing or dip in water and perhaps a little cleaning up with a sharp paring knife. The smaller broccoli leaves are also a bonus salad vegetable of high quality. The larger, tougher leaves require some steaming.

Small young turnips may be scrubbed and served whole—also, small young beets.

Small young green beans should be washed quickly and culled.

Asparagus should be rinsed, dipped and rinsed again to remove the sand.

Scrub yellow crookneck and zucchini squash lightly to avoid damage.

Strip husks and silk from young, tender sweet corn—you might use a tooth brush lightly. Rinse, and enjoy.

Raw mushrooms may be used in salads, but are not recommended because they pass through the digestive system unchanged. If used, wash by holding briefly under running water. If necessary, finish cleaning up with a sharp paring knife. Do not soak or peel.

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4. The Sprouting Garden

A sprout is a germinating seed. It is the tiny shoot that emerges from the seed, the first visible evidence of the materials stored within the seed, programmed to create life.

I don't agree with people who believe sprouts to be the most perfect food—I am inclined rather to go along with Dr. Shelton's belief that sprouts should be regarded as an excellent bonus food, but not to be relied upon as a replacement for foods grown to a more mature state, with benefit of earth and sunlight.

Cathryn Elwood's chapter on "Vitamin-Rich Sprouts" in Feel *Like A Million* gives excellent information on the progressive and accelerating nutritional value as the sprouts progress.

4.1 Advantages of Sprouting

Sprouting is fun! It is exciting to watch the growth (in a jar or other type of sprouter on your kitchen counter) into vitamin-, mineral- and protein-rich green vegetables, loaded with enzymes and chlorophyll. As the tiny seeds multiply in volume (one to two tablespoons of alfalfa seeds fill a quart jar with sprouts), a wonderful salad ingredient, with an abundance of Vitamins A, B and C, is being grown. Alfalfa sprouts are also a splendid source of Vitamins D, E, G, K and U. Vitamin C is especially high in lentil and mung bean sprouts after three days. However, lentil sprouts should be harvested when the sprout is no longer than the seed, while mung bean sprouts should be allowed to grow long enough to produce green leaves.

The sprouted seed contains far more vitamins than the dry seed, multiplying dramatically through the sprouting period. Research at Cornell University and the University of Pennsylvania revealed phenomenal increases of Vitamin C as sprouting progressed, and an increase in Vitamin C even during storage in the refrigerator. Riboflavin, niacin and other B vitamins were also increased during sprouting.

Dr. Paul Burkholder of Yale University found that the total Vitamin B content is increased 100% during the sprouting process.

Vitamin-conscious people, please take note; Hygienists need not be concerned, leaving that to nature and the Hygienic diet.

Sprouts are also noted for their high-enzyme activity. During germination, proteins are broken down into amino acids and some new protein is synthesized. During sprouting, much of the starch is converted to natural sugars. In many seeds, fats disappear and are replaced by carbohydrates, improving tremendously the digestibility of sprouts over seeds.

Phytic acid in whole grains is antagonistic to the absorption by the body of calcium, iron and other minerals. Soaking and sprouting neutralizes the phytic acid, so sprouted grains not only provide increased nutrients, but elimination of the threat of phytic acid also.

Viktoras Kulvinskas says that iron may become unavailable to the organism due to the resultant insoluble compound formed when the iron unites with phytic acid. "The acid combines well with calcium, iron, zinc and other minerals, which reduce significantly their absorption into the, bloodstream. Similarly, oxalic acid of spinach can reduce significantly the availability of calcium. Phytin is very frequently present in many seeds and may constitute up to 80% of the phosphorus content of the seed. The absolute amount of phytin varies in species and families. Hence, eating a diet rich in seed, besides the high protein complications, can result in a tremendous loss of important minerals, in spite of the fact that seeds are rich sources of such minerals. However, the mineral losses because of the high phytin concentration become insignificant if one sprouts the seeds."

Professors A.M. Mayer and A. Poljakoff-Mayber of the Botany Department, Hebrew University, Jerusalem, found that most of the phytin disappeared in the sprouted seeds studied and that there was an increase in desirable forms of phosphorus compounds, especially in lecithin.

The dry seed is characterized by a remarkably low metabolic rate, but even the moistening of the seed triggers tremendous changes. Drs. Mayer and Poljakoff-Mayber describe the process which results in such important changes: "As soon as the seed is hydrated, very marked changes in composition in its various parts occur. These changes occur even when the seed is placed in water without any nutrients, and in complete absence of assimilation. The chemical changes which occur are complex in nature.

They consist of three main types: the breakdown of certain materials in the seed, the transport of materials from one part of the seed to another, especially from the endosperm to the embryo or from the cotyledons (the first pairs of leaves) to the growing part, and lastly the synthesis of new materials from the breakdown products formed. The only substances normally taken up by the seeds during germination are water and oxygen."

Cathryn Elwood says, "One of the chief advantages lies in the fact that sprouting can give us a new crop of delicious food every two to four days—a crop that needs no thought to soil conditions, composting techniques, blight, bugs, weeds, storms, sprays; one that can be grown any season and in any climate and is simple to harvest and store for future use." She says they have valuable protein, compare favorably with fresh fruits in antiscorbutic (Vitamin C) properties, have no waste, are excellent raw (and could be lightly cooked, if desired, in about three minutes). One pound of seed increases to six or eight pounds of food, and so the price drops way down.

All sprouted seeds, legumes and grains can be eaten without cooking. Some people find sprouted soybeans unpalatable, in which case they may elect to steam them briefly to slightly alter the taste.

"Sprouties," as Cathryn Elwood calls them, are not only convenient, economical, easily grown—any time, anywhere—they are also an easily available source of organically-grown food. If you do not use organically-grown seeds, be sure they are, at least, untreated.

4.2 Miscellaneous Sprouting Information

I have found alfalfa seeds, sunflower seeds, mung beans, azuki beans and lentils easiest to sprout; we like alfalfa sprouts best and use them freely, mostly with salad vegetables. Many people with impaired digestions, who have trouble with other nuts and seeds, find that sprouted sunflower seeds are well tolerated.

Garden peas, soy beans, garbanzo beans and wheat and rye berries may also be sprouted, with just a little experimentation and practice. Most whole nuts, seeds, beans and grains may be sprouted, although shelled nuts are difficult, sometimes impossible, to sprout. As previously indicated, all may be eaten raw after sprouting, and may be stored in the refrigerator for about five days. Sprouted beans, raw or cooked, are less gassy than unsprouted beans, which, of course, must be cooked.

Eat sprouts from rye, wheat or other grain berries (seeds) in 24 hours or so, when but a short sprout is showing. (Grains sour readily.) Harvest sunflower seeds when sprouts are no longer than seeds, preferably even shorter. Eat lentils in two or three days, sprouts no more than one inch, preferably less.

Garbanzo and soy bean sprouts are especially high in protein but are not easy to work with; sprouts should be short—they also may sour. Rinse frequently to preclude souring, say, four times daily, even more if weather is hot.

Lentil sprouts are also high in protein, and they are easier to handle.

Mung beans are easy to sprout and will be ready in about four days, with sprouts about two inches long and showing green leaves (see sprouting instructions).

Alfalfa sprouts will also be ready in about four days, with sprouts of about two to three inches and green leaves.

Seeds and legumes for sprouting are available in health food stores, also in some supermarkets. Don't sprout mixed varieties, because different seeds, legumes and grains require different treatment.

4.3 Sprouting Instructions

This is the simplest and easiest sprouting method: Wash seeds thoroughly. Put one to two tablespoons of alfalfa seeds (or three to six tablespoons of beans, or one-half cup of wheat, rye or other grain) in a quart jar with the purest possible water (preferably distilled) about three times the volume of the seeds. Soak overnight, or six to ten hour (alfalfa, lentils and wheat or other grains about six hours; mung, garbanzo or soy beans ten hours or longer). Soak longer in cool weather, less in warm weather. The soak water should not be cold. One source advises changing the water should not be cold. One source advises changing the water halfway through the soak period.

Cover the jar with a stainless steel mesh and jar ring, or cheesecloth or nylon mesh held on with rubber bands or a jar ring. (The jar ring has a tendency to rust before long, so the rubber band is somewhat better in that respect).

Next morning (or at the end of the soaking period) drain and rinse the sprouts (without removing the mesh covering). Set at an angle to drain (prop up bottom end of the jar about an inch). Then rinse two to four times daily through the mesh; fill the jar with water from the tap, empty and shake very gently to disperse the seeds around the jar. I will repeat: sprouts require more frequent rinsing in warm weather, less frequent in cooler weather. Cover the jar with a small towel so that the seeds will have air and warmth, but not light, as they put out their first roots.

4.4 AIfalfa Sprouts and Mung Bean Sprouts

After three days (or when leaf appears), remove towel so light (not direct sunlight) will green up the leaves (chlorophyll). This may take eight to twelve hours or more, after which they may be eaten or stored in the refrigerator to eat at a later time. Actually, they may be eaten at any stage in the sprouting process, but they are at their best when the twin leaves are dark green. Only alfalfa and mung bean sprouts are sprouted to the green leaf stage. Other sprouts are used sooner, without green leaves, per previous instructions.

When sprouts are ready for harvesting, hulls may be floated off, if desired. In any event, the sprouts should be given a final rinse, and then allowed to drain on a paper towel before storing. They will keep longer if stored only slightly moist, not wet.

4.5 Use of Soak Water

You will note that I have recommended using the soak water for your plants. Although the soak water has been found to be rich in minerals, vitamins, enzymes and amino acids, it is foul-tasting. Some people advocate drinking this soak water, or using it by combining with other foods.

Dr. Alec Burton (Australian Hygienic Professional) believes that this soak water should be regarded as a waste product and discarded, but there is certainly no reason not to make use of its nutrient content for your garden, which will then return the nutrients to you when you harvest your vegetables.

Although the nutrients in the soak water have been leached from the seeds, the tremendous multiplication of nutrients occurring in the seeds as they are sprouted more than compensates for this loss.

Another option is to avoid the loss of nutrients by osmosis into the soak water by utilizing only enough water in presoaking the seeds so that all the water is absorbed into the seeds.

However, we do use the soak water when dried beans are soaked prior to cooking, which may seem inconsistent. Some authorities do advocate discarding this water also. But the soak water from the beans, if used, would be used in the preparation of the cooked beans.

There may be some validity to the suggestions to use the soak water by-product of the sprouting operation by mixing with other foods, especially if you are using cooked foods, such as soups or casseroles.

However, it seems to me that there is a basic difference in these two situations. If the bean soak water is discarded, there go a plethora of vitamins and minerals which have leached into the water! But, in the case of the soak water from the sprouts, the loss is adequately replaced and multiplied during the sprouting process.

As previously indicated, there is some disagreement as to whether or not to discard the water in which beans are soaked (usually overnight). Advocates of discarding the bean soak water say that although you will be discarding some nutrients, you will also be discarding many of the oligosaccharides that cause flatulence.

Those who advocate cooking the beans in the soak water believe that the marked and complex chemical changes in composition which occur in the beans as a result of hydration and soaking (the process described by Drs. Mayer and Poljakoff-Mayber—referred to previously) are also accompanied by alteration of the nature of the breakdown products, from which new materials are synthesized.

I have experimented with using and discarding the soak water, and have noticed no problem with flatulence when the soak water is used in cooking the beans; in fact, there doesn't seem to be any difference at all.

I am a good subject for this experiment, because for many years I was unable to tolerate legumes, either cooked or sprouted, because all legumes, even lentils, caused me distress. I eliminated legumes from my diet completely for about six months, and then restored them slowly and carefully. Now I use legumes (cooked or sprouted) occasionally, in moderate amounts, with no problem of flatulence.

You may decide to experiment with both methods—that is, using or discarding the soak water. I don't believe either method will affect your health and well-being. In fact, I doubt that you will notice any difference. I will welcome comments and reports as to the results of your experiments.

4.6 Avoiding Sprouting Problems

1. Start with the easiest to sprout: alfalfa, sunflower seeds, mung beans, azuki beans and lentils.

2. I have found it best to use sunflower seeds as soon as possible after a very short sprout appears; they tend to deteriorate rapidly.
3. Soybean sprouts are highest in food value, so try to eventually progress to sprouting them. Some people enjoy raw sprouted soy beans; others reject their taste in the raw state, buy enjoy them cooked. Soy beans require far less cooking after they are sprouted. It is difficult to successfully sprout soy beans or grains in a jar; more sophisticated equipment is advisable, such as described later in this lesson.
4. Be sure to use new seeds with high germination values; old seeds or beans will become moldy or even rot during the sprouting.
5. Use distilled water for soaking. Usually, tap water may be used for rinsing, but if your tap water is high in chemicals, it may cause problems with sprouting, in which case, use distilled water for rinsing.
6. Spoilage may be caused by soaking too long. Usually six hours is long enough for seeds. If you are having problems, try sprouting seeds (such as alfalfa and sunflower) without the pre-soaking, or a very short (two or three hours) pre-soaking period. Dried beans (soy, mung, azuki) usually require pre-soaking, as much as eight to ten hours.
7. If you are having problems, try more frequent rinsing—in cool weather, two or three times daily should be enough, but four times daily may be required in warm weather Be sure the drainage is good. If sprouting in a jar, be sure to maintain in a slanting position.

4.7 Sprouters

There are many other types of sprouters—some, makeshift but efficient (a bowl with a plate to cover and drain—instructions later) and some more sophisticated. I have an excellent sprouter which was made out of a clear plastic shoe box with an opaque cover. For draining, six 3/16" holes were drilled along one bottom end, a screen was cemented over them (inside the box); and ten larger holes (1/4" diameter) were drilled in the lid, along the sides. A small piece of wood is used in propping up the end without the holes and screen, when draining. The alfalfa and mung bean sprouts grow straight up and beautiful, instead of tangling inside a jar.

Health food stores have two quart sprouting jars available with stainless steel mesh screens in plastic screw tops which, of course, do not rust.

I also have a decorative, sprouting sphere called "Little Green Acre," which the folder says "provides light, humidity and air circulation in balanced harmony for trouble-free sprouting, and is specifically designed to utilize those light rays in the spectrum which enhance sprout growth." I do find it superior in many respects to other sprouting methods, but it is expensive, and you can do quite well sprouting alfalfa, sunflower seeds, azuki beans, mung beans and lentils in a jar. You may find your sprouts do better in the two quart wide-mouthed jar with plastic screw top and stainless steel screen, rather than the one quart Mason jar. The sphere does prevent souring of the more difficult to sprout soy beans and grains, and does not require as much attention—rinsing and changing the water in the base just once a day.

Regarding the garish color, mine is half ruby red (top half) and half purple. When I bought mine (introductory price at a Vegetarian Society Convention), it was also available in ruby red and green.

This sprouter produces a generous harvest of beautiful, straight-up green-leaved alfalfa sprouts, which can be harvested gradually, if desired. It is excellent for all varieties of sprouts.

Another excellent sprouter is the "Kitchen Garden Sprouter." It is ten inches in diameter and two and one-half inches deep. Water flows through the bottom as the sprouts are rinsed. It has a removable divided tray to make four different compartments for sprouting different seeds simultaneously without mixing.

4.8 Instructions for Sprouting in a Bowl

After soaking and draining the seeds, put them in a, bowl, fill the bowl with water from the tap, cover with a plate and invert and drain. Allow the bowl to stand with the dish on top to keep the seeds at high humidity, but the plate should not fit so tightly that there is no air circulation.

Fill the bowl with water and drain two to four times daily. For better bottom drainage, try inserting a strainer or colander in the bowl.

Another bowl method is the use of a clay bowl in a pan of water. The clay bowl (or flower pot) absorbs enough water to keep the sprouts moist but not wet.

Some people use these bowl methods very successfully, others prefer more sophisticated sprouters.

4.9 Sprouting in Sand or Soil

Sprouts can also be grown in sand or soil. Sunflower seeds and buckwheat are especially recommended for this use. Plant in boxes or in the garden, allow to grow to about two to three inches tall, and snip off the green leaves for the salad. Soy beans, being subject to spoilage when sprouted the usual way, will obviously do better when sprouted in sand or soil.

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5. Questions & Answers

I have heard that blended salads have the advantage of enabling the consumption of greater amounts of green vegetables than would be possible if eaten whole. If one eats a regular raw salad, and an additional amount of blended salad, would you still object to the use of the blended salad?

> If there is no dental problem (or other problem involving the use of whole raw foods), there is no reason why all the salad desirable or necessary cannot be eaten as intended by Nature. When one has a feeling of surfeit (or, preferably, before such a feeling) after eating salad or any food, he should stop eating, not force more food into his body by "drinking" it. The use of blended salads often results in bombarding the digestive system with more bulk than can be comfortably or efficiently handled. Blending foods does not result in making them easier to digest. It does bypass the necessity for chewing, but the food arrives in the stomach without sufficient insalivation and without any signals for the secretion of the necessary gastric enzymes and digestive juices.
>
> Even though I personally experienced serious digestion problems, relived by a 29-day fast in 1967, today I eat mountains of raw salad and experience no problems as a result. When my body signals I have had enough, I stop eating. I have experimented with the use of additional blended salads, with negative results—cramps and discomfort. Even if overt symptoms do not occur as a result of "stuffing" with blended salads, future problems may be incubating. Enjoy your salads in their most appetizing and healthful form—whole, succulent and delicious.

Why do you object to the use of hydroponic vegetables, and yet you approve the use of sprouts, which are also usually grown without soil or sunshine?

It is true that sprouts are also grown without soil or sunshine, but they are harvested before there is a necessity for the nutrients provided by the soil or sunshine.

If seeds are grown beyond the sprout stage (to maturity or near-maturity), it becomes necessary to provide such nutrients. Hydroponic vegetables are provided with these nutrients through the use of chemicals added to the water in which they are grown.

How much dried fruit should be used as part of the regular Hygienic diet?

Most dried fruit is very sweet. Such concentrated sweets should be used sparingly. Fresh whole fruit is better food, and much more acceptable to the organism, especially in warm weather. In seasons when fresh fruit is not plentiful, or in cold weather when one may feel the need for some more concentrated food, dried fruit may be used in slightly greater quantities. We never use dried fruit more than once in the same day, sometimes not at all. A reasonable amount (used with fresh fruit and lettuce and/or celery at a fruit meal) would be six to eight medium dates, three to five medium figs, four to six medium soaked apricots, two or three tablespoons of raisins, etc. If occasionally used with salad only and no fresh fruit, the quantities could be increased to about half again as much, if well tolerated. Overeating of dried fruit can bring on symptoms of a cold.

If one never gets beyond a "transitional" food program, can improved health be expected?

Usually a transitional food program (eating less and eliminating all or most animal products and all junk foods, and utilizing a large percentage of uncooked food) will result in some health improvement, but, after a certain plateau is reached, no further progress can be expected unless further improvements are initiated. If one expects significant health improvement, significant and continuing progress toward true Hygienic living is necessary. However, if a transitional food program is accompanied by a regular, vigorous exercise program, and attention to the other facets of Hygienic living (unpolluted air; pure water; adequate rest and sleep; sun baths and air baths; mental and emotional poise; pleasant and secure environment; creative, useful, rewarding activity; meaningful relationships with other people; personal control and self-mastery; recreational activity; comfortable temperature; natural light; moderation in all activities; and dealing with illness by rest and abstinence from food, rather than the use of drugs and treatments) much greater progress toward optimal health can be achieved.

If serious problems exist, it is highly inadvisable to indulge in any compromise to true Hygienic living. An impaired organism should be offered only those foods which will provide maximum nutritional value in return for the work that must be performed in processing these foods.

Can people with conditions such as arthritis or high blood pressure be "cured" by changing to a strict Hygienic food program, using mostly raw food?

Hygienists do not believe there are any "cures"—Hygienists merely assist the body to heal itself. Most people who are really in trouble must start out with a, therapeutic fast (usually fourteen to thirty days). Pathological conditions may sometimes respond to the change in diet, along with a regular, vigorous exercise program and other changes in lifestyle, provided drugs are not used. However, it may take a long time before any progress is observed. If the pathologies are serious and aggravated, the changes in diet and lifestyle will not accomplish the desired results within any reasonable length of time, if at all.

Article #1: Well, You Wanted To Know By V.V. Vetrano, B.S., D.C.

Are there any recommendations for variations in summer and winter diets?

Summer and winter diets must of necessity be slightly different because of the different varieties of fruits and vegetables that are available during these seasons. There are more varieties of fruit in summer than in winter. In the summer, one can rely solely on fresh fruit for carbohydrates whereas in the wintertime it may be necessary to use some dried fruit. In very cold climates one may increase the protein intake as protein has a tendency to cause more body heat to be manufactured thus keeping the person warm. Carbohydrates and fats also help produce more body heat but not to the extent as do protein foods.

What about dried foods and their needed soaking time?

Unsulfured dry fruits are good foods and may be eaten in the dry state, soaked or slightly rehydrated. However, when fresh fruits are available they should be used in preference to the dried.

To soak dried fruits, use distilled water only. Place them in a bowl rather than in a jar or glass and put only enough water for the fruit to soak up so there will be very little remaining when the fruit is ready to eat. Usually eight to twelve hours will be adequate soaking time for most dried fruits. Actually, you can suit yourself and stop the process by putting them in the refrigerator and by controlling the amount of water you place on them. If you like them very soft, then use a lot of water. If you prefer them a little more firm, then use less water.

I prefer a method I devised myself. Not liking the tasteless water left when soaking fruits the ordinary way, nor the tasteless fruit after it absorbed water, I decided to just barely rehydrate the fruit. First, wash the fruit, then rinse it in distilled water. Next, place the fruit one layer thick on a flat plate or tray with about one eighth of an inch of distilled water in it. Cover to keep the fruit damp. Turn the fruit occasionally when the top looks dry. In about two hours the fruit is a delicious chewy soft consistency-not too soggy nor too hard. I think fruits rehydrated in this manner are much more savory than the soggy mushy tasteless mass that they become when completely soaked. If you prefer more softness add more water and let them stand longer. Turn the fruit approximately every half hour so it can soak up a little more water. With this method no sugar is lost into the water, as the water is all consumed by the fruit, none being left over to sap out the sweetness and nutrients. If you like delicious chewiness, try rehydrating your fruits in this manner instead of soaking.

Article #2: Some Fundamentals Of Food And Feeding By Ian Fowler

What to Eat

What to eat? Food! Fresh food! Natural foods. But what are natural foods? Cow's milk, honey, polar bear liver? No! Natural foods are not only foods unchanged by artifice but foods natural to man, that is, "natural" in the same sense as "grass is natural food for cows." Ideally our food should be palatable, unprocessed, uncooked and uncontaminated with pollutants, synthetic flavors, condiments, dyes, pesticides, preservatives, heavy metals, nitrates, plasticizers, etc. Our food should consist largely of raw fruit and vegetables, that is, food which is chemically and physically constituted in accord with our design or the "way we work best." Evidence directly implicating refined carbohydrate food in the development of Western patterns of disease is now substantial and cogent. In particular a diet rich in refined carbohydrates is almost certainly a significant causative factor in appendicitis, varicose veins, diverticulosis, bowel cancer, coronary heart disease, acne, diabetes, obesity, gallstones and piles.

Food is essentially composed of fiber, nutrients, flavor substances, water and poisons. The sugar-coated drug of a physician may be composed of the same classes of substances as may tea, coffee, cocoa and medicinal herbs, but we can hardly glorify them as foods because the nature and quantity of poisons they contain detract greatly from their nutritional value. Even synthetic foods and cooked food containing all known nutrients will not support life over successive generations. Animals that only consume such food become progressively deformed and infertile with each generation. Such food has understandably been called foodless food. Food is more than the sum of its constituents, for those are determined by destructive analytical techniques.

We should try to consume mostly living food that contains as little poison as possible. All food contains both artificial and natural poisons. So don't be discouraged if you discover that Brazil nuts contain oxalic acid. They do. Most fresh vegetable material does. But little of the oxalic acid from it is absorbed. However, some vegetable material contains "potent" poisons, e.g. "medicinal" herbs; these should be avoided. We should aim to meet our nutritional needs, while consuming as little poison as possible.

Some foods—indeed almost all foods—are claimed, by somebody, as having "therapeutic qualities" or "healing forces." If this were true, eating a mixed diet would constitute preventative treatment in the form of preemptive multiple cures! Indeed some "foods," such as tea, coffee, cocoa, peppermint, foxglove, belladonna, are used as stimulants, diuretics, etc., for they contain potent poisons (drugs) and represent primitive medicines. Caffeine, theophylline, theobromine, atropine, digitalis, are drugs which can be isolated from the above herbal sources and their administration is followed by physiological changes similar to those which follow the consumption of their parent herb.

No sophistry about "mineral balance" or "radiations" can make poisonous herbs nonpoisonous or anything other than injurious. Many people have double standards concerning drug use, e.g. marijuana is bad, alcohol is okay. Many people in the alternative health care fields have similar double standards. Tea and coffee are bad but peppermint and chamomile have "healing properties!" Similarly, some of the medical profession are reluctant to relinquish the hope that alcohol, coffee or tea. etc. have "curative" values.

To speak of food and to use food as "medicine" is to transfer to food all the misconceptions about drugs; to replace the notion "drugs can fix you up" with "food can fix you up." Food is material for use by the body, food does not do anything, it is done unto—digested, absorbed, metabolized. The consumption of a particular food or foods cannot substitute for the removal of poor foods from the diet or for the removal of non-dietary causes of disease such as cigarette smoking, lack of sleep, inactivity.

Advising the sick to change their diet is not necessarily advising diet therapy unless we think of "therapy" as *everything* a sick person does in the hope of getting well. This understanding of "therapy" obscures important distinctions. For example a few years ago the most common medical dietary recommendation to those with diverticulosis was "avoid coarse foods-they irritate the bowels." Now that it is "proved" that lack of "coarse" foods "causes" diverticulosis, many physicians advise those with diverticulosis to "eat more coarse foods"—a complete about-face. The former dietary recommendation constituted "diet therapy," for the aim was to reduce symptoms rather than to provide needs or to remove causes and so, like all therapies, made things worse. The older dietary recommendations were therapeutic, the *Hygienic* dietary recommendations provide the needs of the body and omit unfavorable factors. A diet change (even a *Hygienic* one) understood as "food medicine" or "diet therapy," like drug therapy, blinds the sick and the well to the realization that the primary prerequisite for better health is the *removal of the extra-bodily causes of disease*. Applied to diet, this means that the avoidance of specific foods is usually more important to recovery than the eating of specific foods.

Cooking

Overheard casual conversation:

"Doesn't poor old Mrs. Jones look unwell."
"Yes, the doctor says she's malnourished."
"Well, I suppose when you live alone you don't feel like cooking for yourself."

This illustrates a common misconception: that "good nutrition" and cooking go together. In general, cooking is undesirable. During cooking some nutrients are lost through oxidation, denaturation and leaching. In addition, some are converted to noxious substances, such as hydrocarbons and nitrosamines. Some nutrients are also converted to a variety of substances called secretagogues-substances so named because their presence in the stomach, even in minute amounts, evokes a vigorous secretion. Some secretagogues are partly broken-down food elements, for example, peptones (from protein). The upshot is that when cooked food is eaten, an untimely, excessive and inappropriately constituted (e.g. too acid) digestive juice is poured into the stomach and intestine.

The process of denaturation and splitting of food elements which occurs when food is cooked is often unwittingly called "predigestion." Cooking tends to "soften" the food, which encourages poor mastication and a whole train of consequences (see previously). Softened, denatured food moves slowly along and so tends to putrefy and ferment readily, especially if it is also refined and concentrated and not accompanied by a substantial amount of raw food. Cooking also tends to dehydrate the food, hence its consumption is frequently accompanied by thirst. This leads to drinking with meals and the drink is usually tea or sometimes fruit juice, which is frequently "incompatible" with the cooked food. Many popular methods of cooking, for example, boiling vegetables, result in the addition of aluminum from the pot and fluoride from the water. It has yet to be demonstrated that either of these elements is constructively involved in cellular life processes. Their, poisonous nature has been demonstrated repeatedly. Cooking also "drives off," leaches and destroys the flavor substances and organic salts, hence encouraging:—

1. the consumption of foods that would be distasteful if eaten raw;
2. the addition of salt, condiments, monosodium glutamate, etc., to "add flavor."

It is conceivable that a particular raw food diet that is nutritionally inadequate may be improved by addition of certain cooked foods. For instance, a protein-deficient raw food diet may be improved by adding cooked meat or egg yolk. But an adequate and suitable raw food diet may be preferable.

Condiments

These tend to denature and precipitate enzymes and proteins, rendering enzymes ineffective and protein less digestible. Condiments are irritants which occasion an abnormal protective secretion of fluid and mucus instead of normal digestive fluids. Constant use of condiments leads to secretory impairment and insensitivity to flavor substances. So those who use condiments regularly, or smoke, or drink alcohol, cannot perceive the flavor nuances of raw salads and many fruits. So, commonly, raw food is called, "tasteless herbage" or "rabbit food"—unless that "rabbit food" is mutilated as coleslaw and/or polluted with oil, salt and vinegar—the very things that have led in part to the sensory deterioration.

Common salt (sodium chloride) is perhaps the most frequently used condiment. In natural foods sodium and chloride ions are present in low concentrations and are avidly and easily absorbed.

Providing the kidneys are in reasonable condition, they rapidly excrete all salt added to food. However, chronic intake of added salt leads to impaired ability to excrete it, with consequent fluid retention. Table salt is also implicated in the development of some forms of "high blood pressure." In short, our so-called "mineral metabolism" works best on low intakes of sodium and chloride; so low, in fact, that a deficiency of these elements cannot be produced simply by feeding natural foods, no matter how little sodium and chloride they contain. Indeed if you develop kidney failure, liver failure, heart failure, or high blood pressure, a low-salt diet is medically recommended. Too late. Don't wait; omit salt from your diet now.

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Article #3: Vegetable Salads By Dr. Herbert M. Shelton

A large raw vegetable salad with each dinner is one of the most important elements of the diet. As a preventive of disease, it is far superior to all the vaccines and serums ever devised. Salad eating, at least in this country, is a recent innovation and had its origin among those who have been dubbed food faddists. The addition of a suitable salad to a meal always improves the nutritional value of the meal.

At the turn of the century cooking was much worse than now and the diet more gross-flesh, bread and potatoes or beans three times a day, with an assortment of side dishes, cakes, pies, etc., that would have made a meal for a 600-pound boar, all jumbled together in the most abominable combinations. It was an era when a flesh, bread and potato diet with such accessory foods as butter, cream, mayonnaise, sugar and sweet desserts were the most common reliance of the people. Fresh fruits and vegetables were scarce in the diet.

At that time the *medical* profession was horrified at the thought of eating uncooked fruits and vegetables. There were germs on them! "There are typhoid germs on all uncooked vegetables." But under the leadership of the "cranks," "faddists" and "quacks" the people took to eating these raw foods, and as the fresh foods entered the diet the germs vanished. No typhoid resulted from eating these germ-laden foods. Today, even the most bacteriophobic physicians eat these foods uncooked, the only food they refuse to eat without first heat-sterilizing is milk. (It also supposedly contains typhoid and tubercular germs.)

Although popular eating is less gross than formerly, people still overeat. They have relieved their stomachs and bowels to some extent but have thrown the burden on the liver, pancreas and ductless glands. Today the people are eating far more raw (uncooked) fruits and vegetables. Lettuce, cucumbers, celery, apples, strawberries, citrus fruits, etc., are raised in enormous quantities and shipped by trainloads to all parts of the country. Trainloads of lettuce are now raised where wheelbarrow-loads were formerly raised.

Until well within the lifetime of the author the medical profession advised never to eat "raw" fruits and vegetables because of the germs they carried. Not until it was discovered that raw fruits and vegetables were the best sources of vitamins did they cease to warn against the germ-laden uncooked fruits and vegetables. (And this discovery came only after the profession was forced to recognize that people were getting well on diets of uncooked fruits and vegetables.) Indeed, they are still issuing the old warning when one goes into Mexico, India, China and elsewhere.

For physicians to have told their patients to accompany their beefsteak with a large combination salad of uncooked, non-starchy vegetables would have subjected them to ridicule. It would have been too easy for the people to trace the advice to its source in the hated diets of the faddists. So, they retired to their laboratories and came up with the *discovery* (the faddists had beaten them to the discovery) that the virtues of such a meal are due to the vitamin content of uncooked foods.

At those mutual admiration gatherings of physicians, called conventions, much is said, between smoking and drinking bouts, about diet, but in practice, the subject is avoided like the plague. It is a safe estimate that no less than 90% of the *medical* profession is giving no attention to diet, other than to ape popular sentiment on the subject. Many of them "believe in diet," but, as with the weather, they "do nothing about it." Every day the sick tell me that their physicians have advised them to eat what they please—that food has nothing to do with sickness.

One can listen to a physician talk loud and learnedly about vitamins, amino acids, food blends, calories, etc., and easily become persuaded that he knows what he is talking about. This is a mistake. The garrulousness of the profession is an acquired habit in the effort to see how much they can say about a subject of which they know nothing. Whole libraries of technical literature bear witness to their success.

The present-day hospital is a chuck-house, overfeeding its inmates on the same kinds of "good nourishing foods" that filled the hospitals in our grandfather's day. In these institutions there is no "newer knowledge of nutrition." Feeding a person who is said to be starving on such things as gelatin, alcohol, beef, tea, puddings, white bread, canned fruits and vegetables, pasteurized milk and such is a sure way of guaranteeing that the starvation shall be continued and accentuated.

To supplement a diet of this kind with vitamin pills and expect the patient to be well-nourished is the height of the ridiculous. Sooner or later the misled people are going to discover that vitamin pills are not satisfactory substitutes for uncooked fruits and vegetables. The medical profession resisted the effort to popularize the uncooked diet and science came forth with vitamin pills as a substitute, but the results of the pills have not been satisfactory. *Vitamins should come from the orchard and garden, not from the drug store*.

Nature turns out her products in a state of physiological balance and when we eat our foods as she produces them, they are not sources of trouble. But when we extract portions of her products, as when sugar is extracted from cane or beet or white flour is extracted from wheat, we eat an artificial product that is out of balance, lacking in many of the essentials of nutrition. The remedy for such a state of affairs is to eat whole, that is, unprocessed, unrefined and uncooked foods grown on fertile soil.

Vegetarianism comes in for much criticism and condemnation from the medical profession, which knows nothing about the subject of diet. When vegetarianism is defined as a system of diet that excludes flesh and the matter is allowed to rest there, with no well-defined rational or scientific adjustments of foods to the needs of the well and the sick, it can and will turn in many dietetic failures. When commercialism is permitted to force upon vegetarians a decided cereal bias, so that grains are prepared in many different ways to appeal to the palates of vegetarians, the vegetarian diet becomes decidedly unwholesome. Fortunately, in more recent years vegetarians have taken more avidly to uncooked nonstarchy vegetables and to fresh fruits. Among the health-conscious vegetarians, at least, better eating practices are in vogue.

A salad of uncooked, non-starchy vegetables should accompany every protein and every starch meal. The common practice of eating shrimp salad, potato salad and similar salads will not suffice. Indeed, such dishes hardly merit the name salad. The salad should consist of such foods as lettuce, celery, cucumbers, green and red peppers (the nonpungent varieties), cabbage, tomatoes and other non-starchy vegetables. These foods should be served fresh and without salt, vinegar, olive oil, mayonnaise or dressings of any kind. Such "foods" are not recommended for salads nor to be eaten in any other way. Tomatoes should form part of the salad only when starches are not part of the meal.

To assure a plentiful supply of minerals and vitamins, a large salad, as suggested above, should accompany each protein and each carbohydrate meal. The customary salad consisting of two leaves of wilted lettuce and a slice of half-ripe tomato, topped off with a radish or pickled olive and a spoonful of greasy foul-tasting salad dressing, is not only unwholesome but does not meet the vitamin and mineral needs of a canary. A salad should be part of the most enjoyable food of a meal and will be if proper choices of salad materials are made.

Reprinted from the *Hygienic Review*

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Article #4: Hypoalkalinity By Dr. Herbert M. Shelton

Acidosis is the term misapplied to a lessened alkalinity of the body fluids. The fluids of the body are normally slightly alkaline. A lowering of the alkalinity of these fluids is more properly termed hypoalkalinity. Acidosis or hypoalkalinity is defined as a condition characterized by a deficiency of fixed alkalies in the body, which leads to an increased production of ammonia in the urine and a high acidity.

Acidosis is not acid blood, for the blood never becomes acid during life. An alkaline blood and lymph is necessary to life and health and for the blood to even reach the point of neutrality would cause speedy death.

The normal ratio between the alkalies and acids of the body is approximately 80 to 20—80% alkali and 20% acid. This proportion is maintained in balance by the so-called "buffer salts"—sodium, potassium, calcium and magnesium—from which either side may draw as need arises. When this "buffer" or "balance wheel" is in normal order any excess of acids in the body is promptly neutralized. It is only when there is a deficiency of these salts that troubles may arise. A shortening of the relationship between these is wrongly termed acidosis.

The body will not tolerate any free acid for a minute, except in the stomach during the process of digestion. All acids are instantly "bound," by being combined with alkalies, to render them harmless. The body makes use of every resource at its command to preserve its alkalinity for the reason that its cells can thrive only in an alkaline medium and cannot possibly thrive in an acid medium.

Since we supply acids and alkalies to our bodies through food, the matter of a balance between acid foods and alkali or base foods is important. If an excessive amount of acid food is eaten, the blood is forced to draw upon its alkaline reserve, its "buffer salts," in order to maintain its normal alkalinity. When we have taken more acid into the body than we can "bind" without sacrificing some of the bases of the tissues, blood alkalinity falls below the normal level and we have hypoalkalinity or acidosis.

Every food eaten leaves behind it an ash after it has been used by the body. The ash is either acid or alkaline. Eating too much acid-ash food, or eating it over long periods of time, results in storing acid-ash in the cells and in depleting the body of its alkaline reserve.

Acid-ash foods are all meats, eggs, cheese, milk (in adults), all cereals and cereal products, legumes (except in the green state), nuts, and all denatured foods of all kinds. Denatured foods have been robbed of their bases.

The alkaline-ash foods are fruits (except cranberries, prunes and some plums), all green vegetables and milk (in infants). Fats and oils are classed as neutral foods.

Severe acidosis may be produced experimentally by deficient diets, but such severe states are seldom met with in life, except in famine. Maignon has repeatedly shown that an exclusive protein diet is positively toxic even in the carnivora. Whipple, Slyke, Birkner, and Berg have shown the same thing.

The medical administration of acids, such as salicylic acid (often in aspirin), benzoic acid, boric acid, sulphuric acid, etc., leads to a dangerous loss of bases, for these acids can be rendered harmless and subsequently eliminated only after being combined with alkaline elements. Hydrochloric acid, prescribed by physicians in supposed gastric hypoacidity, also leaches the body of its bases and aids in producing acidosis.

Free acetic acid, as found in vinegar, if consumed in quantities, may lead to symptoms of acid poisoning. It is even more injurious to health than alcohol. The body is called upon to sacrifice its bases to neutralize the acid, while it has a particularly destructive effect upon the red corpuscles and may produce anemia.

A diet poor in bases, or food that has been robbed of its bases, has the same deleterious effects. The meat diet, as used in civilized countries, is of this type. An exclusive muscle-meat diet, when fed to dogs, will not maintain health and growth. If dogs are fed on meat from which the juices have been expressed, "emaciation ensues after a time, toxic symptoms set in, death speedily follows, and post-mortem examination shows in the skeleton changes characteristic of osteomalacia and osteoporosis." (Osteomalacia is softening of the bones; Osteoporosis is the rarefication—decrease in density—of bone due to enlargement of its cavities or the formation of new spaces.)

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Article #5: Sprouts And Sprouting by H. Jay Dinshah

I was very interested to read the article by Dr. Vetrano on sprouts in the September issue of the *Hygienic Review*, and there is much "food for thought" in it. However, I cannot agree with the conclusions drawn, apparently largely based on the letter from "N.P." These are totally inconsistent with the facts given in Ford Heritage's book that he cites as his authority.

On page 1 of the book *Composition & Facts About Foods*, Heritage specifically points out that dashes given in place of numbers in his tables do not mean zero nutriment contents: "In some cases information was not available at the time of assembling this material. This is indicated in the tables by a dash (-). It is hoped that such missing information may be forthcoming at a future time." N.P. has totally misquoted these in his letter, rendering the dashes instead, as "0"; this is not as they appear in the book, for in each and every case cited (pages 26-27, soybeans) Heritage lists the missing ingredients with a dash (-), meaning simply that such information was not available to him. This is not surprising, with the interest in sprouts being a fairly recent phenomenon, and with not much of this interest in the orthodox circles from which Heritage drew his information. Clearly, then, the supposedly vanished elements have not "gone anywhere"; they simply have been unlisted due to lack of that specific information.

But let us look at the supposed "loss of Vitamin B" which Dr. Vetrano has mentioned. I refer exclusively to Heritage's tables, these being the sole expert or factual source cited by either Dr. Vetrano or N.P. We must realize that in the process of sprouting, the dried out (and in that state, virtually inedible) seed has been returned to a viable condition, through restoration of its lost moisture. In the specific case of soybeans, some additional water has been absorbed (as it naturally would be from damp earth), to reconstitute the seed to somewhat more than the percentage of water found in the original fresh soybean. The water content percentages are: fresh, 60.2%; dried, 10.0%; sprouts, 86.5%. This water content is the missing key that has eluded both Dr. Vetrano and N.P., and led them to jump to faulty conclusions about "missing vitamins."

If we began with (for example) a single ounce of dried soybeans (seeds), and then reconstituted the water through soaking and sprouting, we would then have a total food weight of approximately six ounces of soy sprouts. The dry (non-water) material present would originally have been 90% of one ounce, or .9 oz. It would still remain roughly 9 oz., but would now be distributed throughout six ounces of food, the balance being the added water content. Percentagewise, all nutriments but water will have been cut by a factor of 6:1, but they have not "gone anywhere"; they are still there as before. Dry material would now be about 14% of the total, compared with 90% of the old dry weight. Using the factor of 6:1 as a convenient round figure, we proceed.

About of the actual weight of fat has been burned up, as "fuel" for the new life; this is of insignificant nutritional content for the purposes of this discussion. The calcium content, which was 226, should now have dropped to about 38 (mgs. per 100 gm. portion); but we note it is listed by Heritage as 48. Clearly, we have no net loss of calcium. There is some loss of iron and phosphorus noted in the chart, the iron content being slightly less than expected, and the phosphorus about 2/3 of what could reasonably be expected from the 6:1 dilution. So we may have lost 1/3 of the phosphorus.

Let's look at the feared Vitamin B losses. This is very revealing: it is exactly the opposite! Thiamine (B-1) was 1.10 mgs. per 100 grams; now diluted at 6:1 with water, it must be around .18, but is in fact listed at .23, a gain of over a quarter of the original amount present. Riboflavin (B-2) is listed originally (dry state) as .31; in 6:1 dilution with water it should be .05. But it has a shot up to .20, indicating *four times* the net amount of riboflavin as compared to the original amount in the dry 1 oz. of seed.

Percentagewise the concentration in the 6 oz. of food has dropped to 2/3 of the former content, but we nevertheless have a total amount of Vitamin B-2 that is 400% of the original amount.

Niacin is listed at 2.2 mgs. originally, which would theoretically be diluted by sprouting to less than .4 mgs. But again the reverse is true, for the figure is .8 for the 6:1 water-diluted sprouts, showing a doubling of total niacin present in the six ounces of sprouts, as compared with original content in the 1 ounce of seeds. Ascorbic acid (Vitamin C) content is unavailable in Heritage's charts, for the dry state, but Dr. Vetrano admits that this is increased. It is not, however, the "only vitamin increased." The Vitamin A content was originally given as 80 international units per 100 grams edible portion. In the sprouts it is still 80 units per 100 gms., but remember that we now have six ounces of sprouts, thus we have SIX TIMES the original net international units of Vitamin A; even though the percentage would still be identical to the former percentage, we have nontheless six times the available quantity of nourishment in regard to this important vitamin.

I hasten to add that these additional net amounts of vitamins did not have to "come from somewhere" outside the seed; it can easily be understood as a matter of natural processes of rearranging molecules and compounds, synthesizing relatively nonuseful raw materials into more useful (for human nutrition) materials. The same thing occurs within the intestines of humans, producing B-12, for instance.

Protein content must also be taken in the light of the same 6:1 formula, allowing for the great increase in water content to bring the seed to its viable and edible condition. Thus, we had a figure of 34.1% dry protein, now 6.2% for the sprouted soybean. Yet, we see no complaints that most of our protein has vanished into thin air, or been leached out through osmosis. It has gone nowhere at all; it is simply comparing the same amount to a percentage of 1 oz. or a percentage of 6 oz. of total food. An analogy of this apparent paradox of "vanishing nutriments" is seen among the legumes as well. Dried peas and beans are often cited as having enormous protein contents, based upon hasty scanning of charts listing *dry* weight. This makes them a very good buy, dollar wise. But when reconstituted with water to make them edible, of course, the content of protein is fractionated along with everything else, rendering them a fairly good source of protein (percentagewise), but certainly no "super-food" in protein content. Similarly, dry seeds can be a good value, as you add water yourself; if you buy presprouted seeds, you pay for convenience, as 5/6 of what you buy is water. Perhaps we shouldn't mind this, as much of the *Natural Hygienic* food (such as fruits and salad items) is largely water anyway.

In regard to overpricing among health-food sources of seeds, it should be noted that the cheap open-market seeds sold for flour-making (for example) often are so stale they will not sprout at all, or at least have a high proportion of "dead" seeds. Freshness is very important; organic growing without sprays may also account for some of the additional cost. If N.P. can buy seeds at 1/5 the price in small quantities, which are *equal in quality* for sprouting purposes, we would be delighted to learn of his source. We do not sell them, but we do use them, and would be glad to save even more on sprouting.

We can see no major objection to Dr. Vetrano's method of sprouting seeds in white sand, but it should be noted that this would add nothing to the nutritional value of the sprouts either; the sand would merely act as a holder for the sprouts and the moisture; it might also be difficult to separate the grit from the sprouts. We feel the sprouter-jar method is cleaner in this respect, and see no drawback in having sprouts that are curled instead of straight. This probably comes about from tumbling in the jar, preventing the sprouts from consistently growing in the same direction. This would have nothing to do with nutrition.

So, to summarize: the vitamins do not "go anywhere"; they are manufactured by these busy little new lives from cruder materials within the seeds themselves, apparently. There is no vitamin loss in terms of net material available for human consumption, and it is a fallacy to use the dry material percentage of vitamins as a yardstick without allowing for the six-fold increase in water content. Allowing for this, there is a fair to tremendous increase in Vitamins A, B-1, B-2, niacin, and C, properly disregarding the specious dry seed percentage which is not available to us in that state. Otherwise, obviously you could say the same criticism of any natural food. One could take, say, bananas, dry them out, and say that the dry bananas are so much more nutritious than natural bananas. This ignores the fact that if you eat the dry food, you must then drink correspondingly greater amounts of water to supply your body's moisture needs, and you would then be right back where you started!

As we have noted, there is some loss of nutriment by osmosis if seeds are soaked. We have already experimented with utilizing only the proper amount of water in presoaking of seeds for sprouting, so that all the water is absorbed into the seeds. This would preclude any possibility of osmotic loss into the water, of any nutriment; and we are now advising fellow *Hygienists* to follow this simple precaution to avoid the possibility of such loss. We thank Dr. Vetrano for drawing our attention to this possibility, but this should satisfy that sole objection to the use of the sprouts.

Regarding N.P.'s objection to sprouts being grown "without any sunshine," this is simply not true of the better sprouting methods. Sprouts are generally grown in subdued light for the first 2 or 3 days, corresponding to the germination period in the earth; but it is advocated that they be placed in at least indirect sunlight (skylight) for the last day or so, and this is analogous to the new shoot peeping up through the earth. At this time, it turns green and begins the chlorophyll photosynthesis chemical reactions, exactly as any new plant would. I trust this will all help to dispel any fears that any fellow *Hygienists* may have about possible "vitamin losses" through sprouting. As we have shown, all vitamins cited experience a moderate to great increase through sprouting, in terms of amounts available for humans.

Editor's Notes: When harmony and cooperation are urgently needed for the advancement and good of *Natural Hygiene*, why should the leaders demonstrate contention and a lack of the poise stressed in the pedagogy of *Hygiene*? Why split hairs over the method of sprouting seeds?

Soy beans, being subject to spoilage, must obviously do better when sprouted over well-dampened sand. A method which lessens soaking and rinsing of seeds seems desirable. Since eye appeal is advocated in serving food, why not have straight, green, hearty-looking sprouts? Dr. Vetrano says the sand readily leaves the sprouts when water is poured over them, and if necessary, the sprouts are dipped up and down in the water for a moment. Until the method is tested, why not withhold contradiction and accept her discovery?

In actual practice, much of the sprouting is done away from the light.

To compare bananas, which must be dried artificially, with beans, which are dry naturally in the ripening process, seems a poor analogy.

We can be thankful that a natural process makes food appropriated by cereal grass-eating animals, along with other seeds, acceptable to the human digestive system. But, while enjoying this fascinating bonus viand more or less frequently, we'll depend for our sustenance chiefly—added to fruits, nuts and non-sprouted seeds—on the broad leaves and other fresh green vegetables from the garden (organic, we hope), because of their free exposure to air, soil and sunlight.

What a marvelous full provision we have in the *Hygienists'* diet, unspoiled by cooking and processing.

Elegant simplicity!

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The Marvelous Avocado

How to buy and ripen them. How to prepare, combine and service them. Important considerations as an item of diet.

"The avocado is Nature's butter!" I've heard this comment from several lovers of this fine food. And many of them use it just as if it were butter, spreading it on cooked potatoes, bread and other foods. Needless to say, cooked foods are less wholesome in the diet than unfired foods. Also, avocado does not combine well with all foods. Digestive problems and poor health result from eating a rich food like avocado in incompatible combinations.

Yes, avocado does have a consistency much like butter and is far more wholesome than butter. But it should be thought of as a food in itself and not as a butter substitute.

Many Hygienists/Life Scientists are confused about how to combine avocado with other foods. Some food combining charts show it as both a fat and a protein while other charts show it as a fruit of a very special character, a fruit in a category by itself. Some Hygienists combine avocados with other fruits. We'll try to clear up this confusion.

How To Combine Avocados

The avocado is made up of the same basic elements as nuts. Both contain a large amount of fat and protein. Even though both are technically fruits, we treat them differently and separately from other fruits because their dietetic character is determined by their heavy protein/fat content. Therefore, avocados should be treated like nuts in food combinations.

The main difference between avocados and nuts is that avocados are about 75 percent water and nuts contain very little water, only three to five percent. For example, let's compare the avocado with the pecan. Except for the difference in water content, these foods are almost identical in make-up. There are two other differences that are worth considering, too:

1. Avocado is alkaline in metabolic reaction and the pecan acid. As you may know, no more than 10 to 20 percent of your diet should be acid-forming foods such as nuts and seeds. The remaining 80 to 90 percent should be alkaline foods such as fresh fruits and vegetables. The more alkaline and

few acid foods in your diet, the better.

2. The avocado has a broader range of nutrients than does the pecan. We are very tempted to tell you the number of calories, percentage of fat and carbohydrates, grams of protein, milligrams of Vitamin C, etc. of these two foods. We have these figures at our fingertips in the USDA's book, *Composition of Foods* (Handbook No. 8). But Life Scientists eating an abundance of fresh whole fruits, vegetables and nuts don't need to get bogged down in figures. We get as much as we need of everything we need because we don't lose nutrients from cooking and otherwise processing our foods.

Despite its broader range of nutrients and its alkaline-forming character in the diet that make it preferable to nuts and seeds, avocado should not necessarily always be eaten in place of pecans and other nuts and seeds. It is good to eat a wide variety of foods over days, weeks and months. This assures a variety of nutrients as well as a more interesting diet.

We should eat nuts with green leafy vegetables, tomatoes, cucumbers and other nonstarchy raw veggies. The same is true for avocados. We should eat them with lettuce, celery and such non-sugar fruits as tomatoes, peppers, cucumbers, etc.

How Much And How Often Should You Eat Avocados?

Avocados should not be eaten to excess because we would get too much fat and protein if we ate too many. One-half of one a day or one every two or three days is enough. They should be the only protein/fat food at the meal and the only protein meal of the day. It is not necessary for most people to eat a protein/fat meal every day. The high energy level and leanness that go along with a diet relatively low in fat and protein is desirable. However, we do require a small amount of the essential fatty acids that are abundant in avocados and nuts.

If you have nuts or seeds, three to four ounces is the most that should be eaten in a day. If you choose avocado, one average-size one is a reasonable serving portion. In fat and protein content, one medium avocado is equivalent to about one and a half to two ounces of nuts. Many people feel more satisfied after eating an avocado than such a small amount of nuts or seeds. This is very much in the avocado's favor because we are better off healthwise with less fat and protein in our diet and more sugar-containing fruits. We should get most of the energy (calories) we need from sugar-containing fruits, not from nuts, seeds or avocados. This is true even if you do heavy labor. Our fuel requirements are best met from carbohydrates, namely sugar-containing fruits.

The Economics Of Avocado Eating

Avocados average about 69 cents each throughout their season, sometimes being a dollar each out of season (winter—December-February) and as little as 49 cents each at the height of the season. They are not the most economical food. Sunflower seeds are a much better buy. But I personally prefer avocados over nuts because taste and ultimate wholesomeness are my primary considerations in buying food.

How To Buy And Ripen Avocados

If you buy avocados on a weekly basis it is best to buy hard green ones. They will become somewhat soft to the touch and dark colored when they're ripe. There will be no hard spots. They will ripen in about two to four days at room temperature. If too many become ripe at once, you may refrigerate them one to three days without much further ripening or deterioration. However, avocados do deteriorate rapidly once they've ripened. For this reason it isn't wise to buy avocados that have already ripened in the store unless you plan to eat them the day of purchase.

Good avocados have a consistent yellow-green color throughout. If part of the flesh has turned grey, black or brown, cut out those portions. If the taste isn't great, don't eat it. In time you will become an expert at picking out good avocados and knowing how to ripen and store them.

Varieties Of Avocados

We have been describing the Hass avocado, which is the most popular type on the market. But there are other varieties, none of which compare well with the Hass in flavor. The Fuerte variety is probably second best to Hass avocados. Bacon avocados are also sometimes available. Bacon and Fuerte avocados have smoother skins than the Hass, much less flavor, usually, and a higher water content and less fat and protein. For instance, Hass has about 75 percent water content and other varieties may have around 83 percent.

How To Prepare And Serve Avocados

The avocado may be prepared and served in many ways. One of the favorite ways is to serve it on the half shell, spooning out the flesh. Just cut the avocado in half lengthwise, cutting around the pit. Then remove the pit with the point of your sharp knife.

Another method for serving avocado is to quarter it around the pit and then twist off the quarters and remove the pit from the final quarter in the same way it is removed from a half. Next remove the skin from each quarter. The sections may be served on a platter along with other salad vegetables, or they may be cubed into a cut-up salad. Many people make cut-up salads and simply spoon the flesh of the avocado out of half-shells into the salad bowl.

Yet others make guacamole with avocado by mashing it and possibly adding tomatoes. Or they make a dressing by blending it with tomatoes and other veggies. Guacamole and salad dressings made with condiments such as garlic, cayenne, onions, etc. are not wholesome because of the irritating and poisonous nature of these seasonings.

Avocados are becoming a part of the diet of many Americans. This is good, as the avocado is a delicous, creamy-textured fruit that provides wholesome nutrition. If you're not already an avid avo fan, try out this wonderful food!

Lesson 27 - Preparing And Serving Foods For Best Nourishment, Part II

- 1. Cooked Foods
- 2. Preparation Of Cooked Foods
- 3. Miscellaneous Recipes
- 4. Recipe Conversions
- 5. Questions & Answers
- Article #1: Your Probing Mind By Virginia Vetrano, B.S., D.C.
- Article #2: Hygienic Considerations In The Selection of Foods By Ralph C. Cinque, D. C.
- Article #3: How To Get More Food Value for Your Money By Marti Fry

1. Cooked Foods

1.1 Cooking Impairs or Destroys Nutritional Value

In Section One of this subject, it was emphasized that shredding, grinding, blending, juicing and over-washing of foodstuffs impair their nutritional value. *Cooking, of course, is the most destructive process of all.*

When food is heated, all of the enzymes are destroyed. Very little, if any, Vitamin C can survive the process of cooking. Other vitamins and minerals are also impaired.

Amino acids (the building blocks of protein) are radically changed. The protein in raw nuts and seeds, and uncooked fruits and vegetables, are readily available to the body and are therefore said to be of high biological value. As the various stages of digestion occur, the long chains of amino acids are split for use by the body in synthesizing its own protein.

But when proteins have been cooked, or otherwise processed, they coagulate into enzyme-resistant linkages, so that cleavage by the body is inhibited and liberation of the amino acids for body use may not occur. This can result in putrefaction—decomposition of protein matter by micro-organisms, producing malodorous and toxic substances, evidenced by foul-smelling bowel movements.

The subject of the contraindications to the use of cooked food will be treated in greater depth in a future lesson.

1.2 Deviations from the Ideal Hygienic Diet

At no time should we compromise the three major tenets of the Hygienic food program:

1. Whole foods are superior to fragmented and refined foods.
2. Raw foods are superior to cooked foods.
3. Plant foods are superior to animal foods.

Admittedly, because of various anatomical, physical (or emotional) weaknesses and defects, not everyone can adhere to the philosophical dietary ideal with complete success. (See "Hygienic

Considerations In The Selection of Foods" by Dr. Ralph C. Cinque, in the Supplementary Text Material section of this lesson.)

However, it is of major importance that the student first understand what constitutes an ideal diet—before he can be competent to make decisions about deviations from this ideal—either for himself or for others.

Realizing that many people may not be ready, or willing, to immediately embark on an all-raw food program, Lesson 27 includes recipes for more or less conservatively cooked foods.

Less harmful substitutes for conventional recipes are provided, to enable people who insist on using cooked foods to do it with the least possible destruction of nutritional value compatible with the desired result.

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2. Preparation Of Cooked Foods

2.1 Cooking at High Temperatures

The general rule is: the higher the temperature, the greater the destruction of nutrients. However, cooking a long time at low heat causes more damage to food than quick-cooking by bringing water to the boiling point, then reducing the heat and steaming for ten minutes or so.

Pressure cooking, involving the highest temperatures, is the most destructive of nutrients, and should never be used.

2.2 Microwave Cooking

Microwave cooking is a threat to humans because of leakage of the microwaves. People with pacemakers are warned to stay away from these appliances when they are in operation. This warning is necessary because of the danger of leakage.

Besides, it is not really known whether the microwave produces destructive changes in the food. And what's the rush? Most vegetables steam to a tasty, crisp-cooked state in ten minutes or less. Don't use microwave ovens.

A person who worked in a restaurant kitchen several years ago told me that someone came in one day to monitor the microwave ovens with a device that detected leakage and found one of them to be "leaking like a sieve" (as he put it). Of course no one knew how long it had been leaking like this, exposing the kitchen workers!

2.3 Charcoal Broiling

A 1978 report from Dr. Arthur Upton, director of the National Cancer Institute, confirmed warnings against charcoal broiling. He cautioned that this may be a source of cancer-producing substances; charring of the surface of the food produces a tar fraction like the tar in cigarette smoke, and another dangerous substance is formed by breakdown of amino acids.

Dr. David Kriebel, research associate at Washington University in St. Louis, also warned against charcoal broiling in 1978. He said that heat applied from underneath and fat dripping into the coals result in the formation of a known carcinogen—benzopyrine—which rises onto the surface of the meat.

2.4 Stir-Frying

The advantage of stir-frying in a heavy skillet or wok is that the food is cooked only three to five minutes until crisp and tender. Usually this method works best for vegetables.

The disadvantage is that the oil is heated, and, while the oil is not maintained at the high temperatures used for French frying, it is still highly inadvisable to use heated fats.

I have sometimes successfully stir-fried some vegetables using water only, but it is tricky.

2.5 Steaming vs. Baking

Steaming vegetables in as little water as possible only until tender-crisp (about five to ten minutes) preserves nutrients better than baking. Root vegetables can be steamed until the starch is dextrinized and the flesh is palatable, and will require longer cooking time (about 20 to 30 minutes).

Baked root vegetables require higher temperatures and longer cooking times, resulting in greater destruction of nutrients.

2.6 Cooking Fruit

There is almost no excuse or reason for cooking fruit. I almost omitted the word "almost". There may be some exceptions—I can think of one. Plantains (similar to bananas) are fruits, and do require cooking, if you use them. They are ripe when very dark, and may be steamed or baked until the starch is dextrinized.

As for baked apples and cooked applesauce, it is a shame to cook good, organically grown apples. Commercial apples, however, are not much good raw or cooked. But it is possible that some extremely debilitated people may temporarily be unable to tolerate the raw fruit and therefore resort to cooked fruit.

Some people think they must cook dried fruit—not so! Buy untreated dried fruit and soak overnight or longer—it will be tender and palatable.

Dates, moist figs, dried bananas and dried apples require no soaking—they are much better and tastier without soaking. Dried raisins, prunes or cherries may be used either way. Dried apricots, peaches, pears and hard, dry figs should be soaked.

Saturating fruits with sugar and baking them into pies is a sacrilege.

2.7 Nuts

Nuts should be eaten without any roasting, frying or other cooking. Cashews (not really nuts, and not really raw) may sometimes be used as a topping for casseroles. (See Eggplant Casserole recipe.)

Chestnuts (starchy protein) may be eaten raw, if not bitter, but are delicious roasted. If you prefer them that way, prepare them as follows: wash and discard those that float. With a sharp knife, make a slash along the flat side in each chestnut. Put in boiling water, boil five or six minutes. Bake in a covered dish for about 20 minutes at 375 to 400 degrees (or until skins are slightly browned). Both skins (the outside shell and the inside skin) can then be removed together, either by hand pressure, or by using a knife, usually leaving the nut whole and unbroken. Chestnuts may also be cooked or steamed until tender—this takes less time than roasting (baking)— perhaps about ten minutes.

2.8 Eat as Much Raw Food as Possible

Cooking at any temperature destroys all the enzymes—they are inactivated by a temperature only a few degrees above body temperature.

Dr. Paul Kouchakoff, a Swiss researcher, found that a largely raw food diet offsets the adverse effects of cooked food, so as not to cause leukocytosis (an excessive number of white corpuscles in the blood). Most people can tolerate a diet of 80% raw food with 2OKo cooked food, as a transition diet (with the goal of eventually progressing to an all-raw food diet, or, at least, to less, and less cooked food). The critical temperatures at which most cooked foods become subject to production of this "pathological" reaction (leukocytosis) is 191 to 206 degrees.

2.9 "Cooking" at Low Temperatures

There is a way to "cook" food and dextrinize starch without heating the food to these critical temperatures. Many years ago, before I knew about Natural Hygiene and the "no-breakfast plan" (or fruit only for breakfast), I used to prepare my breakfast the night before by putting wheat or rye berries, or wild rice kernels, in a wide-mouthed thermos, pouring boiling water over it, and quickly capping the thermos.

It is my understanding that this method produces a temperature of perhaps 150 degrees in the food, although it was always soft and fluffy and ready to eat the next morning. This method of preparation also neutralizes the phytic acid in the wheat and rye. (Phytic acid is antagonistic to calcium and other minerals, as pointed out previously.)

An article in The Health Crusader revived my memory of this practice. The article stated that this method could be used for brown rice by soaking it overnight, draining in the morning, then putting it in a wide-mouthed thermos, pouring boiling water (distilled), over it, and quickly capping the thermos. The rice will be soft and fluffy in time for the evening meal. Potatoes or yams or other vegetables can also be "cooked" in this same manner. Experimentation will determine the length of time necessary to tenderize the various vegetables.

2.10 Steaming

The next best way to cook food is steaming. Most vegetables may be steamed unprepared, whole and uncut. Very large carrots may be cut in two or more pieces, rutabaga may be cut into medium-sized pieces.

I previously used a steam marvel (a stainless steel perforated platform inside the pot), but discontinued the practice for the same reason that I discontinued the use of all metal cookware. I use Corning ware for some purposes, but I prefer my tight-lidded, porcelain-enameled "Show pans".

The stainless steel steam marvel darkened the steaming water, so it was obvious that there was some leaching of tiny metal fractions.

Steam vegetables in a very small amount of water a very short time. This requires care and watchfulness, but the vegetables are not drenched with contaminated steam.

Dr. Vetrano agrees on this point. She says she does not use the steam marvel, or any rack, for several reasons. It tempts you to add more water than necessary, the water becomes steam, condenses on the lid and flows down over the vegetables anyway. Without the rack and all that water, the cooking juice tastes better and the vegetables taste better.

She suggests the use of three layers of the discarded outer leaves of lettuce to protect the vegetables from burning, in which case very little water will be necessary.

Steam just long enough to slightly tenderize without losing shape or color. (See Dr. Vetrano's article in this lesson.)

2.11 Other Cooking Methods

Other types of cooking, at higher temperatures, and for longer periods of time, are progressively more destructive and less advisable. However, some recipes will be included in this lesson for casseroles and other combinations that require such less advisable cooking methods, and are intended to serve only as replacements for even worse cooking practices, since many people will not be weaned away from conventional meals immediately, and require recipes other than those for simply prepared, lightly steamed vegetables.

In all cases, the least destructive method of preparation will be recommended, consistent with the preparation of tasty vegetarian meals which will be acceptable for transition meals, reluctant families, children, or entertaining.

2.12 Cooking Vessels

Many years ago I discarded my aluminum "waterless cooking" pans, having been convinced that the leaching of aluminum fractions into the food was harmful. About eight years ago, I stopped using my stainless steel cook ware, having seen evidence that even stainless steel cookware leached metal fractions (as previously described in the use of a stainless steel steam marvel, and also confirmed by other reports).

I used Corning ware for a long time, finding it less than satisfactory, because the lids are riot tight enough. Now I am using "Show pans," a good quality of heavily enameled ware, with tight covers. These utensils spread heat quickly and evenly and hold the heat. Very little water is required, and a vapor seal forms between the edges of the pot and the cover. The oxidation is thus minimal and the vegetables are tenderized in a short time. Flavor is retained, and loss of vitamins and minerals is minimal.

It is my understanding that no leaching occurs in the use of glass, Corning ware, or enameled cookware. If enameled cookware is chipped, it should be discarded. Good quality enameled cookware is highly chip-resistant.

2.13 General Information About Cooking

Leafy vegetables (or any vegetables) should never be cooked so long that they change color. Cook as short a time as possible, and serve immediately.

The practice of adding bicarbonate of soda to vegetables to preserve their green color destroys their food value and taste, impairs their digestibility, and is certainly not necessary.

Butter, cream or oil should never be added to vegetables while cooking—fats should never be cooked. If you must use them, add when serving. A small amount of butter is preferable, to oil. Better yet—try using a piece of avocado instead—it is tastier, and far superior nutritionally. Eggplant is an excellent and tasty vegetable, but requires extra care in preparation (see recipes). If very young and sweet, eggplant may be used raw. Use slices as a sandwich for tomatoes; sprouts, lettuce, or any other raw food.

If soups are used occasionally, they should be thick, not watery.

Potatoes, yams, salsify, rutabaga, kohlrabi, beets, carrots and parsnips may be steamed or baked. Steam whenever possible. Steaming is faster and preferable nutritionally, Steamed potatoes and other root vegetables retain more nutrients—because of lower heat and shorter cooking time. Scrub clean and steam in skins. The red color of steamed beets seeps into the steaming water unless cooked whole, with skin intact.

Baking sometimes produces a tastier product—my husband and I love baked potatoes and sometimes indulge ourselves. Baked carrots, parsnips and beets are also delicious, and may be indulged in occasionally.

Carrots, parsnips and beets sometimes spatter the oven, so a covered dish should be used. This also shortens the baking time. Select beets about two inches in diameter, or cut in half. These three vegetables will all bake in about thirty minutes or less, and are a delicious combination when used together. They have a special sweetness when baked.

For greater nutritional value, steam these vegetables, or eat carrots and beets raw (or grated, which some people find necessary, into salads. Any grating should be done *immediately* before eating). Young garden parsnips may also be eaten raw. If you like these vegetables baked, use occasionally as a special treat.

Potatoes may be, baked in an open pan. Pierce white potatoes with a fork before baking. Bake without foil or any coating. Scrub well, and bake in open pan in 400 degree oven. Small potatoes take about 45 minutes, large ones one hour or longer. Baking time may be reduced by cutting potatoes in half.

Another "trick" for reducing baking time of white potatoes is to plunge them into very hot water for two or three minutes before baking. Bring water to boiling point and remove from heat before inserting potatoes. I would suggest reserving this method for use in emergencies only, when time is limited. If you need the potatoes sooner than they can be baked, it would be better to steam them instead.

Always preheat the oven to the desired temperature before inserting the vegetables which are to be baked.

New potatoes (little, round, red or small white potatoes) are high in sugar and low in starch and cook very quickly. They steam in about 10 minutes, and bake in 15 or 20 minutes, depending on size. If you eat raw white potatoes, new potatoes are preferable. However, white potatoes shouldn't be eaten raw.

Fresh green lima beans (or other fresh, podded beans or peas): Buy in the pod, shell them, and steam until tender. Fresh green peas are delicious raw.

Yams, Sweet Potatoes, Butternut or Acorn or Hubbard Squash: These may be steamed or baked. Squash may be halved, quartered, or cut up for steaming. For baking, bake sweet potatoes or yams whole. Cut squash in half (or, in the case of very large squash, cut up in serving size pieces); remove seeds if you wish. Bake squash cut side up to conserve juices. Bake squash in covered pan as it may spatter the oven. Whole sweet potatoes or yams in an open pan will not spatter the oven if you don't leave them in too long. Sweet potatoes, yams and winter squash take about thirty minutes to bake, depending on size.

Globe Artichokes: These may be baked in the oven in a covered casserole—no added water is necessary. Just wash and put in casserole wet. Bake at 375 to 400 degrees until just barely tender. Length of time depends on size—45 minutes average. Or steam in as little water as possible; it will take more water than most other vegetables, and will take 15 or 20 minutes, depending on size. The usual way of cooking artichokes, covering with boiling water, is faster, but much more wasteful of nutrients.

To eat artichokes, pull off the leaves, one at a time, and scrape off the tender edible flesh at the base with your teeth. The larger outer leaves are not as tender as the inner leaves. When you reach the "heart," scrape out the fuzz called the "choke" and eat the remaining heart, which is the most delicious part.

Tasty steamed vegetables: Broccoli, cauliflower, green beans, yellow crookneck or zucchini squash, Brussels sprouts, etc.—add parsley, diced celery and celery leaves and/or sweet bell pepper to any vegetable, if desired. Steam in a small amount of water until just barely tender—still crisp, and color unchanged. *Do not overcook*. This is worth repeating and re-emphasizing. If not overcooked, no seasoning should be necessary (even if no parsley, celery or sweet pepper have been added).

Overcooked Brussels sprouts are actually repulsive. Overcooked cauliflower is almost as bad. Don't cook cabbage at all. Cooked cabbage takes a long time to digest, and I can't think of any reason to cook it. Cooking certainly doesn't improve the taste (nor the digestibility or nutritional value). If overcooked, it is quite unpalatable. If steamed slightly and still crisp and green, it is barely acceptable.

When vegetables of the cabbage family (broccoli, cauliflower, Brussels sprouts, cabbage) are overcooked, they are not only unpleasant to the taste (and smell), they also cause digestive distress.

Corn on the cob: Green corn freshly picked is delicious eaten raw, if not too mature. Several hours after picking, it is no longer a green vegetable. The sugar has turned to starch, which should be dextrinized by heating. If reasonably young and fresh, it is dextrinized and tender in only a few minutes (two to five minutes). If more mature, it may be necessary to steam as long as ten minutes. Usually, steaming longer than ten minutes actually makes mature corn tougher.

Asparagus: Raw asparagus tips are delicious. Snap off the white ends with your hands; they break easily near the edible part. To cook, place in pan at an angle so the tips are not in the water. The tough, discarded ends can be used to prop up the tips. Steam two or three minutes, till barely tender.

Greens: Kale, turnip, dandelion, collard, and broccoli leaves. For greatest nutritional value, eat young tender greens raw. Larger, more mature greens may be steamed in a very small amount of water until just tender. Add diced turnips to turnip greens. Very small turnips are usually mild and sweet enough to be eaten raw. Diced celery and/or sweet pepper may be added when steaming greens. No seasoning is necessary.

Do not use cooked mustard or spinach greens. Mustard greens have a characteristically sharp taste, since they contain mustard oil, an irritant. Spinach, beet greens and Swiss chard are too high in oxalic acid, a calcium antagonist. Small, immature spinach leaves (or mustard or beet greens) may be used raw occasionally in salads. Swiss chard, which is extremely high in oxalic acid, should never be used.

Kale is an excellent green, especially when young and immature, and eaten raw. Broccoli leaves are also greens of high nutritional value. Eat as many as possible raw. Very large broccoli leaves may be steamed.

Jerusalem artichokes, chayotes, kohlrabi: Eat them raw! They have a pleasant taste when steamed slightly, but have a much better taste when uncooked.

Use cooked celery only to season other cooked vegetables—otherwise eat it raw. Strong celery tops may be slightly steamed as an individual vegetable.

Tender celery cabbage should be eaten raw—if tough and stringy, steam it slightly.

Okra: Sometimes palatable raw, if immature. Usually cooked with other foods (soups, casseroles, as a thickener). Tomatoes tend to reduce or neutralize the "sliminess". If you don't like okra, forget it! Foods which have properties that require "neutralizing" are best avoided anyhow.

Use cooked tomatoes seldom, if ever. Cooking tomatoes accentuates their acidic properties.

Salsify (oyster plant): Steam until just tender.

Don't ever cook fresh, raw water chestnuts. I can't think of any possible reason or excuse for cooking this delicious food. It is so excellent and succulent raw, and cooking would really rob it of most of its exceptional qualities. Just compare fresh water chestnuts with canned water chestnuts. The canned variety does, surprisingly, retain its crispness, but the sweet, juicy flavor is gone.

Lettuce is sometimes steamed or "wilted." Very tough blemished outer leaves might be used as a steamed vegetable, but raw dark green lettuce leaves are of great value and should be a staple of the daily diet.

The purpose of "wilting" lettuce with water, heating or vinegar is somewhat nebulous. It completely destroys its delightful crispness, and the use of vinegar adds a toxic ingredient. The enjoyment of wilted lettuce appears to be either a habit, a perverted taste, or a concession to dental or digestive impairment, though it would seem to cause more problems than it ameliorates.

If lettuce must be broken down for temporary adaptation to dental or digestive problems, a less destructive method would be the use of the blender. Even though oxidation would occur, at least no vinegar or water would be added, and destructive heat would not be applied.

If chicory, endive or escarole are too tough or unpalatable to be used raw, they may be slightly steamed and used as a cooked green vegetable.

Raw, crisp, juicy cucumbers are an excellent addition to salads—even people with impaired digestions can tolerate them if they avoid overmature ones with large seeds and tough skins. Cooking would destroy their palatability and most of their value.

2.14 Seasonings

All seasonings are unhygienic. Raw foods require no seasoning. Lightly steamed or baked individual vegetables should require no seasoning.

When several foods are cut up and combined into a casserole, stew or soup, we are getting farther away from the simplicity of Hygienic food preparation and the pleasant, natural, individual flavors of foods. It is then that we are confronted with "seasoning" problems.

Many people request recipes for such casseroles, stews or soups, for use during the transitional period to Natural Hygiene, to meet the demands of their families, for variety, and for special occasions. Such recipes are therefore included in this lesson, with the admonition that they be used infrequently, and not as a regular part of the diet.

These dishes may be "seasoned" with parsley, celery tops, sweet bell peppers. Tomatoes may be used, sparingly, as seasoning for dishes which do not contain any starches or starchy proteins. Garlic and onions may be used as seasonings, if desired, if care is taken to precook them for twenty minutes; this eliminates the irritation of the mustard oil they contain. Do not use garlic or onions as seasoning if they cause subsequent distress or aftertaste, which they sometimes do. If you do season with garlic or onions, use very sparingly.

Dr. Esser says that occasional, limited use of garlic as a flavoring in the preparation of a cooked food, or rubbing it over a salad bowl, is harmless and inconsequential.

Vogue Vegebase is available in health food stores. It is mostly dried powdered vegetables, and, if you must use a prepared seasoning, Vegebase is preferable to the use of salt, pepper, or other preparations. The sooner you can get away from the use of all such preparations (including Vegebase), the greater will be your progress toward the ideal. All seasonings, even the mildest, are irritants to some extent.

It is also important to remember that most of the senses have a role in digestion. Seeing, smelling, touching and tasting the food all help in sending the proper signals for the secretion of the digestive juices, and their adaptation to the character of the food. Complicated mixtures of foods interfere with this process and make it less efficient as well as digestive problems.

When we compound the problem by adding seasonings (perhaps required for "fancy" recipes or because of jaded appetites), the true taste of individual foods is further disguised. It thus becomes extremely difficult for the digestive system to supply secretions that can adequately cope with these meals, and digestion becomes inhibited and impaired.

If Vegebase (or any seasoning) is used, it should be added just before serving. Cooking with seasoning tends to toughen the food.

3. Miscellaneous Recipes

Note: None of these recipes are recommended for regular use. The farther away we get from eating plants as they grow, the greater the destruction of nutritional values These recipes are provided as less harmful substitutes for conventional recipes.

3.1 Eggplant

Cookbooks often suggest soaking eggplant or dredging it with salt to draw out the "bitter juices". *Do not soak or salt eggplant*. If the eggplant is fresh and not over-mature, it will not be bitter. Select small to medium firm eggplants with shiny skin and deep color. Most eggplant is not tasty when eaten raw. As previously indicated, very young sweet eggplant may be sliced and eaten raw as a sandwich with fillings of sprouts or other raw vegetables. There are many excellent cooked dishes that can be prepared with eggplant, and it is a favorite of many vegetarians who use cooked food.

3.1.1 Eggplant Steaks

Slice in half-inch slices, spread out on cookie sheet. Run distilled water on slices so they are quite wet on both sides. Sprinkle Vegebase sparingly on both sides. Broil lightly on both sides. Turn off broiler and let slices remain in hot oven about ten minutes longer to become slightly more tender. Can be eaten plain as a nonstarchy vegetable, or just dotted with butter before serving.

Or, if desired, put a thick slice of raw tomato (or raw sweet red bell pepper) on each steak and a slice of Swiss unprocessed mild cheddar cheese. Leave in warm oven until cheese is just barely melting, or lightly brown under broiler.

Variation: Summer squash (cut in half lengthwise) or turnips (thick slices) may be prepared the same as eggplant steaks.

3.1.2 Easy Eggplant Casserole

2 medium diced eggplants (unpeeled) (dice in rather large pieces)
2 medium tomatoes, peeled and cut up
4 strips celery, sliced
1/2 sweet pepper (red or green) diced
Vegebase (to taste) (start with one-half tablespoon)

Place all in casserole, add about one inch of water. Steam (covered) on top of stove about three minutes. Add eight ounces of ground cashew nuts (on top). Bake uncovered in 373 degree oven about 20 minutes or until cashews are slightly browned. If eggplant is softer than you like it, try (1) steaming a shorter time than three minutes or (2) browning cashew nut topping under broiler (instead of baking). Serves three or four.

3.1.3 Crumbly Eggplant Casserole

Broil eggplant slices slightly (barely lightly browned). Prepare desired amount of Spanish sauce (see recipe), Grind desired amount of cashew nuts. Put Spanish sauce ground cashews and broiled eggplant slices alternately in casserole (in layers), ending up with Spanish sauce and light sprinkling of ground cashews over the top. Lightly brown under broiler. Should be crumbly, with little or no liquid.

Suggested quantities to serve three or four:

1 large or 2 medium eggplant or 3 or 4 small eggplants (small or medium eggplant are best, large ones may be bitter)
1 recipe Spanish sauce
10 to 12 ounces ground cashews (by weight)

3.1.4 Stuffed Eggplant

Cut raw eggplant in half lengthwise. Scoop out flesh in as large pieces as possible, leaving about one-quarter inch of flesh on the shells. Moisten the pieces and the half shells with distilled water and arrange on a cookie sheet. Sprinkle sparingly with Vegebase. Slightly brown under broiler.

Cut pieces of eggplant into smaller pieces (about one inch). Combine with Spanish sauce (see recipe—one recipe of Spanish sauce for approximately two medium eggplants). Mixture should be moist but not wet.

Put several tablespoons of this mixture into each half-shell. Cover with ground cashews. Alternate two more layers of mixture and ground cashews, with cashews on top. Brown slightly under broiler, End leave in hot oven five minutes longer to tenderize half shells.

Variation: Sliced Polly-O All Natural Mozzarella Cheese can be substituted for the ground cashews.

3.1.5 Eggplant Surprise

8 ounces cashew nuts
2 small to medium tomatoes, peeled and cut up
2 strips celery, sliced
1 teaspoon Vegebase
As little water as possible

Blend all together. Start with one-half cup water, add more water if necessary; mixture should be quite thick. Spread thickly on broiled eggplant slices (eggplant steaks—see recipe) and brown very slightly in broiler. This quantity is enough to cover slices from two medium eggplants. This mixture can also be used as a topping for other nonstarchy vegetables.

3.7 Spanish Sauce

4 or five medium tomatoes (peeled and sliced)
1 sweet pepper (preferably red) diced
4 strips diced celery
1 tablespoon chopped parsley
10 medium mushrooms (optional)
Vegebase to taste (optional). If Vegebase is used, use sparingly.

Add small amount of water, about one-fourth cup or less. Tomatoes will supply most of liquid necessary to steam this mixture for just a few minutes, just long enough to slightly tenderize the ingredients. May be used with any nonstarchy vegetable.

To use onions as an ingredient of this Spanish sauce, precook the onions for 20 minutes before adding to other ingredients.

3.8 Company Squash

Use tender young yellow crookneck or zucchini squash or both. Slice slantwise (oval slices) about one-fourth inch hick. Place in casserole with enough distilled water to wet slices thoroughly. Pour off most of excess water. Sprinkle wet slices with Vegebase (sparingly). Sprinkle with paprika (optional). Bake at 375 degrees ten minutes covered, ten minutes uncovered until slightly brown (or brown under broiler). If firmer squash is desired, cut thicker slices.

3.9 Tasty Cauliflower

Cut into small florets. Steam in minimum amount of water about six to eight minutes until just barely tender. Then toss with small amount of Vegebase and brown slightly under broiler. (If desired, sprinkle with paprika before)

3.10 Spaghetti Squash with Sauce

Sauce:

Diced sweet red pepper
Parsley, chopped
Diced celery
Mushrooms
Small fresh sliced onion, if desired

If onion is used, precook for 20 minutes. In wok or skillet, stir fry all ingredients in small amount of water—no oil. Cover and allow to steam a few minutes.

Bake spaghetti squash whole at 375 degrees—20 to 30 minutes, depending on size. Cut in half before serving. Run a fork through the hot flesh and it separates into spaghetti-like strands. Put mound of sauce in each cavity. (Seeds may be removed, if desired, before adding sauce.)

3.11 Rice

Long grain rice cooks up light and fluffy—medium rice slightly sticky, and moist short grain rice even stickier.

3.11.1 Plain Cooked Brown Rice

1 cup Long Grain Rice
3 cups cold water
Saucepan with tight lid.

Bring water to boil, add rice and boil for one minute. Turn heat down, cover tightly, and simmer about thirty minutes or until water is absorbed and rice is fluffy and tender. To prevent sticking, don't stir. If fluffy and tender but not dry, put in warm oven uncovered for a few minutes.

3.11.2 Mixed Wild and Brown Rice

1 cup Long Grain Brown Rice
2 1/2 cups cold water

Bring water to a boil, pour over rice, cover and bake in 375-degree oven forty minutes or until dry and fluffy. Add more water if necessary (check after 30 minutes to see whether additional water is necessary.) If rice is tender, but too wet, uncover for five minutes or so.

3.11.3 Mixed Rice Casserole

3/4 cup Long Grain Brown Rice
1/4 cup Wild Rice
4 strips sliced celery
1 large diced sweet red pepper
1/4 pound sliced mushrooms (optional)

3 cups cold water
2 teaspoons Vegebase (or Vegebase to taste)

Bring water to a boil, add brown rice, cook five minutes, (simmer). Add wild rice and other ingredients. Bake covered in 375-degree oven about forty minutes, or until rice is tender and fluffy. Check after 30 minutes to see whether additional water is necessary. If rice is tender, but too wet, uncover for five minutes or so.

3.11.4 Stuffed Sweet Red Peppers

3 large sweet red peppers
4 strips diced celery
2 sprigs chopped parsley
1/4 pound sliced mushrooms
Vegebase to taste

Steam all but peppers five minutes in small amount of water. Add to plain cooked mixed wild and brown rice (see recipe). Cut peppers in half, remove seeds, and spoon in rice mixture. Bake in covered casserole in 375-degree oven until peppers are tender (about ten or fifteen minutes).

3.11.5 Vegetable Chop Suey with Rice (Starch)

A few pieces of celery top, chopped
A few sprigs chopped parsley
1 large sweet red pepper, sliced (sweet green pepper may be substituted)
4 strips sliced celery
2 large strips celery cabbage and/or an equivalent amount broccoli florets and leaves
3/4 cup freshly shelled green peas
2 large carrots, cut up in bite-sized pieces
1/2 cup cauliflower florets
1/4 cup Jerusalem artichokes, cut up in chunks
Vegebase to taste (add Vegebase just before serving)

Blend half of the peas in one cup of water. Add the balance of the peas whole, and the other ingredients. Steam ten minutes. Serve over cooked or baked brown rice. Sprinkle alfalfa sprouts, raw snow peas and raw water chestnuts over each serving. If raw snow peas and raw water chestnuts are not available, use frozen snow peas (if desired) and canned water chestnuts, in which case they should both be added to the pot to heat up before serving. Snow peas and water chestnuts, even if not raw, add a crisp tastiness to vegetable chop suey. Serves three or four.

3.12 Vegetable-Sesame Casserole

Green beans or broccoli
Cauliflower florets
Sliced summer squash, zucchini, yellow crookneck or Pattypan (or thinly sliced turnips)
Sesame Seeds and Vegebase, half and half, mixed

Steam green beans (or broccoli) and cauliflower in small amount of water for five minutes. Sprinkle with small amount of Vegebase and sesame seed mixture. Top with slices of squash or raw turnips. Sprinkle with balance of Vegebase-sesame seed mixture. Brown lightly under broiler. (Squash or thin turnip slices will tenderize under broiler.)

3.13 Zucchini Cheese Casserole

4 medium zucchini

2 medium tomatoes, peeled and cut up
4 strips celery, sliced
1 small sweet pepper, diced
Vegebase to taste

Place all in electric skillet (or casserole on top of stove). Steam until tender, about six to eight minutes. Turn off heat. Lay slices of unprocessed cheese over top. Cover and serve when cheese is just barely melted.

3.14 Lentil Casserole

1 cup lentils
4 strips diced celery
1 small diced sweet pepper
2 cups water
Vegebase to taste

Steam lentils approximately 15 minutes or until almost tender. Add celery and pepper and steam five minutes longer. Do not overcook. Add Vegebase before serving.

3.15 Protein Vegetable Chop Suey

A few pieces of celery top, chopped A few sprigs of chopped parsley
1 large sweet pepper, sliced (red preferred) 4 strips sliced celery
2 large strips celery cabbage and/or an equivalent amount of broccoli florets and leaves
3/4 cup freshly shelled Green Peas
1 cup of sliced Bok Choy or other Chinese vegetables
1 cup mung bean or soybean sprouts
Vegebase to taste (add Vegebase just before serving)

Blend half of the peas in one cup of water. Add the balance of the peas whole, add half of the bean sprouts and all of the other ingredients, except the Vegebase, which is to be added just before serving. Steam for ten minutes. Serve over the remaining raw bean sprouts, or sprinkle the raw bean sprouts on top. Cooked unsprouted soybeans may be substituted for the bean sprouts, and served with alfalfa sprouts. See suggestions for snow peas and water chestnuts in Starch Vegetable Chop Suey recipe, which may also be used with this Protein Vegetable Chop Suey. Serves three or four.

3.16 Lentil Soup

1 cup lentils
A few pieces celery tops, coarsely chopped
4 strips sliced celery
A few sprigs parsley, chopped
1/2 cup coarsely chopped kale or Bok Choy
3 cups water
Vegebase to taste

Simmer lentils 20 minutes, add vegetables, simmer five minutes longer. Soup should be thick, not watery. If too thick, add a little more water. Add Vegebase before serving.

3.17 Millet-Squash Casserole

1/2 cup Millet, browned slightly (dry) in skillet
2 cups boiling water

Cook about 20 minutes, then add four strips sliced celery, one small sweet bell pepper, diced, and cook about five minutes more. Add three sliced zucchini squash and cook a few minutes longer until tender and all water is absorbed. Add Vegebase to taste before serving.

3.18 Vegetable Soup or Stew

Soup should be very thick, even less water for stew. Start with a small amount of soaked garbanzos, beans, or split peas. (See bean instructions.) Cook beans or peas until soft, add vegetables ten minutes before serving, except add summer squash two minutes before serving. If onion is desired for seasoning, add at least twenty minutes before serving, while beans are softening.

Any combination of vegetables may be used, with the exception of tomatoes.

3.19 Vegetable Soup or Stew with Rice or Wild Rice (or Barley)

(An economical way to use wild rice)

Omit beans or peas. Cook rice separately until tender. Cook vegetables five to ten minutes, as in previous recipe, and add rice and Vegebase. (Barley may be used instead of rice, using the same method.)

3.20 Vegetable Soup with Potatoes

Omit beans or peas. Cook cut-up potatoes (unpeeled) until almost tender, add vegetables and cook five to ten minutes longer, add Vegebase.

3.21 Vegetable Soup with Fresh Podded Beans or Peas

Cook fresh beans or peas until almost tender. Add vegetables, cook five to ten minutes longer. Add Vegebase to taste.

Tips for Vegetable Soups or Stews: Start with small amount of water, you can always add more. If using dried beans or peas, don't use starchy vegetables like potatoes or carrots. Fresh podded beans or peas may be used with carrots, if desired. Never use cabbage in soup or stew. If cabbage family vegetables (cauliflower, broccoli, Brussels sprouts) are used, great care must be taken not to overcook them. Celery, green beans, kale, Bok Choy, carrots and parsley are especially good in soup. Parsley may be cooked in the soup, or add a small amount of raw chopped parsley before serving.

3.22 Broccoli-Cashew Soup

1 1/2 cups broccoli florets
1/2 cup tender broccoli stems (do not use tough fibrous parts)
1 small onion, sliced
1 clove fresh garlic, chopped
3 strips sliced celery (with celery tops)
3 sprigs parsley (chopped)
1 small sweet red pepper, cut up
1/2 cup cashews (ground fine in mill or blender)
4 cups water
Vegebase to taste

Precook onion and garlic ten minutes, add broccoli stems and cook five minutes more; add celery, parsley and red pepper and cook two or three minutes longer. Add the raw broccoli florets, the cooked vegetables and liquid to the ground cashews and blend. Place mixture in soup pot with enough additional water to total approximately four cups liquid. Simmer a few minutes until it thickens. If too thick, add more water; if too thin, add more ground cashews. Add Vegebase to taste.

3.23 Summer Squash-Sesame Seed Soup

Same ingredients and instructions as fox Broccoli-Cashew Soup. Use approximately one-fourth to one-half cup of sesame seeds to eight medium zucchini or yellow squash. Or try using half sesame seeds and half cashews for a different flavor.

3.24 Potato Broccoli Soup

Blend two medium potatoes (unpeeled) with one small onion in three cups water. Heat until it thickens —it must be watched, it can easily burn. Cook over slow burner for about ten minutes, stirring to prevent burning. Add optional amounts of cut-up broccoli, diced celery, celery tops, parsley and sweet red pepper, and continue cooking for ten minutes longer. If too thick, add more water. Add Vegebase to taste before serving.

3.25 Vichysoisse

Cut up two leeks or four large spring onions (white part only) and put in blender with two medium cut-up potatoes (unpeeled), one large cut-up carrot, and two cut-up strips celery. Add one cup water and blend. Put in saucepan, add one to 1 Vi cups more water. Heat to boiling point and turn down to barely simmering for ten to fifteen minutes or so (until thick). Add Vi cup heavy cream (preferably un-pasteurized). May be served hot or cold.' Add Vegebase just before removing from the heat. Serves two or three.

3.26 Split Pea Soup

1 cup dried green or yellow split peas
3 to 4 cups water
1 small chopped onion
1 or 2 cloves minced garlic

Combine and simmer for approximately one hour. If desired, mash before adding other ingredients. Add two strips sliced celery, two sprigs chopped parsley, one small chopped sweet pepper, and simmer five minutes longer. If desired, add sliced zucchini or yellow squash and simmer two minutes longer. Soup should be very thick. Add Vegebase before serving. Serve with sprinkling of alfalfa sprouts.

3.27 Beet Borsht

Cook sliced beets slightly (about five to ten minutes). Put in blender with small amount of raw beets. Suggested amounts: two large beets cooked, two small beets raw. Add to blender mixture two strips sliced raw celery, two small raw carrots. Use water from cooked beets and add more water as necessary to blend. Should not be too thin. Add Vegebase. Chill. Add sour cream or yogurt to taste before serving.

3.28 Buckwheat

Buckwheat isn't a wheat—it isn't even a grain, but it is used as grains are used. It is a cultivated annual herb, native to Siberia, grown chiefly in the Eastern United States, Northwest Europe and in the mountainous districts of Japan. The groats are actually the fruit rather than the seed (as most grains are) of the buckwheat plant.

It is sold as raw (light) buckwheat groats, roasted (dark) buckwheat groats, ground buckwheat groats, and buckwheat flour. The dark groats have a distinctive taste which most people either love or dislike intensely. The light milder groats taste a little like barley.

Buckwheat flour sold in supermarkets, and buckwheat pancakes in restaurants, may not even contain any buckwheat, but may be a combination of corn, rye, wheat and other ground cereals. Buckwheat groats are available in health food stores and natural food stores.

Buckwheat is usually associated with pancakes, but Hygienists usually use the groats in casseroles.

3.28.1 Kasha (Buckwheat Groats)

3/4 cup buckwheat groats
4 strips sliced celery
1 small diced sweet pepper

If light buckwheat groats are used, brown them slightly (dry) before cooking. Pour approximately 3Vi to 4 cups boiling water over combined ingredients. Simmer until tender—do not overcook. Be watchful so it won't burn—may need more water. Serves three or four. Add Vegebase to taste before serving.

3.28.2 Buckwheat Pancakes

Since most people who enjoy buckwheat associate it with pancakes, I have endeavored to offer the least harmful recipe possible for buckwheat pancakes. This recipe is a long way from Natural Hygiene, and should seldom, if ever, be used.

1 tablespoon dry yeast
1 tablespoon honey or other sweetener
2 cups Buckwheat flour
(ground in blender or mill from light raw buckwheat groats)

1 to 2 cups water or raw potato water or unpasteurized buttermilk (raw potato water: one small diced potato (unpeeled), put in one cup measure, fill with warm distilled water, and blend. Good substitute for milk.) Batter should be thin

Dissolve yeast in lukewarm water with honey. Let stand ten or fifteen minutes or longer (until bubbly). Add balance of liquid. Add flour. Mix well. If baked on natural soapstone griddle, no oil or butter will be necessary. If baked on regular uncoated griddle, add approximately one tablespoon melted butter or oil to batter, and it may be necessary to also lightly oil the griddle. The griddle should be hot enough for water to jump around. If water disappears, it is too hot.

3.28.3 Buckwheat Pancakes (Overnight Recipe)

Soften yeast in 1/4 cup water with half of honey. Let set until bubbly. Add balance of liquid and flour. Beat. Batter should be thin. Pour batter into large pitcher, cover, and set in warm place overnight. In morning, add other half of honey. Stir thoroughly. Bake.

3.29 Vegeburgers

These may be made with almost any combinations of vegetables and nuts (and/or seeds). If any starchy vegetables are used (such as carrots), combine with ground raw peanuts. If no starchy vegetables are used, combine with ground sesame seeds, sunflower seeds, almonds, pecans (or other nuts).

Suggested ingredients: Celery, Sweet Pepper, Parsley, Cauliflower, Carrots, Green Beans, Broccoli, Bok Choy, Turnips, Kohlrabi.

Coarsely shred vegetables by hand or in food processor. It will be necessary to blend approximately half of the vegetables in a small amount of water and combine them with the shredded vegetables. Add ground nuts and/or seeds. If too dry add more water; if too wet, add more nuts. Shape into patties and broil on both sides until slightly browned. These make great "sandwiches" between leaves of romaine lettuce and are good hot or cold. They do not hold together as well as burgers that use a raw egg in the mixture, but, if handled carefully, are quite acceptable, and taste great.

3.30 Beans

Soybeans contain about three times as much protein as other beans, and little or no starch. Dried soybeans take a long time to cook—they may take 3 1/2 to 5 hours. Dried soybeans should be soaked overnight in distilled water to cover, in refrigerator. Next day, add more water to cover (use the soaking water) and cook until desired softness is attained, adding more water as necessary. If the soybeans are to be used in a baked casserole, or ground, or chopped, they should not be cooked until soft, but removed when still rather firm and chewy. Cooking time may be shortened (perhaps halved) by freezing after soaking (in soaking water) several hours or over night.

Some nutritionists advocate longer soaking of soybeans (24 to 48 hours) and the discarding several times of the soaking waters, in order to be certain of the destruction of the toxic anti-enzyme factor that is said to block the digestion of proteins. The longer soaking time shortens the cooking time.(All dried beans should be soaked, preferably overnight, before using.)

Green soybeans will take much less time to soften, probably from 15 to 30 minutes, depending on variety and condition, and need not be soaked. Other beans fresh from the pod (limas, cranberry beans, black-eyed peas, etc.) will soften more quickly, and only need a brief cooking period—no soaking.

Sprouted soybeans (or other sprouted beans) may be eaten raw, or steamed a short time to improve their palatibility.

Please refer to Lesson 26 for a discussion on using the soaking water versus discarding it. You will find it in the section on sprouting.

3.30.1 Soybean Casserole (or any dried beans)

Soak one cup dried soybeans overnight in two cups distilled water (in refrigerator). Cook until just firm and chewy. Add two strips diced celery, a few chopped celery leaves, a few sprigs of parsley (chopped), one small diced sweet pepper. Add enough water to cover. Cover casserole and bake in 375-degree oven until done, with lid removed during last half hour of baking. Soybeans may take an hour of baking.

This recipe may also be used for any dried beans. Add Vegebase before serving. Dot with butter if you use it.

3.30.2 Crunchy Soy Bean Treat

Soak and cook dried soybeans as usual (see Soybean Instructions)—not too soft, should still be rather firm and chewy.

Grind or chop to consistency of coarsely chopped nuts. Add diced celery (about two strips per three servings); a few chopped celery leaves; a few sprigs chopped parsley; one diced sweet pepper. Place in casserole or loaf pan. Add the soybean liquid and/or water to almost cover. Bake uncovered in 375-degree oven until lightly browned and liquid is absorbed. Add butter when serving, if you use it—also Vegebase to taste.

3.30.3 Soybean Loaf (or Garbanzo Bean Loaf)

Soak and cook dried soybeans or garbanzo beans as usual—not too soft, should still be somewhat firm and chewy. Grind or chop to consistency of chopped nuts (not too coarse). Add diced celery (about three strips per three servings); a few chopped celery leaves; a few sprigs chopped parsley; one diced sweet red pepper; about one-half cup broccoli florets, cut up in small pieces; and about one-half cup zucchini squash, cut in thin half slices per three servings). Mix ingredients together lightly, add Vegebase to taste, and add enough cooking liquid from the beans (and/or water) so it will hold together. Put in loaf pan, top with slices or strips of sweet red pepper or pimiento. Bake uncovered in 375-degree oven until lightly browned, but still somewhat moist (about twenty minutes).

3.30.4 Bean Soup (Dried Pea Beans, Navy Beans, Cranberry Beans, etc.)

Soak one cup dried beans overnight in two cups distilled water (in refrigerator). Add two cups water. Cook until almost soft. Add more water as needed. Add one clove chopped garlic and one small sliced onion and cook ten minutes longer. Add four strips sliced celery, a few chopped celery leaves, a few sprigs chopped parsley, one small diced sweet pepper, and an optional amount and variety of sliced vegetables (bite-sized pieces). Cook ten minutes longer. If too thick, add more water. Add Vegebase to taste before serving.

3.30.5 Bean Pot

Use any beans fresh from the pod: Limas, Soy, Black-eyed Peas, Cranberry Beans, or any other freshly shelled beans.

Cut up and place in bottom of pot: four strips celery, two medium yellow summer squash or zucchini squash. Sprinkle with one teaspoon Vegebase. On top of cut-up vegetables, put one cup of beans which have been precooked for ten to fifteen minutes until almost soft. Over top, sprinkle one teaspoon Vegebase. Add water carefully around side about halfway up. Cover and bake in 375-degree oven for one-half hour. Uncover and bake a little longer (if you like it drier). If you like it quite dry, use less water. Serves two or three.

3.31 Rice Crackers

Rice Crackers made of brown rice and water only (no salt or leavening) can be purchased in health food stores, or you can make them yourself.

Grind brown rice in blender or grinder, add a little Vegebase (if desired), and add enough water to hold it together into a dough. Roll very thin between two sheets of wax paper. Place on cookie sheet, and mark off into cracker size with knife. Bake at 325-degrees for about ten minutes or until pale or golden brown.

3.32 Clabber or Cottage Cheese

Put whole raw milk in individual cups or glasses (covered with thin cloth or paper towels) in a warm place (about 75 to 85 degrees) about 30 to 48 hours (may take less time or longer, depending on milk and temperature) until thick and custardy. (Don't move it, mix or stir.) Sour cream will be on top. This will keep in the refrigerator about five days. The secret of successful clabber is an even warm temperature. Clabber may be eaten with the fruit meal.

If you are not successful in producing clabber without a "starter", use two tablespoons of natural sour cream per quart of raw milk, mix well, and proceed as above. Usually this clabber sets in twenty-four hours. (Or use two or three tablespoons of Borden's Buttermilk, or try adding lemon juice to the sweet milk to start the souring or clabbering process.)

For cottage cheese, put clabber in cheese cloth or nylon net bag and let drip six to eight hours.

3.33 Desserts (If You Must!)

3.33.1 Uncooked Fudge Brownies

1/2 cup rolled oats
1/2 cup carrots
1/2 cup grated coconut
1/2 cup carob powder
1/2 cup raisins (soaked 15 minutes)
8 medium dates (more or less, depending on how sweet you want it)
water (as necessary)

Blend or grind oats into flour, add carob powder and coconut, add soaked raisins to dry ingredients. Blend carrots and pitted dates in minimum amount of water. Add to the dry ingredients, mixing well. Add as much water as necessary to make a thick drop cookie consistency. Drop by teaspoonfuls on pliofilm and roll up in groups of four or six, or drop into miniature paper muffin cups or paper petit four cups. Refrigerate, if to be used same day. Otherwise, store in freezer. These do not need thawing.

If you like them sweeter, use more dates. If less sweet, use fewer dates. Actually, proportions of all ingredients are optional. No cooking or baking is necessary, because all ingredients (including the rolled oats) are excellent uncooked.

3.33.2 Date Coconut Pie

Moisten fresh grated coconut and pat into pie plate for crust. Chill for an hour or so.

Blend bananas and pitted dates in as little water as possible (mixture should be quite thick) and pour over the crust. Put coconut liquid in blender and add small pieces of peeled coconut until the mixture is thoroughly blended and thick. Spread over the pie. Top it with shredded coconut and pitted dates, whole or sliced. Chill for at least two hours.

3.33.3 Fruity Banana Coconut Cream Pie

Mix equal parts of fresh grated coconut and chopped dates and pat into pie plate for the crust. Moisten with water, if necessary. Chill for an hour or so. Fill with sliced bananas. Blend any subacid fruit with unpasteurized cream and pour over the sliced bananas. (Mixture should be thick.) Top with whipped cream and sprinkle with grated coconut. Chill for at least two hours before serving.

3.33.4 Creamy Ice Fruit

1/2 cup sweet cherry juice or sweet grape juice or sweet apple juice
3/4 to 1 cup water (or a little more, if needed)
1 large or two small bananas
1 large or two small avocados
4 tablespoons carob powder
15 to 20 pitted dates (depending on size)

Blend dates in juice and water. Add pieces of avocado a little at a time, while blending, then add slices of banana and carob. If more liquid is needed to blend, add as little water as possible. Should be very thick and creamy. Will freeze in refrigerator-freezer without ice. crystals if thick enough, and if served shortly after freezing. If not served the same day, thaw slightly before serving.

3.33.5 Coconut-Carob Pudding

Blend eight ounces warm distilled water (or coconut liquid, or mixed) with eight ounces raw, peeled, cut-up coconut meat. Add eight cut-up dates. Blend. Add enough carob powder to make quite thick (approximately eight tablespoons—more or less). May be chilled or frozen. If frozen, remove from freezer one hour before serving.

3.33.6 Coconut-Carob Ice Cream

Blend one cup of warm distilled water with one cup of fresh coconut and cool in refrigerator. Use more water, if necessary. When cool, blend again. Add ten or more cut-up soft dates and enough carob powder to make quite thick. May be frozen or eaten as is. If frozen, remove from freezer one hour before serving.

3.33.7 Carob Ice Cream Pudding

Blend eight ounces unpasteurized cream or unpasteurized half cream and half milk with eight cut-up dates. Add one or more bananas, if desired. Add enough carob powder to make it quite thick. May be chilled or frozen.

3.33.8 Fruit Ice Cream

Blend twelve cut-up dates with flesh from one large or two medium mangos, or four or five medium sweet peaches, or two or three medium bananas. If necessary, add one or two tablespoons unpasteurized cream to start blending. Whip eight ounces unpasteurized cream, fold into the fruit mixture. Freeze in ice cube trays, stirring twice during the freezing process to prevent the formation of ice crystals.

3.33.9 Carob Ice Cream

Blend eight ounces raw cream or raw half and half with seven or eight cut-up dates. Add one or two bananas, if desired. Add enough carob powder to make it quite thick. May be frozen or eaten as is.

3.34 Party Punch

Not recommended, but preferable to punch recipes using artificial flavorings and/or alcoholic ingredients. This is the only recipe in the dessert section of this lesson that is (basically) not uncooked, the juices having been pasteurized, although a few of the previous recipes contain a small amount of such unpasteurized juices, along with the other ingredients, which are uncooked.

Mix three parts of unsweetened pineapple juice with one part of cherry juice (from health food store). Add small amounts of crushed pineapple (unsweetened) and whole fresh strawberries or soaked dried cherries. The taste is delicious and will satisfy (more or less) those who just must have a party drink.

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4. Recipe Conversions

"Before"	"After"

1 ounce chocolate	3 tablespoons carob powder + 1 tablespoon oil
1 cup sugar	3/4 cup honey (reduce liquid in recipe by 1/4 cup and lower oven temperature by 25 degrees)
1 cup sugar	1 cup molasses (reduce liquid by 1/3 cup)
1 cup sugar	3/4 cup date sugar
1 tablespoon flour (used as thickener)	1 tablespoon potato starch
1 package active dry yeast or 1 cake compressed yeast	1 tablespoon active dry yeast
1 cup heavy sour cream	1/3 cup butter and 2/3 cup sour milk
1 cup thin sour cream	3 tablespoons butter and 3/4 cup sour milk
1 cup sour cream	1 cup plain natural yogurt
1 cup butter	2/3 cup oil
1 small fresh onion	1 tablespoon dried minced onion, rehydrated
1 small garlic clove	1/4 teaspoon garlic powder or 1/2 teaspoon dried garlic, rehydrated

These equivalents may be used as substitutes in recipes. Some of them are only a little better than the original ingredients. Some are no better—for convenience only. If you must make ice cream or baked "treats," the best sweetener would be seeded, cut-up dates, blended with some of the liquid of the recipe, in optional amounts, the less the better.

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5. Questions & Answers

When we eat cooked food in restaurants, we don't know how it has been booked. It may have been cooked in a pressure cooker, a microwave oven, a charcoal broiler, or aluminum cooking utensils may have been used. How can these hazards be determined and avoided?

If you eat cooked food in a restaurant, it is not only subject to the hazards you mention, but it will also contain salt, probably sugar (even in vegetables), and probably pepper and other irritants. It may also contain monosodium glutamate; corn starch or flour for thickening; or other unknown additives. The only way to avoid all of these things is to avoid eating cooked food in restaurants. If you do decide to partake, do the best you can, depending on circumstances. A baked potato is fairly safe, except for the sprout retardant on the skin, and the aluminum foil in which most of them are baked. Order it to be served uncut—otherwise you may find a piece of aluminum foil in your mouth. Sometimes you can get a plain cooked vegetable without seasoning.

Some restaurants cook certain dishes to order, and you can request "no seasoning." In most Chinese restaurants you can get vegetable chop suey with raw bean sprouts and snow peas and without monosodium glutamate, or corn starch or seasoning. Some "natural food" restaurants do a fairly good job. Some salad bars are fairly good.

But any time you eat, in a restaurant, be prepared to compromise. Sometimes, rarely, you can find a friendly rand cooperative restaurant owner or manager who will do things your way. Good luck!

Most conventional nutrition charts advise against using nuts, because they are so high in fat. Why do Natural Hygienists use so many nuts?

Conventional diets contain so much fat already (mostly animal fat) that any additional fat is contraindicated. Of course, conventional diets include flesh foods as the major protein source, while Hygienic food programs look to nuts and seeds for concentrated protein. The major sources of fat in the Hygienic diet are nuts, seeds and avocados, which contain unsaturated fat (which conventional nutritionists admit is superior to animal fat). It is true that even Hygienists should not gorge on nuts and avocados, but should eat them sparingly.

Since nuts and seeds are also the major sources of concentrated protein in the Hygienic diet, they are important elements of the food program. Some Hygienists use two to four ounces of nuts and/or seeds almost every day, which would be considered maximum amounts. Many Hygienics use them less frequently, perhaps three or four times weekly (sometimes even less) and get along very well.

Is it advisable to eat a protein meal and a starch meal every day?

No. That would comprise a large amount of concentrated food on a daily basis. Most people would, sooner or later, find that this practice would overburden their digestions. A protein meal three or four times weekly and a starch meal two or three times weekly would be adequate for most people (many would want less), planning protein and starch meals for different days, and filling in with fruit and salad meals. Some people might want up to four or five protein meals weekly and four or five starch meals weekly. This would be quite a lot of concentrated food, and would involve using both a protein meal and a starch meal on some of the days. Actually, starchy meals should not necessarily be included on a regular basis. They are filling, satisfying meals at the time they are eaten, but such foods as grains and legumes (even, to some extent, when sprouted) burden the organism with their digestion.

Potatoes are much easier to digest, and are a good choice for a cooked starch meal, but should not be used everyday, nor in large quantities. Sweet corn (unless freshly picked) is starchy; fresh peas are starchy; both can be eaten without cooking.

The coconut, starchy protein, eaten raw, is a good food to use for some of your starch meals.

Chestnuts, another starchy protein, can be used for starch meals when in season. But you certainly don't need a protein meal and a starch meal on a daily basis.

Why should the oven be preheated to the desired temperature before inserting your vegetables which are to be baked?

The cooking time will be shortened.

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Article #1: Your Probing Mind By Virginia Vetrano, B.S., D.C.

How, and in what, should you steam vegetables?

If you must compromise and cat some cooked food, then you should steam most vegetables whole and uncut, not grated or sliced, etc. Most vegetables need no preparation for steaming except to be well cleaned. Very large carrots may be sliced in two; rutabaga may be cut into medium-sized pieces; and large beets or turnips may be cut in quarters. Save the outer leaves of the lettuce that are not sufficiently pretty or that are cracked a bit too much to be savory in a salad; wash them well and place approximately three layers of them in the bottom of your cookware. Place the whole, uncut, cleaned vegetables on top of the lettuce leaves. Cover and start the flame moderately high. After two minutes turn the flame down to medium. Add no water to the pan. The water clinging to the lettuce and inside the cells of the lettuce forms the moisture for steaming the vegetables. No extra water is needed except perhaps when steaming large potatoes or carrots, etc. Then you may choose to use a steam rack.

We do not use the steam marvel or a steam rack for all vegetables for several reasons. First, it tempts you to add more water to the casserole. The water becomes steam, condenses on the lid and flows down over the vegetables anyway. Because of a use of more water than necessary for steaming, the vegetable is tasteless when the vegetable is done, and you throw it away, thereby losing valuable nutrients.

Whereas, if the vegetable is steamed in only the water clinging to lettuce leaves and the vegetable itself, it will be concentrated at the end of the steaming process. This cooking juice will taste good because it is concentrated and contains many minerals and vitamins and may be eaten with the vegetable. Lettuce prevents scorching, if you fail to watch the cooking time carefully. The lettuce is used only as a base upon which to cook other foods, and it should not be eaten with the food which you steam.

Spinach, beet tops, and other leafy vegetables have a surplus amount of water on their leaves after washing, which must be poured off prior to cooking. As the cellulose breaks down in these foods from the heat, much fluid leaks out into the cooking vessel and prevents burning and serves as water for steaming the vegetable itself. Consequently, no lettuce leaves are necessary for this type of vegetable. All types of small summer squash require lettuce leaves at the bottom in order to steam them whole without scorching. Steaming vegetables whole without cutting them at all saves minerals and vitamins.

The less you cook the vegetables, the better for you, so steam them just enough to warm then, without changing their natural shape or color.

We do not advocate the use of aluminum, stainless steel, or teflon. Aluminum combines with the acids in the foods forming poisonous aluminum compounds. Stainless steel cookware contains nickel and chromium that bleed into the foods when used. Teflon is highly poisonous as it contains fluorine and gives off poisonous gases under certain conditions. If chipped, and pieces enter the food, it could be very toxic. The only utensils left to cook in which have no known strike against them are opaque glass ware and fine baked enamel ware. If the enamel is chipped, it is best to purchase new cookware.

Please explain why fried foods are not good for you.

Cooking food by any method destroys much of its vitamin and mineral content. Some minerals are lost in the vapor; some are converted into inorganic minerals, which are no longer usable and therefore toxic, and others are lost into the cooking water. Vitamins are destroyed in much the same fashion.

Frying is even worse on food because oil, requires a higher temperature to boil than water. The higher the temperature, the greater the destruction of food. When frying food, it is usually cooked to a "golden brown" or a little darker. This beautiful golden brown that people love so much is a cancer producing substance. The brown on any food that has been browned by cooking is carcinogenic.

In addition the oil itself becomes a carcinogen. It has long been known that heated hydrocarbons can cause cancer. The longer they are heated and reheated and heated again, and the higher the temperature the more carcinogenic they become. Oils are hydrocarbons. The next time you desire french fries just remember that fast food chains change their oil only once a week or less. Also remember that there is more cancer of the stomach and colon than any other area of the gastrointestinal tract. Foods, the decomposition products of foods, and poisonous chemicals from cooking foods are retained in the stomach and colon for a longer period of time than in any other part of the gastrointestinal tract. Their irritating effects probably play a major role in the development of cancer of these organs.

Are spices harmful to one's health?

Yes, they are. It is much better to refrain from using spices. Some spices are extremely poisonous while others are only moderately so. A substance is a food if it is capable of being used by a particular living organism in any of its metabolic processes. If a spice contains poisons and other substances that cannot be used by the organism in making living cells or in any of its functions then it becomes a poison in relation to the living organism, even if it contains minerals, vitamins, proteins and other nutrients. Spices contain substances which cannot be used by the body and if a substance can't be used, it wastes precious nerve energy in expelling it to prevent damage to the body's vital organs. Spices are harmful in proportion to their toxin concentration. They waste nerve energy and cause enervation in proportion to the amount of energy expended in excreting the noxious substances.

Because of the toxic substances contained in spices, they cause irritation to the lining of the stomach and intestines. In fact some of them, such as mustard, cause bleeding of the stomach worse than aspirin, when taken in large quantities such as the amount some people put on their hot dogs.

Spices do not enhance digestion as we have been taught. On the contrary, because of the irritation they produce digestion is impaired. Besides the irritation to the gastrointestinal tract which may lead to inflammation and ulceration, spices irritate all the tissues inside the body with which they come in contact.

The latest theory in the production of arteriosclerosis is in line with Hygienic theory-that arteriosclerosis begins with an initial irritation, followed by inflammation of the arterial lining with the deposition of fatty material and finally calcium. Spices are definitely irritants and to continue using spices when you know how they are irritants to every tissue with which they come in contact is tantamount to saying "I don't care if I get arteriosclerosis, or gastritis, ulcers or cancer."

Lesson 29 will discuss the harmful effects of condiments in more detail.

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The selection of foods for optimum health requires that many factors be considered, including nutrient content, ease of mastication, deglutition, digestion, absorption and assimilation, presence or absence of irritant, the amount of vegetable fiber (which could be too little in the case of refined foods, or too much in the case of mature kale), gustatory satisfaction to the unperverted taste, and the effect on blood alkalinity. An ideal food would contain a broad array of nutrients, would be delicious, would contain a moderate amount of fiber, would be easy to eat and digest in the raw state, would possess no irritants or digestive antagonists and would leave an alkaline ash after metabolism. Applying these criteria, we find that there are virtually no perfect foods. Most fruits and vegetables, for example, contain at least minute amounts of oxalic acid, which is a mild irritant and which has a binding effect on calcium. Tannic acid is contained in the skins of some nuts (particularly almonds) and this, too, is a mild irritant. Lettuce is said to contain lactucarium, a mildly toxic alkaloid with soporific effects. This is particularly true of head lettuce. Beans contain trypsin-inhibitors, aflatoxins and purine bodies which raise serum uric acid levels. Grains contain much phytic acid which binds minerals like zinc and iron, impairing their utilization by the body. It should be obvious that perfect foods (like perfect health) are a theoretical ideal, not a reality.

From a *Hygienic* standpoint, there are three major tenets that guide us in the selection of foods. These tenets enable us to construct a diet that is philosophically and physiologically ideal for the human species. We will admit beforehand that due to various anatomical and physiological weaknesses and defects, not everyone can adhere to the philosophical dietary ideal with complete success. However, before alterations and deletions are made, it is important that we determine what constitutes an ideal diet, a truly natural diet, and then be guided accordingly. Our three major tenets are that:

1. Whole foods are superior to fragmented and refined foods.
2. Raw foods are superior to cooked foods.
3. Plant foods are superior to animal foods.

These three principles summarize *Hygienic* philosophy regarding food selection, and we will expound upon each in turn.

1. The Superiority Of Whole Foods

The fact that whole natural foods are superior to refined foods such as white sugar, white flour, polished rice, requires no substantiation to the readers of this magazine. However, we must emphasize that *any* fragmenting of whole food destroys nutrients and lessens the suitability of that food as an article of diet. Whole carrots contain more complete nourishment than carrot juice. Brown rice is better food than rice polishings. Whole wheat is superior to wheat germ. Consider the following experiment conducted by Weston A. Price, D.D.S., the renowned author of *Nutrition and Physical Degeneration*.

"Three cages of rats were placed on wheat diets. The first cage received whole wheat, freshly ground, the second received a white flour product, and the third was given a mixture of bran and wheat germ. The amounts of each ash, of calcium as the oxide, and of phosphorus as the pentoxide and the amounts of iron and copper present in the diet were tabulated. Clinically, it was found that there was a marked difference in the physical developments of these rats. The rats in the first group, receiving the entire grain product, developed fully and reproduced normally at 3 months of age. These rats had very mild dispositions and could be picked up by the ear or tail without danger of their biting. The rats fed upon white flour were markedly undersized. Their hair came out in large patches and they had very ugly dispositions, so ugly that they threatened to spring through the cagewall at us when we came to look at them. These rats had tooth decay and they were unable to reproduce. The rats fed upon bran and wheat germ did not show tooth decay, but they were considerably undersized and they lacked energy. The wheat germ was purchased from the miller and hence was not freshly ground. The wheat given to the first group was obtained whole and ground while fresh in a hand mill. It is of interest that notwithstanding the great increase in calcium, phosphorus, iron and copper present in the foods of the last group, the rats did not mature normally, as did those in the first group. This may have been due in large part to the fact that the material was not freshly ground, and as a result they could not obtain a normal vitamin content from the embryo of the grain due to its oxidation. This is further indicated by the fact the the rats in this group did not reproduce, probably due in considerable part to a lack of Vitamins B and E which were lost by oxidation of the embryo or germ fat."

This account demonstrates how important it is to distinguish between the nutrient content of a food and its overall biological effect. It has been shown repeatedly that eating wheat bran impedes iron absorption, despite the fact that it contains abundant iron. This may be the result of mechanical factors, or, perhaps it is the result of the high phytate content of the bran. In any case, it proves that foods cannot be evaluated solely on the basis of mathematical tables of nutrient analysis.

At first glance fragmented foods may seem to be more nourishing than whole foods. Dried apricots, for example, score much higher in calcium and iron than do fresh apricots. Quite obviously, if we extract the water from the apricots, we can triple or quadruple the number of fruits we are comparing, and thereby shore up higher nutrient values. This seeming enhancement is, of course, a figment of the mind. Whole foods offer the most complete nutrition. Powdered whey is a nutritional shadow of whole milk. Extracted chlorophyll is a lifeless fraction of green leaves. Lecithin granules are a denatured fragment of soybeans. These various extracts and concentrates are inferior to the whole natural foods they supposedly improve upon. Processing incurs drastic nutrient losses as a result of heat, oxidation, chemicals, and enzymatic destruction. It is correct to say that these foods have been devitalized. Only whole natural foods contain the amount and proportion of nutrients that the body requires. Only whole natural foods are acceptable in a *Hygienic* diet.

2. The Superiority Of Raw Foods

Although some foods seem to be rendered more digestible by cooking, it is a fact that most foods are rendered less digestible. Furthermore, any food that is difficult to eat and digest uncooked is not a normal constituent of man's natural diet. Cooking partially or totally destroys the nutrient content of food. Water-soluble vitamins, like ascorbic acid and pantothenic acid, are particularly susceptible to thermal destruction, but it is to some extent true of all vitamins. What may be more important, however, is the fact that cooking alters the proportions of the various vitamins contained in foods. For example, cooking alters the natural ratio between thiamine and niacin in foods. This occurs because thiamine is readily destroyed by moist heat, whereas niacin is more resistant. Therefore, cooking not only lowers the vitamin content of foods, it also modifies vitamin ratios, which are a very important feature of whole foods.

Minerals may be rendered nonuseable by the body as a result of cooking. A good example of this is the effect that pasteurization has upon milk. The complex organic salts of calcium and magnesium, in conjunction with carbon and phosphorus, are decomposed by heat, resulting in the precipitation of insoluble calcium phosphate salts. These inorganic salts are not assimilable by the body. This is one of the reasons why dental decay has reached epidemic proportions among milk-guzzling Americans.

Cooking tends to deaminize proteins and denature their secondary and tertiary configurations. With the exception of eggs white and certain dried legumes, they are rendered more difficult to digest by cooking. Subjecting fats to heat produces toxic cyclic hydrocarbons and free fatty acids, both of which are highly irritating. Heated fats and oils have been shown, by countless experiments, to be highly carcinogenic. *No informed person will consume heated fats in any form*.

Cooking causes a great loss of the soluble minerals in foods and drives off part of the food into the air as gases (this is particularly true of sulphur and iodine). Cooking softens vegetable fiber which may hamper intestinal motility, and promote fermentation and putrefaction. Although cooking adds to the palatability of some foods (e.g., yams, asparagus, zucchini, grains), most foods are rendered less palatable by cooking, which gives rise to the use of unwholesome flavorings, condiments, dressings, etc.

On the basis of these considerations and others, a diet, in order to be considered *Hygienic*, would have to consist of at least predominantly uncooked foods.

3. The Superiority Of Plant Foods

This category could also be designated the *detrimental effects of animal foods*. All animal products (with the exception of mother's milk) have certain negative features which make their dietary use questionable. Consider, first of all, the effect that animal foods have upon protein consumption. Even modest use of meat, fish, eggs and dairy foods tends to create a protein overload and this is one of the most dangerous dietary excesses. Research has shown that high protein diets actually promote aging and early degeneration. Too much protein exerts a tremendous burden upon the liver and kidneys. It also leaves acid residues in the blood and tissues which must be neutralized by sacrificing indispensable alkaline mineral reserves. The process of aging is characterized by the transfer of calcium from the bones to the tissues, that is, to the arteries (arteriosclerosis); to the optic lens (cataracts), to the ureters (kidney stones), to the skin (wrinkles), to the joints (osteoarthritis), to the valves of the heart (producing valvular stenosis and insufficiency), to the tendons and ligaments (producing frozen shoulder) and to other sites. This, of course, leaves the skeleton osteoporotic, leading to the development of stooped posture, a kyphotic spine, spontaneous fractures and other maladies that are so common to the elderly. High protein diets (due to the accumulation of phosphoric, sulphuric, uric and other acids) accelerate this demineralization of bone and bring about calcific deposits in the soft tissues.

One could argue that nuts and seeds contain as much protein as meats, eggs, etc., and therefore they are as likely to create an excess. However, most people are easily satisfied eating a few ounces of nuts or seeds every day, whereas few people will eat just a few ounces of yogurt. Restaurants serve up to a pound of meat at a sitting, along with other foods. Cottage and ricotta cheese is eaten in huge quantities, even by vegetarians. The simple truth is that animal proteins tend to promote overeating more so than do plant proteins.

The relationship between high protein diets and cancer has been clearly established by studying both animal and human populations. Remember that cancerous cells are characterized by runaway protein synthesis and rapid cellular division. Protein synthesis is accelerated by increased protein intake, so it is not surprising to discover that cancer bears close tie to excess protein. There is a direct correlation between the amount of protein in the diet and the incidence of cancer on a world-wide basis.

Americans, Australians and West Europeans, who ingest the largest amounts of protein, also have the greatest incidence of cancer, whereas the rural Chinese, the East Indians and native peoples of Latin America have the lowest cancer incidence. This is no casual relationship and it cannot be written off by blaming it on the "stress of modern life."

Animal products are loaded with the worst kind of fat—saturated, cholesterol-laden animal fat. A mountain of evidence has been accumulated relating high animal fat intakes with the development of cardiovascular disease (which is characterized by the deposition of saturated fat and cholesterol in the intimal layer of arteries), and many different malignancies including breast cancer, colon and rectal cancers, and cancer of the liver. Even such diverse conditions as multiple sclerosis and diabetes have been related to the consumption of animal fats. As we have already stated, heated animal fats have been shown to be even more carcinogenic, and considering that Americans take all of their flesh, milk and eggs well cooked, it's no wonder that 1 in 4 eventually succumbs to cancer. Pandemically, those peoples who subsist on low fat, low protein, largely vegetarian, unrefined diets demonstrate the greatest resistance to cancer. The incidence of cancer and heart disease among American Seventh Day Adventists is approximately half the national average. This is quite remarkable considering that only about half of this group are thought to be vegetarian.

Flesh, fish, yogurt and cheese contain various putrefactive products resulting from their bacterial decomposition. Putting partially-spoiled food in the body can hardly be considered a Hygienic practice, despite the arguments of the fermented food enthusiasts. Flesh also contains considerable quantities of the end products of metabolism (like uric acid,) which are held up in the tissues at the time of death. These wastes are poisonous, irritating and burdensome to the body. Considering also that animal products tend to be reservoirs for pesticides, herbicides, and various other drugs and inorganic contaminants, there are many good reasons to avoid using them.

There are just 5 classes of foods that meet all of the criteria established by our three major tenets. These are: fruits, vegetables, nuts, seeds and sprouts. A diet comprised of these foods would abound in every nutrient known to be required, with the exception of Vitamin B-12, and most people apparently can derive enough of this from bacterial synthesis in the intestines. However, we should note that soil bacteria also produces B-12 on the surface of roots, so that adding stringy roots grown in organic soil (with abundant microbial activity) to the diet would constitute a pre-made plant source of B-12 that would be a perfectly acceptable addition to a *Hygienic* diet. Supermarket vegetables would not be adequate for this purpose.

We should note, in closing, that adding some cooked food to the diet (like baked potatoes and brown rice) or limited amounts of animal foods (such as uncooked, unsalted cheese), although not strictly *Hygienic*, may be required in some pathological conditions. Certain people would experience a drastic and undesirable weight loss were they to make an immediate transition to a 100 percent uncooked, all plant food diet. For these people, eating a baked potato now and then represents not a mere compromise but rather a necessary modification of their *Hygienic* regimen. Quoting Dr. Alec Burton, "We must adapt the system to the needs of the individual and not adapt the individual to the needs of the system."

With this acknowledged, let us state in conclusion that a diet, in order to be considered *Hygienic*, would have to consist predominantly (if not exclusively) of uncooked foods of vegetable origin, eaten whole.

Article #3: How To Get More Food Value for Your Money By Marti Fry

If you're like most people you want to get the most for your money. This includes your food purchases too. Many of you have already learned that eating your food raw is the best way to get the most nutritional value from it. Perhaps you've also discovered that your doctor, hospital and prescription bills have gone down (or, hopefully, disappeared altogether).

When you learn that the body heals itself and that drugs, whether they're prescribed by a doctor or sold without a prescription, always harm your body and never help it, you realize that going to a doctor or a drugstore is the opposite course from what you should take.

In the *Health Crusader* you have been learning:

1. which foods are best-fresh raw fruits and non-starchy vegetables;
2. which foods are second-best—dried fruits, nuts and seeds and raw starchy vegetables, (including roots and legumes);
3. which foods are third-rate—lightly steamed starchy vegetables such as yams, potatoes, sweet potatoes, squash, peas, corn, etc. and other lightly steamed vegetables such as broccoli and brussel sprouts;
4. which foods are fourth—rate-lightly cooked rice, millet, etc.; and
5. which foods are worst to eat—all the rest!

Even if the first-rate and second-best foods are more expensive in the store, they are still the best value for your money because they give you the most and harm you the least. Now let's say you eat only top-rate foods and you eat them raw. Is this everything you can do to get the most for your money? No, there's more!

Many of you have already learned that most organically-grown foods contain larger amounts of high-quality proteins, minerals and vitamins than the majority of commercially-grown produce. But there's one more consideration and this is in the area of food preparation.

As you may know, there is a great loss of vitamins and usable protein and minerals when food is cooked. This is the result of two serious occurrences:

1. The food is oxidized, and
2. Lysosomes, which are enzymes within food cells, will self-destruct the food components (carbohydrates, minerals, vitamins, etc.) within the cell.

These two occurrences happen only when the cell walls (or some of the cell walls) are broken, as by heating, freezing, cutting, blending, juicing or mashing. The cell contents are exposed to the oxygen in our air; and vitamins, minerals and proteins chemically combine with the oxygen and are rendered unusable to us in providing the nutrition they're supposed to. Also, the lysosomes go to work to break down the cell components before your body gets a chance to use them.

Be aware that these lysosomes within food cells are destroyed by heat over 120 degrees. They become incapable of any kind of activity, constructive or destructive. But while it is true that raw foods are far superior to cooked foods, the processes of oxidation and enzymic breakdown also come into play when you eat raw foods, but to an insignificant extent.

When the cell walls are burst by methods other than heat, such as by cutting, mashing, blending or juicing, the vitamins, minerals and other food components are destroyed both by the cells lysosomes and by oxidation.

For example, when you bite into an apple or pear many cell walls are broken and oxidation occurs. However, you will get more nutrients from an apple or pear eaten this way than from the same apple or pear that has been cut up into a fruit salad. This is because many more cell walls are broken, usually for a longer period, when fruits are cut up into a salad. (The same is true for vegetables, of course.)

What's true for cut-up foods is also true for mashed, blended or juiced foods. Blending and juicing break open the protective walls of almost ail the cells, in the food, causing a considerable amount of nutritional value to be lost. That is one reason we recommend that you either not blend or juice foods or else do it sparingly. (The other reason is ecological.)

You may want to mash avocados to make "Vegemole," a salad dressing or a dip; or you might want to make a cut-up salad. But in the case of both avocados and other foods you are better off blending, juicing, cutting up or mashing them *only occasionally*—for variety or for guests, reluctant family members, or people without teeth or with other special problems.

So remember, when you are preparing foods a great way to get the most value from your food is to eat it whole. "Finger salads" of whole fruits or vegetables that you don't cut up are considerably more nutritious than cut-up salads. This is because of the oxidation and enzymic action that occur when foods are cut up. Why not eat whole foods more often and get more nutrients for your money and with less fuss and muss?

Lesson 28 - The Elixir Of Life: An Exploration Of Food Conditions, Body Conditions, And Eating Conditions That Beget Euphoric Health And Long Life

- 1. Introduction
- 2. Achieving Natural Life Potential
- 3. Food And Short Or Long Life
- 4. Factors That Shorten Life
- 5. Exercise And Vigorous Purposeful Activity As Life Essentials
- 6. Mental And Emotional Factors In Living A Natural Life Span
- 7. Happiness, Enjoyment And Pleasure As Factors In Realizing Life Potential
- 8. Questions & Answers

1. Introduction

To set the correct perspective for this lesson it is wise, at the outset, to point out there really is no elixir of life except by comparing normality with the low standards of life prevailing. There is no such thing as long life—that is, no one can outlive the human potential. There is the human potential and anything short of that potential must properly be called shortened life. This potential is better called the natural or normal human life span and anything less than the realization of the normal human life span is premature death. Mature death is a natural death, a death resulting from the simultaneous cessation of life activities by the body's major organs. It is painless and free of suffering.

This lesson concerns itself with the touchstones that assure health, the necessary conditions of a normal life span. The lesson also examines the abuses heaped upon the human body that cause loss of health and thus shorten life.

1.1 The Idea of an Elixir Vitae

Legends of elixirs come down to us from prehistoric times. Undoubtedly the idea of elixirs was spawned by shamanism. Shamanism was a generalized practice of ministering unto human aspiration and credulity. Shamen were medicine men and theologists rolled into one. Their craft and livelihood depended upon exploiting the human propensity to believe and trust. They thrived by foisting upon those they "served" magic healing potions which find their counterparts today in Pharmaceuticals (magic weeds) and herbalism. They allayed inquiries into human origins and destinies by fabricating new belief systems based upon legends and rituals that commanded homage of the times. This arm of shamanism evolved into the priesthood while the other arm evolved into what is called medicine.

Stories of long-lived peoples circulated for there were, indeed, peoples who lived long, relatively, in certain areas of the world. Shamen, who were really extraordinary confidence men, took advantage of this wish to believe, this hope for long life, by attributing long life to substances which had curative powers. Hence anything that, in reality, drugged the human constitution was credited with curative virtues and could have been a candidate for use as an elixir vitae.

Water with toxic minerals early came to be regarded as an elixir vitae. Drinking of these waters and bathing in them were supposed to furnish the curative powers the body needed for good health and long life. To this day, many waters are regarded as curative of human ills and possessed with the power of conferring long life.

Many shamen promoted their brews and concoctions as curative and capable of conferring long life. These brews were generally concocted from herbs which the shamen jealously guarded as trade secrets. Somewhere in murky prehistoric times came the idea that rejuvenation could come from eating analogous parts of animals. If sexual powers were to be resuscitated, the eating of animal testicles were thought to restore male, sexual prowess. Eating of brains was thought to restore mental powers, and so on. Today these voodooistic ideas have their counterparts in so-called glandulars.

In early history, alcoholic spirits came to be regarded as elixirs. Anything containing alcohol was a curative agent and also a substance that conferred long life. The idea that alcohol was a curative agent survived well into the 19th century and the belief's vestiges remain today.

In the middles ages, alchemists, sought philosopher's stones and new chemicals with which to transform base metals into gold or silver and with which to restore health and perpetual youth.

In the age of exploration, courageous men blazed new pathways in uncharted lands in search of the fountain of youth and fabulous foods with curative powers that would confer long life. Ponce de Leon was such an explorer who discovered Florida in search of a fabled fountain of water in Florida that would cure ailments and confer perpetual life in a youthful state.

Today we have many laboratories searching for an elixir vitae to give humans long life. Many concoctions have been hailed as elixirs. One of the foremost is procaine (same as novocaine), popularly called Gerovital, meaning, literally, long life. That long life can proceed from the employment of any substance while the causes of shortened life are indulged is, of course, impossible. No substance can confer long life in the first place.

The priesthood arose when a certain class of shamen assumed the role of intermediaries (favored or privileged representatives) between the gods and beleaguered humans. Their role was to curry favor with the gods by direct intercession on behalf of ailing clients. At least that is what they had the sufferer or long life seeker believing. They performed rituals and incantations in behalf of those who subscribed to their services. Those who stuck with administrations of "magic weeds," brews and concoctions were the precursors of today's medical practitioners.

Simply stated the idea of an elixir of life springs from *hopes* for long life. The wish is father of the belief.

1.2 Examples of "long-lived" peoples

For the past two thousand years the Bible has spoken of very long-lived people, including Adam and Eve. Methuselah is said to have lived 969 years. But these ages become immediately suspect when we learn that women were said to have had their firstborn at ages ranging from 120 to 200 years. In those times, as today, many centenarians lived quiet, frugal lives in certain areas of Eastern Europe and in Western Asia. Travelers brought news of these people and many legends arose about their existence. Just as we have one-track minds today, then, answers were sought for this remarkable longevity in Some food, substance, ritual or other single practice.

1.3 Examples of possibilities for "long" life

In most countries of the world there are those who have surpassed a hundred years of age. Their longevity has excited much curiosity and inquiry as to their "secret." Even to this day an outstanding practice of a centenarian is searched for to account for extraordinary longevity. If the oldster is a wine drinker, the wine is likely to be characterized as responsible for the longer life. The fact the oldster breathes, sleeps, is active, eats frugally, etc. is likely to be ignored. Why shouldn't geriatric personnel emphasize as elements of longevity those life factors that everyone possesses? There must be some "secret" factor.

1.4 A Correct Perspective on Longevity

That humans have a natural life span potential of 140 years to 160 years is rarely taken into consideration. The yearnings of most for long life are becalmed by the promise of eternal life—not here but in the hereafter. Long life does not become important here if it is but the prelude to eternal bliss in another paradise.

Biologically, humans have inherent faculties that will carry them well past the century mark. The weakest organs of the human body are the' kidneys and they have a life potential of 300 years or more according to geriatric specialists. Some long-life specialists feel the human organism is so perfect there's no reason it should ever die. Of course, the view does not take into account the limits of cell regeneration.

In view of the fact that there are societies in which oldsters reach well past 100 years of age and that authenticated life spans well past 150 years of age exist, there is no denying that humans can live past 100 years of age. Inasmuch as most creatures in nature live five to eight times the age of maturity which is, in humans, about 22 to 25 years of age, and inasmuch as humans have lived longer than 150 years, then it is quite logical and scientific to conclude that humans are normally endowed with a life *potential* of about 150 years.

Thus it becomes apparent that those who live their life potential are not long-lived but that, on the contrary, those who do not achieve their life potential are short-lived! The inquiry thus takes on a new perspective. The search then comes to embrace not only those factors that assure achievement of life potential but those factors that are destructive and, as a result, shorten life.

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2. Achieving Natural Life Potential

Our study now must turn more to those practices which cause premature death as well as the delineation of those practices normal to our being which assure realization of natural life potential. Your clients will expect your guidance not only in matters of health, but also as an "authority" in related matters, longevity being one of them. This lesson is designed to make you competently conversant with the subject.

2.1 Causes of Shortened Life

In a word, life is shortened in humans when deviation from our biological heritage occurs. Just as the engine life of a car will be shortened by wrong fuels, poor maintenance and abusive use, so too will our bodies become clogged and disabled by wrong foods, improper life practices and applications that deplete energies and faculties. Just as the engine is designed to operate under certain conditions, so too has the human organism developed within certain adaptational parameters. Anything that impairs health also shortens life.

2.2 Primary abuses of modern humans

Unfortunately, human abuse begins before conception. Degenerated men and women conceive in bodies that are almost invariably wracked by the ravages of unceasing toxicosis. While healthy by the pitiful norms of our society, very few parents-to-be have even a modicum of health.

During the fetal period, mothers are likely to get little if any exercise, eat of fare unfit for man or beast and indulge in many toxic habits that are endemic to our country. Moreover, mothers are likely to be drugged frequently in many ways, especially by their physicians. Births are especially fraught with dangers for both mothers and infants because of the "manipulative" drugs employed for hospital/physician convenience. Every antivital act against mother and infant impairs both, undermines health and shortens life.

As likely as not, the baby will be put on some formula that will fail to yield nutrients—formulas are even worse than the milk of diseased mothers.

After babyhood with indisposing and unwholesome formulas, baby usually undergoes introduction to a plethora of unwholesome foods. Junk foods make an early appearance in baby's diet. Unnatural animal products, meats, and cereals are likely to be added to baby's diet at from two to four months. These should never be in anyone's diet in a whole lifetime but, even if they were normal items of human diet, baby shouldn't be fed anything other than mother's milk until the time teeth have erupted. Of course, a mother who cannot lactate must either secure the services of a wet nurse (second best), or feed baby raw goat or cow's milk (third best with goat milk being the better of the two) along with a diet of *freshly* expressed fruit juices. Inasmuch as sweet fruits undergo no digestion, their sugars are absorbed as they are by baby. Fruits that are well-prepared may be fed to baby but only as a last resort. Fruits, animal milks and nut milks are superior to commercial formulas.

Almost all youngsters suffer the many "usual childhood diseases" because they have been subjected to many usual childhood abuses. All impairing factors, it bears repeating, undermine health and shorten life.

Early in life, youngsters are introduced to corrosive beverages, fried and cooked foods, condiments, side-stream cigarette smoke and a host of other debilitating influences. As likely as not, youngsters will be corralled via the automatic babysitter known as a television set. Instead of becoming active and participating in life, instead of developing and becoming educated and trained in life's activities, most children are becoming passive misfits. The tragedy of the situation is highlighted by two research projects conducted by a sample of noted physical fitness expert, Bonnie Prudden. In 1954, she tested a sample of our youngsters and found that a shocking 58.6% could not pass a minimum physical fitness test. In 1978, she again made the tests. This time a shocking 86.2% could not pass the same test! If that does not point out the direction in which we're travelling, the gravity of the problem and the herculean nature of the task before you and other health-aware people, then it's not likely that anything else will. The tragedy of our children is a national tragedy—a worldwide tragedy!

2.3 Healthful Living as the elixir vitae

That long life can be achieved only by healthy people should be self-evident. That those perpetually encumbered with impairing influences resulting from unhealthful practices cannot survive as long should be equally self-evident. Thus it becomes obvious that humans can realize their life potential by living healthfully and that any deviation will result in suffering and shortened life.

Healthful living involves touching base appropriately with every need of life in all aspects of our being. Our basic requirements are as outlined in the earliest lessons, i.e., pure air, pure water, adequate sleep and rest, sunshine and natural light, foods of our biological adaptation, vigorous activity, temperature maintenance, pleasant environment, a nondistressing lifestyle, belonging to a group of similar disposition and so on.

2.4 Outdoor Life essential to best health

Almost every long-lived person of note has worked out of doors in gardens and orchards. Being a gardener myself, I can assure you that nothing overcomes stress so quickly as a half hour to an hour's work in the garden. Reestablishing identity with the basic environment and its providence becalms as nothing else can.

Encourage those whom you serve to start gardening, taking walks and hikes in the country or undertake other activities that give them more fresh air, sunshine, exercise and identity with nature. Just as plants that have their roots with earth mostly severed wither and die, so too do humans suffer when they lose touch with those fundamental requisites of life. Just as nonuse of body parts are abuse, so toe is the loss of touch with the outdoors and warm congeniality with peers abuse.

2.5 Living in a distress-free environment

Perhaps it is incorrect to say we should live in a stress-free environment inasmuch as our superb human adaptations have been spurred by stress—by the need to cope. However, distress consists of situations and events with which we cannot cope or which impose great difficulty upon the organism. Continuous distress will speedily exhaust the organism and contribute to its early demise.

In our society the greatest distress arises from our peculiarly rapacious economic system that keeps most of us in more or less constant insecurity. Assurance of life and its means exists for relatively few Americans, even for the affluent. In an exploitative society few have situations that are so secure that distress does not occur. Even those who have ideal situations are potentially distressed by the plight of their brethren. Perhaps no people on earth are more insecure than modern day Americans.

2.6 Rejuvenating measures and influences

An assessment of life and its possibilities in a somewhat detached objective manner establishes a perspective that makes most of our problems trivial. For example, if you've read astronomy and you imagine the vast reaches of space, our personal affairs and problems are small in that light, though, subjectively, the whole world revolves around us and our concerns.

Helping establish a philosophical outlook upon the world and the foibles of humans will enable many to better conduct their lives. When we can view most of our brethren objectively as being weak creatures given to inconsequential and dissipating activities for the most part, that gives us the impetus to tune ourselves in with nature and saner peers—to make ourselves more virtuous and exemplary.

Imbuing our lifestyle with the basic essentials of life heretofore presented will enhance health and life expectancy. Perhaps the most important of the essentials is belonging to a peer group. Humans are gregarious and mutual appreciation among peers establishes the condition upon which all can thrive.

Basically, ailing clients can be turned around by such simple steps as fasting, reorienting their lifestyle to include the requisites of life in their best form, and unburdening them of debilitating practices. But the problem usually always extends to the emotional, social and economic planes as well. *Hence a philosophical overview should always be explored with clients*.

Get clients physically, socially and emotionally active on constructive courses that establish their basic rapport with nature and a peer group. Get them involved in activities such as gardening, hobbies and crafts, etc. that bring their innate human drive to fruition in creativity and meaningful service.

A study of the world's healthiest and longest-lived peoples reflect a society of individuals rather secure in the needs of life. Sharing, mutual reinforcement and assurance from a peer group does not create the distress and insecurity as exists in exploitative societies.

America is a highly exploitative society wherein few deep and abiding friendships exist. You will find it difficult to help your clients order their lives in contravention of an aggressive economic system that is by its nature divisive. Most healthy and long-lived peoples are close to the land and nature. They secure their livelihood directly from the soil—from Nature. They live in harmony with their relatives and neighbors—they have a society that does not continually assault them with demands that stress and strain them.

The most constructive steps you can assist clients with are in reorienting their living practices to healthful ones. Secondarily, you can set forth the many influences you note in their lifestyle that tend to distress them and cause problems on every plane of their being. The nineteen essentials of life cited and elaborated upon in Lessons 3 and 4 should be taught to every client so that understanding of their importance is assured. Guidance and suggestions as to how these needs of life may be implemented should be undertaken, tailored as much as possible to the peculiar needs of each client.

The most immediately rejuvenating and healthful changes you can effect in clients' lives involve guiding them to fasting, vigorous exercise and an all-raw diet consisting preponderantly of luscious fruits with a few vegetables, nuts and seeds.

Always keep in mind that, as a practitioner of Life Science, you must strive to imbue your clients with a knowledge and understanding of their needs in every facet of life that bears upon their welfare.

2.7 Advantages of a community of peers

Consciously and unconsciously, in accord with our needs, we all seek the comfort and assurance of life and its means upon reasonable expenditure of physical labor. We seek this amongst those whom we recognize as peers—those with interests and disposition largely paralleling our own.

Establishing identity and standing in a peer group is difficult within the context of a society that places values upon individual economic achievement and standing rather than upon the humanness of merit of every individual. When clients are brought to the realization of the conditions of our society—when they can be imbued with a philosophical overview of their circumstances so that they can better understand and cope with it, than the bases for a less stressful and debilitating existence has been established.

Many individuals of my acquaintance have joined in communities with individuals of similar interests and drive. The experience of facing the world with others rather than facing its imposing awesomeness alone has reawakened their will to live and given them new ambitions and drives. Nothing rejuvenates, enlivens and renews life so effectively as a community of peers who live in cooperation and harmony.

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3. Food And Short Or Long Life

Even though there are many debilitating influences that prove detrimental to our populace and cause our brethren much suffering, nothing looms so large in individual degeneration as dietary practices. In no other area do we flaunt our biological disposition so flagrantly. Therefore it is appropriate that you become steeped, in nutritional science and concern yourself most intimately with the feeding practices of those whom you serve.

3.1 Food—Our area of greatest deviation from natural norms

Of all the human deviations from correct biological observation of our needs, no perversion is so deviant and destructive as that which Americans undergo in their dietary practices. Our physiologically correct diet as frugivores is a diet of fruits eaten in the delicious ripe raw state. Many of us are deficiency minded and feel the fruit diet inadequate even though it is not. To qualm such feelings, the addition of a few vegetables, nuts and seeds adds an extraordinary amount of vitamins, minerals, essential fatty acids and proteins to nutrient intake. Not that fruits do not supply all our needs and better, it's just that a psychological need is met. What do we find our brethren eating? What contributes to their pathology more heavily than anything else?

A. About 45% of the average American's caloric intake consists of fats. Most of these fats have been heated, fried, chemicalized, refined and otherwise rendered harmful, even carcinogenic. Humans are not a species of fat food eaters. In fact, fats are handled rather poorly even in their best natural form as in seeds, nuts and avocados. Untold pathology results from this eating proclivity including obesity.
B. A substantial amount of the American diet is of animal products including meat, milk and milk products. Most of the American intake of fat is involved with animal products. Humans who eat products derived from animals are indulging in the most pathological of the perversions for, in addition to being biologically wrong in its fresh raw state, it is even more disease-producing in its processed, fried, cooked or fermented states.
C. The average American partakes of cooked foods. All cooked foods, to the extent they have been cooked, are deranged and fail to supply nutrients to the extent they have been degenerated. As Professor Kouchakoff of Switzerland demonstrated in the late 1930s in over 300 carefully conducted experiments, cooked foods beget pathological symptoms within an hour or two of eating, especially leucocytosis.
D. The average American has many poison habits, among them being a predilection for salt, pepper, vinegar, spices, peppers, seasonings, dressings and other toxic and pathological condiments.
E. Most American adults indulge in one or more drug habits. Prominent among these are coffee, alcoholic beverages, theobromine, theine, beverages containing caffeine and other toxic additives, flavorings, colorings and stimulants, tobacco, etc.
F. Most Americans eat breads and other grain products to which we are not biologically suited to cope.
G. Beans and other legumes form a significant part of the American diet. As eaten, legumes (including peanuts) are pathogenic. This is readily evidenced by gassy emissions and indigestion.
H. Raw fruits and vegetables comprise about ten per cent of the American diet but many eat heavily of fruits and vegetables while many others eat little or none. While fruits and vegetables comprise a much larger percentage than this, most of them have been so deranged by cooking, processing, canning, etc., that they are pathogenic rather than life-enhancing.

3.2 Biologically correct foods eaten raw are true elixir

There are no real elixirs. There are no miracles. There is no magic. There is normal and abnormal—right and wrong. Because most Americans are so addicted to wrong habits of eating, a return to natural and normal eating practices results in such dramatic improvements as to be proclaimed miraculous. Our natural dietary consists of delicious fruits. All else is deviant and either less than ideal or downright pathogenic.

For our purposes, we may regard the fruitarian regime the elixir of life, but only because this is the greatest single improvement that can be made in our lives.

In getting clients on to the fruitarian diet, you can suggest that they try a purification diet. Of course this is merely an semantic entree, for they'll soon enough learn that fruits do not purify or cleanse the body per their reputation but that, on the contrary, they are handled so efficiently that more body energies can be devoted to cleansing and healing. Fruits do not yield up toxic debris which other foods do. Hence the results of fruitarianism are true rejuvenation. Fruits are the true elixir of life insofar as there may be said to be one.

3.3 Cooking among worst treatments of our food

Among the worst curses Americans have visited upon themselves is that of cooking. Not only is it a gross evil in itself but it is often the agency that makes palatable that which should never be in the diet in the first place.

These are two primary evils that cooked foods wreak upon our bodies:

1. Foods that have been partially, mostly or wholly destroyed and deranged by cooking deny needed nutrients to the body. Heat has altered nutrients so much the body cannot make use of them.
2. Nutrients that were formerly usable have been transformed into coagulated, caramelized and inorganic debris that not only cannot be used, but which are toxic and pathogenic.

A host of other evils flow from cooking which in large measure destroy our human potential for health and longevity.

3.4 Toxic fare—Condiments

If cooking may be said to ruin our foods, condiments are ruined even if eaten raw. The American proclivity to use stimulants and flavor modifiers is rank, rampant and pathological. Foremost among the condiments that help destroy health are salt, herbs, spices, pepper, vinegar, gravies, dressings, sauces, seasonings, etc. The ingredients which vitiate the human intestinal tract and body are:

1. Oils and fats. All refined and extracted oils and fats, from whatever source, whether raw or cooked, are unwholesome in the human diet. If cooked, their hydrocarbons are carcinogenic.
2. The "acid kick" sought by most Americans because of their jaded palate is usually realized by adding vinegar to foods or condiment concoctions. Vinegar partially or totally vitiates food digestion. As bad as the food may have been, indigestion is far worse. Little enervates so much as poor digestion. Every case of indigestion worsens health. Even lemon juice combines so poorly with most foods that it ruins digestion.
3. Herbs added to foods or condiment concoctions (recipes) are toxic in themselves. What we call herbs today are not eaten for their food value but for their excitation of the taste buds. Peppers, spices, basil, onions and garlic, chives, mints, paprika, bay leaves, oregano and a long list of other agents are toxic in themselves and contribute to poor health by themselves no matter how eaten, cooked or raw. Some of the foremost toxic elements of herbs are capsicum and cayenne from peppers, and allicin and mustard oil from garlic, chives, onions and lily family members. All herbs have some poisonous component.
4. Salt, the foremost condiment, offers not one virtue. It is indigestible. It is absorbed as salt, held in a briny solution as salt (the body then needs extra water to retain this salt), and is excreted as salt. Not only can the body not digest and make use of salt, but this pernicious substance destroys cells and fouls up vital body processes. A tablespoon of salt eaten on an empty stomach is enough to kill most people outright.

3.5 Toxic fare - recreational drugs

While condiments may be said to be recreational drugs because of the "kick" they give, there are drugs partaken of strictly for their kicks. Among these drugs are tobacco, alcohol, coffee, chocolate, teas, sodas, beverages, marijuana, cocaine, opium, heroin and other so-called hard drugs. Drugs prescribed and nonprescribed are often taken as recreational drugs. Among these are tranquilizers, amphetamines and so on.

Americans often lament why so much misfortune and suffering should befall them. While making their utterances, they are often active in some drug habit that is contributing heavily to their problems.

3.6 Toxic fare - wrong foods

Anything put into our bodies other than that to which we as frugivores are physiologically equipped to handle is more or less toxic fare. It is either toxic of itself or it is of such a character as to pose diffficulties that lead to enervation and toxicosis.

The dietary errors of our times embrace both types of violations—not only is wrong fare usually intrinsically toxic, but also burdens the system so much that enervation results as well.

Foods which we do not digest well tax the system and lead to an enervated state, especially when these foods interfere with or prolong sleep as they often do. Troubled sleep denies us regeneration of normal nerve energy.

Ordinary cow's milk, for instance, which is touted as such a perfect food, is quite toxic in the average human intestinal tract because we do not have the enzymes rennin or lactase with which to digest it. Thus lactose and casein are toxic themselves and, because of bacterial breakdown, beget toxic by-products.

Most foods of today have been cooked, preserved, processed and prepared in such a manner as to either add and/or create toxicity—not that they wouldn't have been good foods in their natural state.

Potatoes, for instance, are a third-rate food—still quite high on the scale, with very conservative cooking. But, with the addition of heated oils in cooking, they become rather saturated and indigestible.

Both the oil and the potatoes thus become sources for pathogenic substances.

3.7 Haphazard food mixtures generate toxic products

Combining foods indiscriminately often involves meals of incompatible foods. Most Americans eat sweets, proteins, fats and starches at every meal. Statistics show that over half the meals eaten in America result in intestinal discomforts due to indigestion.

When indigestion occurs, bacteria take over and decompose the various food components. The byproducts of bacterial decomposition are quite toxic, these being acetic acid, lactic acid and alcohol in the case of carbohydrates and ammonias, purines, skatols, indoles and other deleterious substances in the case of proteins and yet others in the case of fats.

When the foods eaten in bad combinations should be omitted from the human diet even if eaten alone, the situation is worsened.

The perpetual assault upon human well-being from this source alone is enough to create considerable pathology and shorten life.

3.8 Guidelines for more nutrients and less toxicity from eating

The more foods we consume of our biological adaptation, the more nutrients we derive. Foods which we are biologically equipped to efficiently handle are readily digested and their nutrients swiftly absorbed. They offer no toxicity inasmuch as our digestive enzymes breakdown every component that could offer problems. Fruits are the only category of foods that fill this bill ideally.

When we eat ideal foods in an uncomplicated manner, we obtain their goodness and create no problems. This is conducive to health which is a prerequisite to prolonged youth and long life.

4. Factors That Shorten Life

Dr. Georgi Z. Pitskhelauri is a Russian gerontologist who has been researching those factors responsible for the long life of Abkhasians and others living in and around the Caucacus mountains. His studies show that centenarians:

- do not smoke—in fact, only a few smoke at all.
- do not drink alcoholic beverages to any extent—their primary drinking is a few sips of wine prior to mealtime.
- do not ordinarily eat before noon.
- sleep eight to ten hours daily.
- are very active, doing almost all their work out of doors.
- sleep out of doors for most of the year.
- their foremost foods are grapes and citrus with other fruits being a good part of their diet also. Vegetables in salads constitute a substantial part of their fare.
- animal products were sparse to nonexistent in their diet.

Dr. Pitskhelauri reports this in such a way it is clearly obvious that:

- smoking is life shortening.
- alcoholic beverages shorten life.
- morning meals are not healthy.
- inadequate sleep is not conducive to long life!
- lack of activity will deteriorate the body.
- being cooped up indoors away from fresh air and natural light shortens life.
- animal products are not healthful in the diet.

Those factors which shorten life seem to predominate in our society. Thus it behooves you as a practitioner to recognize those influences which destroy health and bring on early death. While these life-sapping factors are multitudinous, they arc easily recognized for their anti-vital character. Let's explore some of them.

4.1 Polluted air

Relatively pure air is our foremost need of life.

It has been said that the world's air has been contaminated to some extent. Penguins at the South Pole have been found to be contaminated somewhat by particulates generated thousands of miles away in industrial complexes.

Even though pure air may be impossible in today's world, we are able to breathe much better air overall by taking a few steps to better the air quality in home and workplace. Outdoor work and outdoor sleeping are two measures that will vastly improve the quality of the air we breathe. Further, the light we'll be using will be from the sun. Natural light is wholesome whereas artificial lighting of all types is less wholesome.

We have had lessons dealing with the subject of air and the multitude of pollutants that beset it in homes and cities. I suggest that you review these.

While our nasal and lung faculties have a certain capacity for purifying air, it is a talent best little employed. Certainly it is debilitating to continually assault this capacity with heavily polluted air until these faculties are destroyed. *Pure air is essential to best health and to long life*.

4.2 Vitiated Social Environment

On the obverse side of a congenial and assured social environment of peers is perhaps the most demoralizing influence of all. In a condition of strife, bickering, lack of mutual appreciation, economic insecurity, aggressive and exploitative individuals and groups, humans wither. This leads, of course, to enervation, disease, suffering and early death. The social and economic situation must be one where the means of life are readily available for reasonable efforts. Where the products of one's labors are consumed in a community of peers—where relative sufficiency and stability exist within the social group with which one identifies, gregarious, creative and constructive tendencies are met. We feel useful and a part of our environment rather than a consuming/nonproductive member.

Our social situation more than anything else generates positive or negative emotional states. Negative emotions destroy us whereas reinforced and positive feelings are a prerequisite of well-being.

4.3 Economic factors that distress the organism

An adverse social setting is perhaps the most demoralizing and debilitating influence, and economic conditions are usually the soil from which social situations develop. Of course this can be good to bad.

Most Americans are perpetually distressed by earning less than will satisfy their wants. An exploitative society strives to create an even greater market for its products. The promotion of products somehow imbues most people with the idea that happiness can be realized if they have I this and this and that. This unceasing quest for more and more mirrors the basic unhappiness of most of American society's members. The propaganda of commercial promoters drives us to seek happiness in possessions.

Further, the nature of the economic system can be most vitiating. Ours has often been characterized as "a dog eat dog" system. Competitiveness has driven many to play the game viciously. People who are by economic circumstances forced to work in an atmosphere of maximum production and minimal pay feel the injustice. In turn, this gnawing sense of revulsion and resentment is a cancer upon emotional well-being that leads to physical debility.

The longest lived peoples in the world are largely self-sufficient. They live mostly on their own products, yielding little if anything to "bosses," landlords, owners, stockholders, etc. Their life is generally simple economically. Simplification of lifestyle leads to economic independence which is often a key factor in exuberant well-being and long life.

4.4 Environmental hazards to life

In addition to polluted air, vitiated social and economic environments, we may be subjected to life-sapping forces from our working and living environment of which we are little aware. These may be summarized briefly as:

1. noise or sonic pollution.
2. drab, depressing and unaesthetic living conditions.
3. use of chemicals and unnatural substances in workplace and home.
4. polluted water...fluoridated, chlorinated, contaminants, etc.
5. polluted food due to insecticides, chemical residues, other impurities not due to processing, preserving, cooking, etc.
6. physically hazardous working and living conditions that dispose to injuries, even fatal ones.

Ferreting out the multitude of unwholesome influences that debilitate clients can be an onerous task.

Informing your client of the many possible disturbing and dangerous elements in his or her surroundings may enable the individual to remove himself from subjection to them. On the other hand, they may not be able to free themselves from unwholesome influences and a knowledge of them may cause a worrisome preoccupation and unconscious sense of danger that amounts to the reverse placebo effect. The reverse placebo effect is the belief that harm is being done which becomes so depressing as to be harmful. It is the power of negativity that affects us deleteriously.

Ideal in the human environment are natural influences that we identify as supplying the needs of life. Trees and plants, especially food-producing ones, are aesthetic and life-enhancing. An environment that is totally bereft of our natural values as might be found in buildings, streets and alleys have adverse influences upon humans. Deeply inherent in humans is our pristine place in nature and the negation of its salubrious influences destroys the qualities and values needed for healthful living and long life.

Many of us in both home and workplace have chemicals, oils and soaps coming in contact with our hands and other body parts. Needless to say, anything that is not normal to the body can cause derangements that detract from health. Any chemical or toxic material that interferes with vital body activities at any point can cause many pathologies including cancer.

Working and using unsafe equipment often inflicts little cuts, abrasions and bruises upon clients. All such injuries are life-sapping and take their toll upon us.

When dealing with clients, survey their entire lifestyle in the search for factors that contribute to human suffering.

5. Exercise And Vigorous Purposeful Activity As Life Essentials

Inactivity is characteristic of the nonliving while purposeful activity gives evidence of life. Inactivity other than that needed for rest, relaxation and sleep tends to atrophy our minds and bodies. From infanthood, humans should be involved in numerous activities that develop mental and physical faculties.

Unless we experience vigorous activity in our work, hobby or recreation, a vigorous program of contrived exercises is essential to well-being. Constructive activities that daily exercise most or all the body's parts are most desirable. Gardening, work and pursuits that involve lifting, stretching, shifting, accelerated breath and pulse are, as a rule, health-building.

Even though we may be involved in activities that develop our muscles and mental acumen, it is still desirable to take brisk walks or runs that build and maintain endurance. The many benefits of running alone are innumerable—they're still being discovered and catalogued. In short, *life is activity* and you'll do well to encourage and foster it in the lives, of those whom you are privileged to touch.

5.1 Vigorous activity as a rejuvenator and fountain of youth factor.

When we examine the vast literature on exercise, we encounter a wealth of evidence that highlights its enormous benefits. Vigorous activity's role in fitness and well-being could be ranked among the top three essentials of life though, in reality, it is not as vital as many other life factors. But, unless heavy physical activity is a part of an individual's life, health will be lost and a much shortened life will result. Thus regular and vigorous activity is absolutely essential to healthful living and long life. Without it, neither will be realized.

Dr. Cureton of the Physical Fitness Laboratory of the University of Illinois made perhaps more experiments with exercisers than anyone else. His findings related to the benefits that exercise bestows read like finding a pot of gold at the end of the rainbow. There are many rewards and everyone can share them, even handicapped persons. Among his many noteworthy contributions to the science of physiology is the discovery that, by the age of 25, the average American has lost 25% of his capillary circulation fitness and, by age 35, 60%. This is tragic, of course. Poor circulation results from lack of usage of musculature. The relatively inactive lives we lead account for this.

Energy and health decline with declining circulation. Poorer sleep, posture, digestion, chronic fatigue, increase in ailments, our disposition and a general decline characterize *inactivity.* It bears repeating over and over that one must either "be fit or be damned." It is easier for a camel to pass through the eye of a needle than for an inactive person to be healthy and long-lived.

There is a silver lining to this typical American predicament. Through fasting, proper diet and exercise program, and observance of the other essentials of life appropriately, almost everyone can be rejuvenated unless the powers of life are almost totally lacking.

Perhaps a personal observation is in order. When I was in New York, an associate had a son who was only twelve and tipped the scales at about 180 pounds. I was told this obese boy who stood only five feet five inches tall had two interests in life—eating and watching TV. This boy was shipped to summer camp for two months in the Catskills where he was among over fifty other boys. He was given chores to perform. He was put on a mostly vegetarian diet and permitted only three meals a day. He hiked, ran, played volleyball, baseball and other games vigorously. He did this daily for two months. Can you imagine his parents' surprise and delight? During these two months, their son increased in height two inches and lost weight down to 130 pounds. He had developed both curricular and athletic interests and wanted to become a professional baseball player. From thereon in life he thrived and today, more than twenty years later, he is a successful businessman who is an superb example of physical fitness.

Most of your clients will be of more advanced years than this but the benefits of exercise can be realized in nearly everyone—they're just slower in coming. You can be instrumental in rescuing many from a kind of hell of their own making and involving them in vigorous activity will be one of your primary tools.

We are fond of pointing out the immense benefits of fasting. Vigorous activity also yields many salutary benefits and, coupled with fasting and other salubrious practices, will rebuild anyone that has the spark of life still remaining.

To illustrate this, there are cases of retirees who have recharged and rejuvenated themselves. A few years back, an 88-year-old woman entered and finished a marathon, beating out women who were in their forties and fifties! She had not even begun to run until after eighty years of age!

Never underestimate the power of exercise to turn a client's life around. And of this you can be sure: *you'll meet very few who get enough vigorous physical activity.*

5.2 Exercise alone as a healthful activity insufficient

How many articles have you noted of athletes dying of heart conditions, cancer and other problems? There are many. In recent times I've read about an 18-year-old star athlete in Bastrop, Texas, dying of a coronary. I've read of a football player only 20 years old at Southwest Texas State in San Marcos having serious cancer. I remember the famous coach, Fairchild, of the University of Oklahoma, dying at age 37 of cardiovascular problems. The same thing happened to a professional football player for the Detroit Lions.

These men were extraordinarily fit because of their exercise arid heavy activity. But they were filled through and through with the ravages of chronic toxicosis. While exercise is a very healthful measure, it is not a cure-all for heavy meat-eating, heavy drinking of alcohol or soft drinks, or the use of other toxic fare.

Thus we get warning after warning from physicians to "take it easy" when obviously exercise is required. They often tell us exercise can kill. The truth is that exercise is rejuvenating, life-restoring and life-extending. Persistence in life-destroying dietary and poison habits is what sabotages and kills the body, not constructive habits. At worst, vigorous exercise can be the agency that puts the body to the test which it fails. Chronic toxicosis is the culprit, not the exercise. Other healthful measures must be taken in conjunction with an exercise program.

5.3 Constructive activities that assure long life

Every life essential must be appropriately observed. Some of these life essentials are rather nebulous, especially as they relate to emotional and mental factors.

The basis for healthy emotions and an admirable mental disposition is born of all the other factors of life. The sense of belonging, expression of the creative and procreative urges and security of life are essential to our emotional and mental well-being.

With clients you should search out environmental and social factors that destroy well-being as well as ascertain these that build well-being. Very frequently you'll find a dearth of influences that build confidence, self-reliance and other attributes of well-being.

You should encourage your clients to develop a hobby. Few pursuits can be as uplifting as organic gardening and orcharding. Not only do they furnish wholesome food, but they also involve the individual in vigorous, creative activity, self-reliance and self-assurance, and they yield a plethora of other benefits.

Encourage your clientele to get deeply involved in some hobby that keeps them physically active, draws upon their creative talents and furnishes them appreciable rewards.

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6. Mental And Emotional Factors In Living A Natural Life Span

We humans have a tendency to be very upset if the world does not go as we want it to without considering how realistic our expectations and wishes are. Pleasant emotions are essential to health, but nothing will undermine overall well-being so quickly as distressing emotions.

Emotional states are our responses to life situations born of our disposition, most of it beneath the level of consciousness. Emotional responses reflect our maturity and bearing.

6.1 Self-mastery essential to emotional equilibrium

Unless we have developed a framework of a philosophical overview—one that gives rise to reflection and a deliberately charted course in our affairs, we're likely to be buffeted by the winds of every emotion that arises. Emotions arise as responses to situations—they are mechanisms for dealing with external affairs, for directing our reactions and actions, attitudes and personal indulgences.

Emotions are powerful influences for dominating our course in life. Emotionally-directed individuals arc all too often enervated and debilitated when their expectations are not met.

Self-mastery means that we are aware of our feelings that tend to push us hither and yon but, more importantly, we ascertain by rational contemplation the elements that tend to drive us, and logically assess and contrive that course which will yield us the most benefits with the least expenditure of resources.

Self-mastery is absolutely essential to well-being and long life in a social/economic environment as exploitative as ours. People who hang their emotional well-being on everything "going their way" will be shattered when adversity occurs as it often does in our society.

The surest way to develop self-mastery is the realization that you are in total control of your affairs relative to all that is outside of you. Once you've trained yourself to stop, reflect and chart a course relative to any matter that rears itself, you can then take a philosophical approach to everything that affects you—and you can help your clients develop a similar attitude.

6.2 Security of life and its means are essential to health and long life

Most humans are provident. As provident creatures, we like to know where our next meal is coming from, so to speak. We want to know that our immediate and long-term future is provided for. Unless we're sure, most of us worry and fret, to our great detriment. Worry is an enervating lapse into emotional solutions to our concerns rather than rational ones. Worriers are not only inimical to their welfare but to the well-being of those whom they touch as well.

Long-lived peoples live in a largely unexploited situation where the needs of life are. assured by rather easily expended productive efforts. The simple life does not give rise to the concerns that a complex industrial society engenders.

Unless we have a philosophical attitude that encompasses plenitude and scarcity, one that prepares us to cope with the vicissitudes of our society and economy, we'll have many emotional crises that tear us apart.

In dealing with your clients, try to ascertain their social and economic disposition. Most people are beset by economic worries that lay them low. I've witnessed many a businessman turn grey almost overnight from a business that was going awry due to an adverse marketplace.

Try to inspire and motivate your clients to develop a philosophical approach to social and economic problems and, on the other side, make themselves self-sufficient to the extent they can.

6.3 Social and environmental compatibility are essential to well-being

Humans usually adapt to fit in with the social and environmental circumstances that develop them. Thus we see societies all over the world whose members usually have the same outlook and disposition. We go to India, Japan, China, Tibet, Arabia and any number of other countries and we observe a great diversity of peoples and economies. Though poor by our standards, most Asians do live rather secure lives amongst their peers. The average Thailander or other Asian in a tropical/agricultural economy lives reasonably assured of the needs of life. The relationships of individuals in their societies are rather stable at the community level at least. In America, we have a rather unstable society that drives a substantial part of its members to disposition and escapism as a means of coping with or blotting out the reality of the ugly head of economic and social adversity.

In our society we are more likely to be driven by economic concerns than by human consideration. There are so many individuals in our society who will commit inhuman and inhumane acts in behalf of self-aggrandizement that it agitates and aggravates almost our entire social structure.

Societies and economies oriented to serving everyone and their needs are essential to optimum well-being. At the very least, they must not tend to deny their members the rewards or products of their efforts.

In our society that is so disruptive to individual and family stability, we must make extraordinary efforts to harmonize with the circumstances that befall us.

6.4 Community of peers in life pursuits essential to highest well-being

"Man is not an island unto himself" has been sagely observed. This is in accord with our gregarious disposition. Humans, need other humans for their best welfare. Alone we wither. There is little motivation in life where meeting our own needs are concerned. As gregarious creatures we are mutually concerned about the welfare of others on a natural level. Within aggressive societies such as ours, our natural disposition becomes vitiated and perverted.

For our highest well-being we should all seek those of similar interests and disposition. It is especially comforting to live among those of similar intellectual and economic interests. We see religious societies wherein its members are stable and self-assured. We see intellectual circles in which members find mutual reassurance and satiation of drives and interests.

The world's longest lived peoples live on their own land for the most part and are subsistence gardeners/farmers/orchardists. Their interests are heavily weighted, to agrarian societies.

We should, for our best well-being, situate ourselves within the context of others of similar interests and pursuits.

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7. Happiness, Enjoyment And Pleasure As Factors In Realizing Life Potential

These terms characterize our disposition. They are not concrete terms but describe a quality of our being.

These life qualities arise from the overall situation of life. Euphoria is produced by "all systems being in harmony," physical, mental, emotional and otherwise. To achieve these qualities, our life needs must be adequately met in all spheres. We must be free of disturbing factors in all aspects of our being.

A happy disposition is normal and natural to humans. Its absence is an attest to errant disposition or factors that impinge upon it.

7.1 The life-sapping effects of depression and despair

Disenchantment with the prospects of life is occasioned by factors that undermine our well-being. Chronic toxicosis causes suffering that destroys our happiness and that of others as well. Chronic body toxicity vitiates the body and creates a negative life disposition. A sick body makes a miserable member of society that depresses not only the individual but those who become involved with or touch that individual. Just as a smile is a most infectious agent, a miserable individual can cast gloom upon those around.

Suffering makes individuals miserable and misery loves company, even if it has to create it.

Many of your clients will be suffering from the throes of disease. One of the most salutary services you can perform for them is to persuade them to change environments for one to two months to go through a lengthy fast, rebuild some semblance of health and undergo an attitudinal change that makes happiness and enjoyment virtues after all.

Many people harbor the attitude that virtues of life are strengthened by the adversities we suffer. Many feel that pleasures and joys are inherently sinful or unimportant in the scheme of things. They thus make themselves miserable and attempt to impose their outlook upon others.

You'll meet a multitude of types in your professional sojourn. Vitiated people travel some rather strange paths. Giving their lives new pathways to trod calls for consummate insight and skill. Our endeavor in these lessons is to teach you about everything that bears upon human well-being.

7.3 The life-enhancing influences of happiness

If a smile is the most contagious thing around, then happiness radiates itself like the sun on a clear day. If misery is born of a diseased condition having its basis in toxicosis, happiness is born of a vital body condition having its basis in physiological adequacy.

Thus you'll endeavor to turn your suffering clients lives around so as to First establish the physiological bases for well-being and then, as much as possible, reach the ideal in life conditions.

7.4 The happiness that accrues from a well-rounded life regime

When all is well in all aspects of our being, only euphoria can result. Thus when we systematically change the practices of a client from pathological to healthful, there will be a more or less complete reversal of the client's feelings and disposition. Of course you'll find that there are some psychologically and physiologically handicapped individuals beyond total redemption, but even so, you'll probably find many areas in which improvement is possible, meaning restoring more happiness to a lost life.

Life is meaningful when we enjoy it. As a Life Science professional, you will be instrumental in helping people to make themselves happy.

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8. Questions & Answers

There is no proof that a raw food diet of fruits and certain vegetables, seeds and nuts, in correct combination, without herbs and spices, promotes health and longevity. Show me a group of people over the age of 100 who have been living according to your principles.

> In situations like these you can put the onus of the negative on the questioner. You can haul out such statistics as presented in *The Myth of Health In America* and show that these problems are caused by cooked foods, condiments, wrong foods, etc. Better yet, ask the questioner why this should be so. You can point out Kouchakoff's experiments that show cooked foods to be pathological because they cause leukocytosis.
>
> But, of course, you can get books about the Hunza and Abkhasia. These are mostly raw food eating people, especially the Hunzas living where they have no fuel to speak of. Hunzas are a healthy long-lived people with a great percentage of their population over 100 years of age. Their primary fare consists of apricots, apples, mulberries, peaches, grapes and other fruits

with some vegetables, pulses and grains. For practical purposes, the Hunzas are fruitarians.

Ask your questioners what cooking does to food. Ask them if it enhances their nutritive qualities or destroys it. If it enhances it, then the more you cook food, the better its quality, of course, and ashes would be best of all.

Quote number one from Bragg is idiotic. "Even our best organically grown foods are deficient in many nutrients. That is why I eat cooked foods and use natural food supplements to get nutrients into my body to withstand all the pressures which all of us must endure in this decaying super-civilization."
If the best foods are deficient, then cooking them only makes them all the more deficient and adds the dimension of toxicity from whence arises leukocytosis. Food supplements are a dangerous delusion for they do not supplement. They are mostly synthetic and unusable. Even if they were usable, they are useless out of context from the foods in which they're normally found. Dr. Roger Williams of the University of Texas has pointed out that vitamins do not work in isolation but must all be brought together to work as a team. Fractionated vitamins are impotent and synthetic vitamins are never usable.

Fruits and vegetables, even if lower in nutrients than centuries ago, still have far more vitamins and minerals than humans need.

The question states there is no proof that raw foods without herbs and spices promotes health and longevity. The question is asked from a stance of prevalent cooked food eating and condiment usage as if, a priori, these are the foods of health and longevity but there is plenty of proof that they are the articles of disease and shortened life.

Early man, living in a pristine environment, even if he did eat ONLY raw fruits and vegetables, seeds and nuts, did NOT carry around a food combining chart. Ho w did he get so far?

Living in a pristine environment, humans ate their meals at the source, that is, directly from tree, vine and stalk. Eating their fill of the fruit or fruits that were in season did not involve food combining. Most meals were mono-meals and even the fare for a whole day consisted of all fruits—our ancestors were total fruitarians as scientific evidence has shown.

Food combining is basically unnecessary to those who are eating properly—food combining is for those who mix food, something humans did not do in the beginning. Combining fruits according to their character comes rather naturally. We do not desire to eat bananas and grapefruit together—today, we tend to eat bananas with other sweet fruits despite our unnatural perversions that subvert natural inclinations.

How can you say that your principles are correct when "long-lived peoples" of the world eat a diet in opposition to those principles?

How can you ask such a question and offer in evidence testimony that confirms those very principles? There is practically no food processing, cooking or otherwise in Hunza. The testimony shows that fruits and selected vegetables are eaten raw and fruits constitute the bulk of their diet. Because of their isolated situation they are not subjected to the junk foods of commerce. The Hunzas, Abkhasians and Vilcabambians of Peru live healthfully in most aspects of their being, food being but one primary facet of healthful living.

Long life and health comes from what people do right, not what they do wrong. To the extent that we indulge in healthful practices, only to that extent do we enjoy health. Disease and ailments are an evidence of error and anyone who suffers colds, headaches, constipation and other problems is an example of the error of living. There is no defense for dietary and other perversions for a person who is suffering because of those very perversions.

Depriving yourself of junk foods and nonfoods is like depriving yourself of hell. What do we seek, hell or heaven? We make our own.

People have been using garlic and onions for thousands of years. They have hastened healing with them. If, when seriously ill, garlic is given and the patient recovers, why then does not the disease return when the patient recovers?

Yes, people have been eating garlic and onions for thousands of years. People have been sick and diseased for thousands of years and continue to be so despite all the garlic and onions eaten. You can demonstrate to yourself that the primary "medicinal" factors of garlic are mustard oil and allicin. These substances are indigestible. They readily permeate tissues and cells. They are excreted through the lungs and kidneys as the same substances that enter the body—as mustard oil and allicin. If they were digested and used, those who eat these obnoxious lily family members would not stink to high heaven. If you crush a clove of garlic in your hand and hold it a few minutes you'll have garlic breath within ten to fifteen minutes, demonstrating the permeability of cells and tissues by these pernicious substances. Use and control of anything that gets into the body which it cannot digest, is difficult.

We don't need penicillin or bactericides in our bodies. Killing off our symbiotic bacterial flora is harmful, not helpful. TB is a disease wherein the body dumps its toxic materials into the lungs in the same way that asthmatics have their extraordinary toxicity exuded through the bronchioles or the sinus sufferer excretes toxins through the sinuses. Garlic has no intelligence at all and could not heal TB under any circumstances inasmuch as TB is a body-instituted measure to cope with body toxicity. Garlic will so drug the body as to reduce, its vitality and increase its accommodation to both the garlic and the toxicity. But we're less healthy for that, not more healthy. It is a fabrication to say the body will be free of disease if its causes are still indulged.

Fasting enables the body to speedily eject its toxic load whereas drugs, including garlic's allicin and mustard oil, tend to suppress elimination.

Why are dairy products bad when almost everyone who is long-lived uses them?

This is not true, of course. The Hunzas do not use milk except for children and this is from mother's breasts. The Vilcabambians do not use dairy products. Among the world's longest-lived peoples, only the Eastern Europeans use dairy products. And to attribute their long life to these products is like attributing their long life to the wine and tobacco many of them also use. The fact is they have long life not because of these things but despite them. It's what they're doing right, not what they're doing wrong, that keeps them alive so long. Undoubtedly they'd live much healthier and longer if they did everything right.

We have humans living to be in excess of 100 years on fruits alone. We have Orangutans living to be 125 to 150 years on fruits alone. Is not this an argument for eating fruits alone? Regaining health while on goat's milk means, if we study such cases, that all those dietary practices which contributed to previous pathology were dropped—causes were discontinued. Suckling goats is not as healthy as eating fruits. Shouldn't we take two groups of individuals as controls, put one on a mono diet of goat's milk and the Mother on a diet of fruits and see how they fare?
Because most humans lose the ability to secrete lactase, the enzyme that breaks down lactose, and because almost all lose the ability to secrete rennin, the enzyme that breaks

down casein, we cannot thrive on milk. Please note that those long-lived peoples did not use fresh milk but fermented milks. Those who take fresh milks, raw or pasteurized, suffer much disease.

Dairy products are not wholesome. America consumes more milk and milk products than all the rest of the world combined. By all standards we should be the healthiest but, on the contrary, we're the most diseased, as statistics attest.

How can grains, especially breads and cereals, be bad, when almost all the centenarians use them in one way or another?

This is not true. The Vilcabambians eat only corn of all the grains and little of this—their primary foods are fruits and potatoes. The Hunzas eat very little grain because they have little room for growing grain. Fruit trees are the most productive of food and the Hunzas eat a preponderance of fruit.

A characteristic of all centenarians is that they are not gluttonous eaters of anything—they eat abstemiously.

Americans are among the biggest grain and meat eaters in the world. Why aren't we or the Canadians or Australians or other grain-eating countries noted for longevity? The Chinese and Japanese live heavily on rice but their longevity hardly exceeds ours. What are the supposed virtues of grain? It must be eaten cooked and largely devitalized. It furnishes calories and most of its products are deficient unless eaten with lots of raw greens and vegetables.

The Finns are a vigorous but not a long-lived people. They are heavy fat and grain eaters and have disease conditions rivaling our own country. More Finns die of heart attacks than do Americans. Whoever holds up the Finns as examples of healthy long-lived peoples is awry in the belfry.

What possible reason can you give for advocating water fasts as opposed to juice fasting?

Fasting involves a diet of only water, whereas a better term for juice fasting might be "juice feasting."
In the water diet, the body shuts down the digestive tract and devotes its energies to bodily rehabilitation. On the juice diet, it must continue to carry on digestive and eliminative functions in the intestinal tract.

Under a complete fast, beneficial results are obtained quicker by a ratio of three to five to one over that of juice dieting. Further, cleansing and healing can be accomplished on the water diet that cannot be accomplished at all on a juice diet.

Juices are fragmented and incomplete foods and fail to furnish many of the needed nutrients that are bountiful in the whole foods. Further, juices exposed to oxygen rapidly oxidize with the result that their nutrients are lost. Moreover, those oxidized nutrients are transformed into toxic products, especially the minerals which are often largely returned to an inorganic state.

The body greatly improves on a simple diet but, I repeat, improvement is much quicker and more profound on a water diet with benefits being realized that may not be realized at all on a juice diet.

A juice diet for 20 to 40 days is of immense benefit but 10 to 12 days on a water diet will yield even greater benefits. The lies about fasting are many and the supposed advantages of juice dieting are nonexistent. Because of their oxidized and deficient nature, the juice dieter may suffer drug effects which are often confused with beneficial effects.

When we modify our diets or fast, we seek maximum benefits and water dieting is superior to everything else. After a few days on the water diet, hunger goes away and we have no urge to eat. On the juice diet, there are periods of intense hunger and periods when hunger is absent. If juices are not taken when hunger is absent and water taken instead, the fast is great. But if foods are taken when hunger disappears, even be it juices, the purposes of the body are thwarted.

How can you say that too much starch and protein is bad when the Irish people use them in large amounts and suffer no ill effects?

The Irish live mostly on potatoes with some fish. They are not gluttons as are Americans and they conservatively cook their foods. They are not noted for their longevity and few centenarians are among them. In fact, their health is hardly better than our own. They are vigorous outdoor people. Most heavy laborers are. But how many athletes are really healthy people in this country? Athletes die young like most other Americans because hey partake of about the same diet as most Americans.

In reading the book you submitted, it would appear almost everyone in the world is healthy but we Americans. The truth is that most of the world is unhealthy except for little pockets of people here and there who enjoy relatively better health.

There are a multitude of factors that contribute to health and food is only one. While food can undermine health no matter how good other practices are, it cannot assure health no matter how perfect if all other practices are bad.

Starch must be cooked to be eaten. We cannot handle raw starch except in small quantities. Cooking dextrinizes starches. All starches must be converted to simple glucose and fructose before it can be absorbed. This is done at great expense to the body. Why not take fruits that are glucose and fructose to begin with? There are no good arguments for starch-eating.

What goes for starches goes three-fold for proteins. While there are proteins in every food, most human protein eaters cook and degenerate the protein content anyway. The proteins are coagulated and the amino acids deaminized. The body is only about 30% efficient in using protein as energy whereas it is about 90 to 95% efficient in converting fruits. And as far as the protein needs of the body go, about 70% can be secured from recycling our own metabolic wastes whereas actual needs are met amply from fruits. Proteins in excess of our needs putrefy in the digestive tract and, if absorbed as amino acids and are excessive, the body must tax itself greatly in decomposing them and ridding itself of the toxic by-products.

Those who insist on their perversions to the point of being hopeless are choosing a life of suffering.

If mineral waters are harmful, the Hunzas would have been dead a long time ago.

This, of course, is the most idiotic of all conclusions. First, inorganic minerals cannot be used by the body. Iodine and many other minerals are absolutely essential in human nutrition but, in inorganic form, are rank poisons. The body can use them only in organic context.

The Hunzas are not great water drinkers, their diet being mostly water sufficient. Secondly, their water starts out as pure a short distance from their uptake of it and it is full mostly of sediment, not minerals in solution. They settle out the sediment just as any sane person would—who wants to drink sand and minute rock debris? Who wants to drink soil? During the brief run down the mountains, the water picks up lots of sediment but few minerals in solution. And, to top it off, Hunzans drink very little water anyway. Certainly, raw materials and rock are not healthful.

Human mineral needs are only about 8 grams daily by the doubled and tripled standards of RDAs. Yet a normal diet of raw foods furnish intact about 20 to 25 grams of organic minerals daily which the body can use.

Be it noted that the fabulous waters the Hunzas get from their glacial runoff is available only for a few hours a day during the warm months, being totally unavailable most of the year.

Why are herbs so harmful? If so, how did Li Chung Yun live to be 256 years old?

If Gotu-kola and Ginseng teas were the only vice of this long-lived sage, then we should not marvel at his longevity. Little is said about his diet except that it was vegetarian. Does it not sound reasonable to attribute health and longevity to healthful living instead of to wines, cigarettes, fermented and rotted products, teas, toxic botanicals (both these herbs are listed in books on botanical medicines as possessing toxic substances).

Those who continue to indulge in their vices under the purblind rationalization that long-lived peoples had this or that vice usually end up with heart conditions and/or cancer which do them in at an early age. Rationalizing our vices and perversions will not deliver health.

Why do Bulgarians live so long when they do everything you advise against?

This question embodies a falsehood. They do not do everything I advise against. On the contrary, their lives are far more healthful than that of the average American. Your documentation of what they're doing wrong indicates they're doing mostly right. Only about 3 to 4% even partake of meat at all. Most live on fresh fruits and vegetables according to the published material you sent. Especially stressed was their consumption of sunflower seeds. Bulgarians do partake of fermented milks but it is not by any means the predominant part of their diet. Their hard work in the out of doors and their relatively stress-free society are not debilitating but, on the contrary, very healthful.

Beware of people and writers who want to credit health and longevity to the oddball perversions people may have rather than to their preponderance of healthful living practices which are the only basis for health and longevity.

Lesson 29 - Why Condiments Should Not Be Included In The Diet

- 1. Condiments, Seasonings and Spices
- 2. Specific Condiments
- 3. Condiments In General
- 4. Question & Answers
- Article #1: Are Any Condiments Acceptable In the Hygienic Diet? by T. C. Fry
- Article #2: Salt
- Article #3: Here Are Some of the Reasons Why You Should Not Use Condiments
- Article #4: Using Condiments Is Like Wearing Makeup by Marti Fry

1. Condiments, Seasonings and Spices

The ancient Egyptian mummies are masterpieces of the embalmer's art. For thousands of years, the bodies of kings and queens have been preserved by an intricate process that was once a closely guarded secret of the priests. Exotic substances, "magical" potions and hard-to-find agents were used to tighten the flesh around the corpses of royalty and preserve them from decay over the centuries.

Today we know what those exotic ingredients are that caused the flesh to petrify. In fact, you probably eat those same preservative substances each time you eat in a restaurant, prepare cooked foods or buy processed foods. Salt, vinegar, oils, spices and various herbs—all found in most American kitchens—were originally used by the Egyptians to embalm their corpses. Only now, we are using the same items to preserve, petrify and embalm the bodies of the living.

Making mummified corpses was the original use of seasonings that modern man now sprinkles so liberally over his food. What effects do these spices have on the living organism and how did their use begin?

1.1 The Original Use of Spices

Spices, salt and seasonings were first used to preserve food and to disguise the taste of food that had gone bad. Rotting meat and old vegetables that had been heavily spiced could be eaten without disgust. Salted food could be carried for weeks without decay.

The use of spices became prevalent in Indian and Chinese food at about the same time these countries elevated cooking to a "fine art." The European countries later adopted the spice habit of the Eastern countries as they began to process and cook more and more of their foods.

These items used in cooking are known as condiments and they seem to have had their start at about the same time man abandoned his diet of primary fresh and seasonal foods and started to use more and more meats, cooked and processed foods.

1.2 What Is A Condiment?

A condiment is generally something "extra" that is added to a food for "flavor" or taste stimulation or even for its preservative properties (like salt and vinegar). In other words, condiments are used for the taste "satisfaction" that it might provide and not for any nutritional value.

Is a condiment also a food? Generally not. A substance that is eaten is either a natural part of the human dietary or it is a nonfood item that is used for some reasons other than nutritive ones. Condiments have little or no nutritional value.

A true food may be eaten in such quantities that it can be a complete meal by itself. You can eat all you desire of a natural food, to repletion and satisfaction, and suffer no harmful effects. Of course, you can overeat any food, natural or otherwise, but generally speaking, you can certainly eat several mouthfuls of a natural food quite safely.

There is no way that you can eat several mouthfuls of salt, cinnamon, vinegar, black pepper, cayenne or mustard. In fact, a few bites of most condiments can prove fatal.

If condiments must be used in such small and careful amounts, how can they be considered foods for the body? The fact that we can eat a small amount of salt or pepper, and not drop dead, does not mean that these foods are any less poisonous. Instead, we're taking nonlethal doses of these condiments. Just the same, they still exert a disruptive effect on the well-being of the body no matter what the quantity eaten. A poison is a poison, and a little will kill us just as surely, (although more slowly) than a lot.

If you are ever in doubt if a substance is a suitable food or a condiment to be avoided, simply ask yourself this question: Could I eat a mouthful of this enjoyably? If not, it should be avoided.

1.3 The True Nature of Condiments

The greatest living proponent of Natural Hygiene, Dr. Herbert M. Shelton, described the true nature of condiments and food seasonings in his book *Human Life: Its Philosophy and Laws* in the following manner:

"Among the unwholesome substances demanded by perverted taste are the condiments and 'relishes.' These things possess little or no food value and there does not exist a single excuse for their use.

"They blunt and deprave the sense of taste, so that the natural flavors of foods are neither detected nor appreciated. They overstimulate and weaken the glands of the mouth, stomach and intestine. They irritate the lining membranes of the alimentary canal, causing these to thicken, toughen and harden, and they impair their functional powers. They create a fictitious desire for food and induce overeating. They create a false thirst, one that cannot be satisfied with water. They retard and derange digestion.

"They disguise the food eaten. When the food is camouflaged by salt, pepper, mustard, vinegar, nutmeg, spices and other condiments, the digestive juices are not appropriately adapted to the food eaten. Digestion suffers as a consequence.

"No one need ever develop a craving for these substances and where it is already developed, it can be easily overcome if one will give up their use and persist in abstaining from them for a time. When the sense of taste is restored to normal, you will find fine, delicate flavors in foods that you never knew existed."

1.4 Condiments Are Everywhere

If you eat in a restaurant, use any processed foods or shop in a supermarket, you're going to be exposed to condiments. There are hundreds of flavor enhancers, spices and seasonings added to almost all of our foods. To avoid them, you'll have to prepare your own food from fresh ingredients.

Why do we use so many condiments?

When foods are processed or cooked, most of their natural flavors are lost. This is the reason that foods which are cooking smell so strongly—all the flavors are being cooked out of them into the air. The food that remains behind is flavorless and flat. Salt, spices and seasonings are used to re-add "flavor" to the food that was cooked away. The condiments substitute for the natural flavors present in wholesome foods.

Some foods such as meat and grains often have so few appealing natural flavors to begin with that condiments are used to make them "more palatable." This should be an indication that these foods are not suitable for the human dietary.

Fresh, raw fruits and vegetables are full of subtle flavors and aromas. When eaten in their unprocessed state, these foods provide a full range of taste and olfactory stimulation without the need for artificial and added flavorings.

Since there are so many condiments in use today, only the major ones will be discussed. A listing of other widely used condiments will also be given according to their classification so that the student may learn to recognize the wide range of condiments that exist.

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2. Specific Condiments

2.1 Salt

Salt is the most widely used condiment in the world. Last year Americans ate over 275,000 tons of table salt, and on the average each person in this country consumes five times as much salt as any other world citizen.

Many men, women and children in this country eat an average of 10 to 12 grams (almost one-half ounce) of salt every day. America also has over 25 million people suffering from hypertension or high blood pressure, the third major cause of death in this country.

There is a connection.

Table salt is an inorganic mineral compound composed of sodium and chlorine. It has antibiotic and preservative properties. Although not generally thought of as a poison, salt is deadly to all living organisms. A fatal dose of salt is usually about four ounces taken at one time. This is only eight times more than the average person eats over a day's time.

Salt is probably the most ubiquitous seasoning in the world. You'll find it in almost every processed, prepared or preserved food. We even put it in our pet food and baby food. Even if no extra salt is added at the table, the average American diet will still contain over six times what most nutritionists consider "safe" levels of salt usage.

There is no safe level of salt use.

2.1.1 The Myths of Salt

If salt is so bad, why do we use it. all? Is there really a need for salt in the diet?

Salt use has been defended on these four misconceptions:

1. Salt is necessary for life.

2. Salt improves the flavor of food.
3. Salt promotes digestion.
4. Salt is found in the bloodstream and must be an essential ingredient of the living organism.

Let's look at each one of these beliefs and see if they are based upon any truth.

2.1.2 You Don't Need Salt To live

The most common defense for salt is that the body has certain sodium and chlorine mineral needs that the sodium chloride (table salt) crystals are thought to fulfill. Sodium is used by the body to maintain a water balance, to integrate nervous functioning and to aid in the formation of digestive juices. Chlorine helps sustain normal heart activity, plays an important role in the body's acid-alkaline balance and aids digestion and elimination.

Salt (sodium chloride) cannot be used by the body to meet any of these mineral requirements. Salt is an inorganic mineral that cannot be metabolized by the body. Salt enters the body as sodium chloride, it circulates in the body as sodium chloride, and it leaves the body as sodium chloride. At no point is it broken down into sodium and chlorine and used by the body.

Sodium chloride is a very strong and stable molecule. It cannot be broken down in the digestive tract or by the liver. The body cannot use the bonded sodium chloride molecule in any way. The body can use organic sodium and organic chlorine as found in living food (vegetables, fruits, etc.), but it can never use the inorganic sodium chloride compound.

So, if the body cannot break salt down, if it cannot use it in any way, if it only must be eliminated from the body in the same form as which it entered the body, then how can salt be termed "necessary" for life?

Moreover, salt eating has only been around for the last few thousand years of man's millions of years of existence. Primitive man did not eat salt. The American Indians never used salt until the white man introduced it. Many cultures today have never seen a salt shaker. Thousands of Hygienists and health-minded people in this country eat not one speck of salt.

Can you still believe that salt is essential for life?

2.1.3 Does Salt Make Food Taste Better?

Even if people are convinced that salt is of no nutritional use, they will still defend it as a flavor enhancer. "Salt makes my food taste so much better," is the common justification for salt eating. But can salt add flavor to your food?

Taste a pinch of salt. What flavor does it have? Is it appetizing and does it have a nice taste? No. Then how can it add flavor to food if it has no flavor of its own?

Salt performs its "flavoring" by actually irritating the taste buds on your tongue. By inflaming the tongue, salt makes the taste buds more sensitive through chemical irritation.

It's like burning all the skin off your hands so you'll have more sensitive fingers. Ever notice how a sore and inflamed spot on the skin is more sensitive than surrounding areas? Salt does the same thing to your taste buds—it makes them sore and sensitive. Consequently, you notice taste stimulation more, but you're not experiencing the actual flavor of food in any greater amount.

Salt can't add flavor or anything else to your food. It's a chemical. A chemical can't give you or your food anything extra, except perhaps some irritating stimulation that is mistakenly identified as " flavor."

2.1.4 Does Salt Help Digestion?

Salt has been defended as an important aid in food digestion.

Consider this: your body alone digests food. The enzymes and gastric juices produced by the body interact chemically with the food you eat as one of the stages of digestion. Sprinkle some salt on a tomato slice. Does the salt digest the tomato? Does it do anything! No. Salt is an inert substance—it is a nonliving, inactive mineral. How can an inorganic crystal enter into such an organic process as digestion?

Even traditional nutrition no longer believes that salt by itself is a digestive aid, but they do state (as recently as 1980) that the chloride ion in salt helps form the hydrochloric acid in the stomach which is used to digest food.

This, too, is faulty reasoning. The chlorine in salt cannot be metabolized by the body in any way. It does not enter into any body process. It remains bonded to the sodium atom. Now organic chlorine as found in living foods can be incorporated in the production of hydrochloric acid, and thus "improve" digestion. The chlorine in salt, however, is inorganic and cannot help the digestive function in any way.

Instead, here is what happens during the digestive process when salt is eaten:

1. the absorption of food through the intestinal membranes is inhibited;
2. protein solubility increases and a considerable loss of tissue building material occurs in the urine (a pathological condition known as "albuminuria");
3. the water balance in food digestion is disturbed, thus slowing digestion.

In short, salt does not enhance digestion; its presence in the body actually retards digestion.

In Japan where salted and pickled foods are a dietary mainstay, the incidence of stomach cancer is higher than any other place else in the world. There is a definite link between high salt use and stomach cancer.

Does a cancerous stomach sound like digestion is being improved?

2.1.5 Is Salt An Essential Part of the Blood?

Since salt is found in the blood, people think that we must consume it for healthy blood. There are "salts" in the blood, and sodium chloride is among these other mineral salts. But does this prove that table salt is an essential ingredient of the bloodstream?

Most people have eaten so much salt all their lives that there is a continual circulation of sodium chloride through the bloodstream. The reason that the salt is in the blood is that the body is constantly trying to eliminate it from the system.

A typical salt-eater has so much salt in the body that the body can never catch up on its elimination. We are probably capable of excreting around 200 milligrams of salt a day through the kidneys (this is about as much salt as can be placed on the end of a sharp-pointed knife). Most people eat fifty times that much. So where does all this extra salt go? It's stored in layers beneath the skin to be eliminated by perspiration, and it is also continually circulating in the bloodstream, waiting to be processed by the overworked kidneys.

Of course there is salt in the bloodstream. There are also pesticide compounds, drug poisons and environmental toxins as well. Does this mean (hat these are also an essential part of the blood? The bloodstream circulates wastes and poisons for elimination if we put them into the body. Salt is just another one of these toxins that we have introduced into the body.

Organic mineral salts are also in the bloodstream, and these are used by the body for a number of functions. Inorganic table salt, however, is only a poison that the body must try to eliminate.

2.1.6 And Take This With a Grain of Salt...

Amazingly enough, many nutritionists today still recommend that everyone consume a minimum daily requirement (MDR) of salt. The most frequently estimated MDR for salt is 200 milligrams. Most

Americans consume fifty to seventy-five times that much every day. In fact, no national diet anywhere in the world contains less than this MDR for salt.

Consider this: if salt cannot be used by the body, if it is poisonous, if it is implicated in a wide variety of diseases and disorders, then why should we consume a "minimum required amount" each day? Not only that, but conventional nutritionists also state that an infant's salt needs are relatively greater than an adult's needs! Does anyone need a poisonous substance, especially a child, in no matter how small an amount?

For an even more surprising twist of logic, consider the actions by the Senate Select Committee on Nutrition and Human Needs regarding salt use by the American public.

In 1977, this committee recommended that salt consumption be reduced to 3 grams a day (still 15 times more than official MDR levels). In response, a task force of 14 scientists representing various food processing industries issued a statement that read in part "only 3 grams of salt per day would provide an unpalatable therapeutic-type diet that would require exceedingly careful selection of foods from a limited list." After this statement, the Senate committee decided to revise its official recommendation to 3 grams per day.

Still later, upon inquiry from the president of the Salt Institute, the committee stated that the 5 grams recommendation was for additional salting that might be used above the already 3 grams of salt present in a typical American diet. So now the recommendation for total daily salt intake stands at 8 grams per day (or about 1/3 ounce).

Perhaps you can see how such figures as "MDRs" and "government recommendations" should be taken with a "grain of salt."

The important thing to remember is that if you would eliminate all inorganic table salt from your diet and consume "0" grams a day, you would experience a higher level of health and add years to your life.

2.1.7 Salt Is Antibiotic

Salt was originally used as the first food preservative. It was discovered that when meats and vegetables were salted, decay was decreased.

Food often spoils depending on its "water activity" level. Food can either be dried to reduce its water activity or it can be salted. Salt affects the water activity in food so that bacterial growth is prevented. In other words, salt is an antibiotic.

Antibiotic means literally "anti-life." Salt is precisely that; it destroys bacteria and it will destroy the living cells in your body as well.

If you cannot always have fresh foods, there are better ways to preserve food than salting. Drying food or storing it at low temperatures is the best way to prevent bacterial growth. There is absolutely no reason to add salt to food preserved in other ways, such as canned or frozen foods, since this is only done for "flavoring."

2.1.8 Final Thoughts about Salt

Hypertension (high-blood pressure) is one of the most common illnesses today. It accompanies coronary heart disease, stroke, congestive heart failure and kidney disease.

A 35-year-old man with blood pressure 14% above normal has lost 9 years of his life expectancy. A 45-year-old man whose pressure is 17% above normal runs twice the risk of a heart attack and four times the risk of a stroke as a healthy individual.

When the diet consists of 2.8% salt, as is typical of Americans, it is described as "frankly hypertensigenic and life-shortening."

Salt is a strong diuretic and causes water to be used from the blood and lymph to excrete it through the kidneys. This is why salt makes us thirsty—the body demands more water in order to flush an irritating substance from its tissues.

The continued use of salt causes a severe afflication of the kidneys called "nephritis."

Salt causes inflammatory swelling of the glands.

It contributes to constipation and indigestion.

It is a factor in many skin diseases.

It is deposited throughout all the fluids of the body, which causes extreme irritation, injury and death to billions of cells.

It is toxic. It is poisonous. It cannot be used by the body in any amount.

Don't limit your salt use—eliminate its use.

2.2 Cayenne Pepper

Hot peppers are often used to spice up dishes, especially in Mexican, Oriental and Indian cooking. Cayenne or red pepper is perhaps the most popular, and it is also often recommended by herb enthusiasts as a general "cure-all."

Jethro Kloss, an herbalist and author of Back To Eden, described cayenne pepper as "one of the most wonderful herb medicines we have...it is good in all forms of diseases, and is almost a certain remedy for all maladies." He and other herbalists have advised us to gargle with cayenne pepper, put it on open wounds, use it for ulcers and to sprinkle it in our socks to keep our feet warm. There has been a lot of promotion for cayenne pepper and many people have been convinced that it can be used for all manner of ailments.

The truth is that cayenne pepper, along with all other hot peppers, chilies, etc., contain harmful alkaloids which are even more injurious than the common black pepper. When cayenne and hot peppers are eaten, the body is thrown into an emergency state in an attempt to eliminate the toxic oils and substances in the peppers.

Suppose a young child eats a hot pepper, what happens? Most likely, he will cry, he may vomit or experience diarrhea, and he will certainly feel like his mouth and stomach are on fire. He will not be anxious to repeat the experience. A child's body is still pure and sensitive enough to detect the harmful substances in hot peppers. An adult who has abused his digestive system for a number of years on a conventional diet merely experiences that momentary burning warning which is the weakened body's signal to avoid the hot pepper.

All hot peppers contain a poisonous alkaloid called piperidin and a harmful crystalline substance known as piperin. Hot peppers also have acrid resins and volatile oils which irritate the digestive and urinary tracts. Cayenne pepper also contains an alkaloid called capsicin which irritates the body so severely that circulation is rapidly increased in order to remove it from the system.

This is why hot peppers make you feel "warm"—the body drastically increases circulation to remove all the harmful pepper alkaloids as expeditiously as possible.

Cayenne has probably achieved its reputation as a "beneficial" condiment for two-reasons: it is initially painful (burning) to eat, and it causes a mucus outflow from the body.

Since hot peppers are burning, irritating, and only able to be eaten in small quantities, we think that they must be a "powerful" medicine. In other words, if it burns so much, it must be doing us some good, right? Since all nonfood and medicinal substances are distasteful, the strong taste of cayenne is associated with a medicinal action. It's strong and it burns going down, so it must make us tough and strong if we can eat it—or so the reasoning goes. The idea of "strong" medicine and "powerful" foods is a carryover from the primitive beliefs in magic and superstition, but it still remains with us today.

Second, because there is a mucous outflow when cayenne is eaten, people often think that the pepper is cleaning out old mucus deposits from the body. Instead what is actually happening is that the cayenne is such a powerful irritant, *the body secretes extra mucus in order to eliminate the harmful alkaloids*. Cayenne only causes additional mucus to be produced as a defensive measure by the body. This extra mucus coats the harmful substances in the peppers in order to protect delicate body tissues. Foods don't eliminate mucus from the body; the body eliminates mucus from the body.

Since the body is stimulated into emergency action by the cayenne, people mistake this stimulation for proof that the pepper is making them "strong." The body feels more vital after eating the pepper, and this is because the system must go into an unnatural overdrive in order to eliminate the foreign substance. Eating cayenne pepper for "strength" makes the same sense as beating a dying horse to make it move faster. Motion increases to escape the inflicted punishment, but death is only hastened.

Cayenne pepper and other "hot" foods cannot impart any additional healing powers to the body. The body alone can heal itself, and stimulating it with poisonous alkaloids hardly seems wise.

Cayenne pepper is an irritant, and any stimulating effects it may produce are done so at the expense of the body's well-being.

2.3 Cooking Spices

There are many different cooking spices, such as nutmeg, cinnamon, allspice, ginger, cloves, mace, and so on. All of these spices contain harmful volatile oils and acrid resins which irritate the digestive tract. The net effect of using these spices in foods is that the body tries to hurry the irritating spices through the gastrointestinal tract to minimize the harmful effects.

This is why spices are thought to help the digestion of food—in reality the food, instead of being properly digested, is simply speeded toward the nearest exit for rapid elimination. Spices are stimulants and irritants and their presence in food negates most of the nutritional value of the food eaten.

2.4 Cinnamon

Cinnamon is the bark of the cinnamon tree which is powdered and dried. It contains one to two percent volatile oils and a considerable amount of *tannin* which gives it the bitter aftertaste. Tannin is an astringent that is also found in common tea. It is toxic to the human system.

2.5 Nutmeg

Nutmeg is the powdered kernel of the fruit of the nutmeg tree. The outer covering of the kernel is used to make the nutmeg spice, while the inner coat is used to make the spice called mace.

Nutmeg is fatal in large doses, leading to convulsive seizures. Large nonlethal doses produce prolonged hallucinations similar to psychedelic drugs.

2.6 Mustard

Mustard is made from the seed of the mustard plant. Besides the harmful vinegar, salt and other condiments in table mustard, the seed itself contains certain alliaceous oils like the garlic and onion plants. These oils are very irritating to all tissues of the body and produce a disagreeable odor.

Horseradish has the same undesirable oils and properties as mustard.

2.7 Vinegar

Vinegar is the result of acetic fermentation of alcoholic liquids. Vinegar is very injurious to the digestive organs, and it does not matter if it is white vinegar, cider vinegar, or whatever its source.

Vinegar reduces the number of red blood cells, greatly retards digestion and assimilation, and harms the kidneys. When used in conjunction with starchy foods, digestion is completely suspended and fermentation rapidly results.

2.8 Other Condiments

There are numerous other condiments, and some of them, such as garlic, onion, herbs, etc., are discussed in detail in other lessons. To help you identify various condiments, the following table and categories may prove useful.

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3. Condiments In General

3.1 The Classification of Condiments

Class	**Examples**
Aromatic	vanilla, cinnamon, clove, parsley, bayleaf, rosemary, caraway seeds, cumin seeds and most herbs.
Acrid or Peppery	black and white pepper, cayenne, chilies, curry, allspice, ginger.
Allylic or Alliaceous	garlic, onion, mustard, horseradish, chives, leeks.
Acid	vinegar (white, cider or wine), capers, gherkins.
Animal	caviar, anchovies, beef boullion.
Mineral	salt (earth, sea, or chemical), and all salt-based seasonings (miso, soy, tamari, etc.)

There are many other food items that are also used as condiments by themselves, such as relishes, mayonnaise, pickles, chutneys, spreads, dips, etc. All of these contain a high percentage of the above-listed condiments and should be strictly avoided by any person desiring good health.

3.2 The Best Condiment

The best seasoning is a hearty appetite.

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4. Question & Answers

Can you name any safe salt substitutes?

If I were hitting you in the head with a hammer, would you ask me to stop or to use a softer hammer? Seriously, you don't need a substitute for a poisonous substance. By using such items as potassium chloride salt, kelp, herb seasonings, and other substitutes, you're still keeping the salt-shaker habit alive, and you'll never be able to develop an appreciation for the natural flavors of wholesome foods. When you eat fresh foods in a mostly raw state, you'll have absolutely no desire for salt or for any "substitute."

Now, I'll give you a second answer. Yes, there are some alternatives to salt and seasonings that you can use as you are becoming established on a fresh food diet. Freshly squeezed lemon juice stimulates the taste buds like salt, but without the irritating and harmful effects. A little lemon juice over nonstarchy foods is a permissible alternative to salting until your taste buds come back alive.

You might also consider eating those fruits and vegetables that are high in organic sodium and mineral salts. Celery, beets, carrots, cabbage and dried figs are high in organic mineral salts, particularly sodium, and may help you away from the salt habit. A salad with chopped celery and lemon juice, for example, creates s very salty taste.

After you have been off salt for a few weeks, you won't miss it all. If you start using "substitutes," however, you're still perpetuating the seasoning habit and it may make it more difficult for you in the long run.

What about black pepper? You didn't discuss this in the lesson.

Black pepper is not an actual pepper, but is made from the dried berries of a tropical shrub. Whereas hot peppers like cayenne and chilies are primarily stimulants, black pepper is chiefly an irritant. It has particularly harmful effects on the intestinal tract.

Allegedly, black pepper is 47 times more detrimental to the functioning of the liver than is alcohol. White pepper, often used by gourmets, is simply the ripened berries of the pepper shrub.

I guess I can see how you would need few if any seasonings on a raw food diet. Fruits are delicious without any salting, etc. But what about raw vegetable salads? These are so boring without some kind of interesting dressing.

A raw vegetable salad can be made very flavorful and enjoyable without any condiments. The secret? Eat your salad whole. Don't cut it up into a hundred pieces and then mix it all up. Simply eat each vegetable, like a tomato, broccoli stick, etc., as a separate piece. When you cut, chop and mix your salad, you are losing the individual flavors of each vegetable. By the third bite, the whole salad tastes the same—there is no flavor or texture contrast.

A whole salad, uncut, requires no dressing. Take one bite of one vegetable, then a bite of another, and you can be suitably "entertained" without spicy and oily dressings. You can also eat a few nuts, seeds, or avocado with your salad—also in their whole form if teeth permit-

> along with the whole vegetables. Believe me, when you eat a "finger salad"—all whole vegetables—you get more enjoyment and less vitamin loss than if you chop and mix everything up in one big bowl.
>
> Condiments, dressings, etc are usually desired when the original flavors and integrity of a food are lost. Eat your foods whole, and you can appreciate all the wonderful subtle flavors that are there.

It seems that since we use such small amounts of seasonings that they couldn't be all that harmful, I mean, a little pinch of something couldn't hurt you that much.

> You can only use a "little pinch" because condiments are such potent and strong nonfood items. This should tell you something. Even a very small amount of a condiment will disrupt the natural digestive processes. The human organism is very sensitive to all toxins and poisons. As you refine your diet, you'll begin to notice the undesirable effects of even those "small amounts" that you previously used.

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Article #1: Are Any Condiments Acceptable In the Hygienic Diet? By T.C. Fry

Very frankly this is an area in which I have not done much research and do not propose any. Why? Because condiments are stimulants (irritants) that cause the taste buds to go into a frenzy—they become "super charged."

The taste buds become so sensitive to the substances being eaten—including the flavors of the condiment or condiments—that we become more intensely aware of the flavors. The simple truth is that we should not be eating food that requires condiments to camouflage, modify or heighten its taste.

Salt is America's favorite condiment. It has no food value. It is not digested. It is eaten merely for its taste—its ability to give the illusion of flavor where the food's innate flavors and mineral complement are largely or wholly missing. Salt is poisonous, though it usually kills its victims slowly.

The catalog of condiments is long. Vinegar, herbs, catsup, aromatic seeds, seasoning, salts, dried peppers, pickles, mustard, sauces, relishes, onions, dressings, garlic, shallots, spices, etc. all fall under the heading of condiments. Some have food value and some don't. But one thing they all have in common is that they all contain poisonous compounds. These compounds irritate not only the taste buds but other body cells and tissues as well.

Dressings are usually loaded with condiments. Basically they have an acid (vinegar as a rule), a fat (oil, mayonnaise, egg or other), sugar or honey, salt and other spices. They are a dietary abomination and render food with which they are combined mostly indigestible despite the "terrific" taste.

As a fruitarian, most of my intake is of fruits and they need absolutely nothing extra. Nothing can make my pears, apples or grapes taste any better—they taste wonderful just as nature delivers them.

When I eat vegetables I usually eat no more than three or four kinds at a time. In the raw condition they have a plentitude of flavors which I enjoy immensely. No condiments are needed! For example, you can't improve upon a really good head of broccoli! It has it all.

Condiments do, indeed, add "zest" to the taste of cooked and processed foods and make palatable those foods we should not be eating at all (meat, cheese, bread, eggs, etc.) But irritants which goad the taste buds also destroy the taste buds. This calls for a bigger dose of condiments the next time around. It eventually comes to this: We eat food merely as a medium for our condiment addiction! As well as leading to jaded taste buds, condiments are pathogenic. They are really drugs no matter what form they come in— plants (herbs), salt, vinegar or whatever.

Condiments are, according to Webster's, "something added to enhance the flavor of food; especially a pungent seasoning." Note the definition of condiments includes anything that's added to enhance food flavor—pungent seasonings and other things. These other things may include some foods that are perfectly good, such as lemons, limes, tomatoes, sweet peppers, avocados, parsley, celery, Chinese cabbage family members (bok choy, nappi cabbage, etc.) and some other wholesome foods. Even though these foods offer no objection in themselves most of them are not foods you'd try to make a meal out of.

Bananas, grapes, apples and other fruits can be eaten to repletion without any "additives" (i.e., condiments) and they are thoroughly wholesome for us humans. On the other hand, nuts, seeds or avocados, if eaten, should be eaten with a salad. And a salad can always be jazzed up (made tastier) by adding dressings made with some of the foods listed in the paragraph above.

For example, you can eat nuts with a salad containing tomatoes, sweet peppers, celery, bok choy and lettuce. It will be very tasty and super rich in a long list of nutrients, notably vitamins A, C, B, E, and K, and minerals including iron, calcium and trace minerals.

As s rule, reject condiments. Whole raw foods taste fine in themselves, one food at a time. If they don't give you any "kick," then you must give your sensing mechanisms a rest and the opportunity to rejuvenate. Fasting will accomplish this and a raw food diet will do it too. But the taste buds regenerate more slowly while on the raw food diet than when fasting.

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Article #2: Salt

The need of salt (concentrated sodium chloride) in human health and nutrition is another of the great myths of modern times.

Salt is a deadly poison, a terrible abusive irritant to human tissue. This can be confirmed by anyone by sniffing salt water and experiencing the terrible burning sensation as the delicate sinus membranes are irritated, by putting salt water into the eyes and experiencing the burning sensation while observing the rush of blood to the eyes to protect their delicate membranes (bloodshot), by putting salt on an open wound and experiencing the terrible burning sensation as the tissue is irritated and destroyed, or by drinking a concentrated salt solution and experiencing vomiting as the body acts to repel this foreign and toxic substance.

Salt is not synthesized or processed in any way in the body and serves no useful purpose. It enters as sodium chloride, it is stored as sodium chloride, it is excreted as sodium chloride. It leaves a trail of destruction from the time it enters until the time it can be excreted.

When excessive salt (that which the body cannot immediately excrete) is deposited everywhere in the fluid medium of the billions of living body cells causing extreme irritation, injury and death to the cells, the cells send forth a desperate SOS signal and the person gets thirsty and drinks a lot of water. This water is carried by the blood and deposited in the tissue fluids to dilute the devastating effects. This results in excessive body fluids, edema.

The body takes every opportunity to excrete this salt—constantly through the urine, at even limited or almost no exertion by profuse sweating, through crying (tears), etc.

The salt deposits throughout the body cause cells to contract and discharge their life fluids and other vital elements resulting in hardened tissues, shriveled blood corpuscles, hardened arteries, arthritis, ulcers, blindness and distorted vision, hyper-aesthesia of the nerves, high blood pressure, tumors, cancer, psoriasis, neuritis, heart defects, extreme edema and innumerable other degenerative conditions too numerous to list.

In one experiment one of the authors ate typical restaurant salads (with the *usual* amount of salt in the dressings) for one meal and supplemented the salad meal with a few "no salt added" crackers (containing only whole wheat flour and salt in the baking of the crackers themselves) with commercial old fashioned peanut butter which contained only ground peanuts and salt. The next day his one-meal for the day consisted of his usual fresh vegetable salad without any dressing or seasoning supplemented by a bowl of commercial soup containing the usual amount of salt plus some of the same kind of crackers and peanut butter eaten the previous day.

The author's thirst became very pronounced during both days and he drank a considerable quantity of distilled water (his only drink).

The results of only this relatively small amount of consumed salt were astounding. The body retained a great deal of liquid to dilute the harmful irritation of the salt and resulted in the gain of eight pounds in body weight in only 2 days. In addition the absorption of so much water to counteract the salt damage resulted in a much less than usual amount of liquid in the feces leading to a drying-out or compacting effect as the first signs of constipation—a condition the author never experienced during eight years of a salt-free diet.

In addition to the above effects, signs of indigestion and 'heart burn' occurred after each meal as digestion was impaired, and, since all body cells were affected by the salt, a feeling of dullness and loss of energy resulted—conditions which never occurred during many years of salt-free dieting. Other noticeable effects were the puffing and bloating of the face and around the eyes.

The two-day (only two meals) experiment was so extreme in its negative effects that the author ended it and resumed his regular *no-salt* diet. It required approximately two days for his body to eliminate the accumulated salt and water and return to its normal weight and health.

Salt is a true anti-biotic (against all life, a killer). It was formerly used as an embalming agent. It is used today as a 'preservative'—killing the bacteria (life) to prevent the natural decomposition of dead organisms.

Cramps initially experienced as salt is removed from the diet or rapidly excreted from the body are nothing more than "withdrawal symptoms."

A healthy person on a salt-free diet will experience these same cramps if he eats salt.

Salt eating is an addiction begun prenatally and shortly after birth as the parents force salt into the baby to the extreme repulsion and disgust of the child. After a few weeks of forced eating the baby's body becomes so weakened that it forms a craving and addiction. This continues throughout its life.

In order to fully understand the disaster of salt eating, let's briefly follow the path of salt from the time it enters the mouth until it is excreted from the body. Remember, salt has *nothing* to do with the sodium needs or excesses of the body. Salt is sodium chloride first, last and always from the time it enters the body until the time it is discharged. If it were broken down into its primary constituents, sodium and chlorine, as it passed through the body the tragedy would be complete since both inorganic sodium and inorganic chlorine are highly destructive to life and would immediately render a human lifeless.

As the salt enters the mouth in food or drink (or as a deadly salt 'pill') the *cells* of the lips and lining of the mouth (including gums and tongue) are severely irritated, with many killed and the rest seriously weakened.

In a *healthy body* the first line of defense will be instantly activated with a severe and intolerable stinging and burning sensation as the tissue cells are destroyed and the irritation and distress is imposed upon nerve cells. The natural response to such sensation is to spit out the substance responsible for it so that the destruction will not proceed any further. A weak, unhealthy, salt-addicted and taste-perverted body is so depraved and depressed in its defensive capabilities that it not only tolerates but also demands more of the destructive addictive substance.

The cells of the mucous membrane of the throat, esophagus and stomach are the next to suffer the tragedy of death and destruction. As the irritant moves into the stomach the body's second line of defense goes into action.

A healthy body will instantly signal a sensation of nausea and trigger violent contractions of the stomach to cause vomiting and prompt elimination of the salt. A weak unhealthy body will tolerate the irritation and permit it to continue its journey of destruction as some of it is absorbed (assimilated) into the mucous membrane tissue and thence into the bloodstream, and the rest is emptied into the duodenum.

Upon reaching the duodenum, cellular distress is once again repeated. Since the trap door from the stomach has closed the only way for *prompt* discharge of the salt poison is through the intestines and bowels. A normal healthy body will respond with violent contractions of the intestinal muscles which produce a profuse flow of fluid from the mucous membranes to dilute the salt irritation and a rapid propulsion of the salt solution, and everything (all other ingested substances) suspended in it or ahead of it, through the intestines for a violent watery discharge from the anus (diarrhea). A weak unhealthy body will of course fail to actively respond to the salt, and the salt solution and imperfectly digested foods will be absorbed (assimilated) through the intestinal walls and thence into the bloodstream.

At this point the healthy body has rid itself of the salt irritant by spitting it out, vomiting it up and/or excreting it in the form of diarrhea. The weak unhealthy body, on the other hand, has dully accepted the poison and passed it through the stomach and intestinal lining, destroying and injuring millions of cells as it goes. All digestive tract tissue cells have suffered as have all involved blood and lymph capillary cells. The blood carries the salt all over the body creating havoc with every cell. The kidneys which normally filter out small amounts of salt which accidentally accompany digested food into the blood are not equipped to handle large amounts since its own cells are destroyed and injured by the irritant. The liver, which filters and chemically detoxifies many poisons and toxins tries but is helpless to do anything with the very stable and strong sodium chloride molecules and suffers severe damage as the salt passes through it. The heart suffers. The brain suffers. *All* body cells suffer.

Once the salt is trapped in the body's circulating fluids the body response is one of extreme thirst as the cell population screams and cries for relief from the destructive foreign irritant. Most of the fluids consumed by the person are quickly assimilated and dilute and expand the volume of blood plasma, resulting in higher blood pressure and pulse rate. This in turn forces more fluid into tissue spaces to dilute salt concentrations in an effort to relieve cell distress. The fluid accumulates and remains as edema.

The trail of distress, destruction and tragedy is total, having adversely affected every cell in the body. All surviving bodily defense mechanisms are activated to eliminate the salt through tears, sweat, urine, and mucus (excreted in the digestive and respiratory tracts).

More consumed salt intensifies the progressive destruction and deterioration of cells and leads to functional and structural failures through the body.

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Article #3: Here Are Some of the Reasons Why You Should Not Use Condiments

1. Most condiments have no food value in themselves.
2. Most condiments are partially or totally indigestible.
3. Condiments are eaten for entertainment, not nourishment. Eating purely for entertainment's sake is, as a rule, unwholesome, though, to be sure, proper foods are not only nourishing but also a delight to the palate.
4. Condiments interfere with the digestion of the foods with which they are eaten, sometimes making a whole meal indigestible. Fifty percent of all meals eaten in America end in indigestion. Condiments share a large part of the responsibility for this.
5. The poisonous elements of condiments (such as the mustard oil of onions, garlic, shallots, mustard, etc. or the allicin of garlic) cause injury in the body if absorbed, especially to the organs of purification and detoxification, such as the liver and kidneys.
6. Our ability to savor flavors is destroyed by condiments. That which overly excites our taste buds slowly destroys our sense of taste.
7. Condiments cause disease! Headaches, high blood pressure, edema and a long list of other conditions are directly traceable to such condiments as MSG, salt, vinegar, etc.

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Article #4: Using Condiments Is Like Wearing Makeup By Marti Fry

Makeup is used by many women (and some men) for several reasons. It highlights the eyes with eyeliner, mascara and/or eyeshadow; the cheekbones with blusher and the lips with lipstick. Foundation, usually a flesh-colored liquid, is used to give an even and unblemished appearance to the entire face.

Many of us are aware that the "natural look" is better, both aesthetically and health-wise. Irritating, often carcinogenic, substances on delicate facial skin and near the eyes and on the eyelashes are unnecessary and phony.

The healthy glow that comes from plenty of sunshine, exercise and wholesome foods; a loving disposition and enough sleep, rest and relaxation, mirrors true health. A healthy person is a beautiful person. Makeup is used to give the false impression of healthful beauty.

If you wear make-up but decide to stop using it, it may take you a while to get used to the "new you."

At first you might not like the natural you because you're not used to it. But in time you'll see the phoniness of the makeup on other people as repulsive, not attractive as it used to seem.

Condiments give a very similar effect to foods as makeup does to faces. They give enhancement that is false. They make the foods seem better-tasting than they really are. With condiments you can eat low-quality or cooked foods and try to fool your taste buds into thinking they're getting something really good.

Condiments, like makeup, are irritating and harmful end often carcinogenic. You would be much further ahead to purchase higher-quality foods and eat them in their uncooked state. The foods of our natural biological adaptation are wonderful and don't need seasonings. Likewise, you are attractive naturally and don't need make-up to enhance your appearance.

Lesson 30 - Sugars And Other Sweeteners May Be Worse Than Bad

- 1. Introduction
- 2. Refined Sweeteners
- 3. Sugar: Where Does It All Come From?
- 4. The Cousins of Sugar
- 5. Some Final Thoughts about Sugars
- 6. Questions & Answers
- Article #1: Why Honey Is A Harmful Food By T.C. Fry
- Article #2: More About Honey By T.C. Fry
- Article #3: Blackstrap Molasses: Super Junk Food By T.C. Fry

1. Introduction

1.1 The Sweet Drug

It's a white crystalline powder. It was originally smuggled in from the Far East and was sold at the equivalent of $12,000 per pound. Its early users soon became addicted. Gradually its use spread throughout the population. At first it was a luxury for the rich, but gradually it was produced in large quantities at cheaper prices so that anyone could afford it.

The health of all its users deteriorated rapidly. Not only did they suffer physically from sugar use, but their mental and emotional states were disturbed. They became irritable, sickly, obese and borderline schizophrenic.

The white powder was not cocaine or heroin—it was sugar.

Today the average American eats his or her weight in sugar every year. The typical American eats *50 teaspoons* of sugar each day, most of it hidden in processed and packaged foods. Probably more health problems can be traced to sugar use than any other single item eaten today.

1.2 Your Sweet Tooth

How did America's deadly love affair with sugar begin? Why is it so bad for you? Most people shrug off the warnings about sugar and continue to use it. "I have to feed my sweet tooth," they say. "I crave sweets. It must be natural or I wouldn't want them."

And to a certain extent, they're right. It is natural to desire sweet foods. You should feed your sweet tooth, but you should eat the foods naturally sweet in wholesome sugars—fresh fruits. In a natural state, our diet would consist of a large amount of fresh fruits and some vegetables. In nature our sweet tooth would be well fed.

However, in the last two hundred years *refined* sugars have gradually replaced the *natural* sugars in our diet. Instead of grapes and apples, we eat corn syrup, sacharin and cyclamates to satisfy our natural desire for sweet fare.

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2. Refined Sweeteners

Refining means to make "pure" by a process of extraction or separation. Sugars are refined by taking a natural food which contains a high percentage of sugar, and then removing all elements of that food until only the sugar remains.

White sugar is commonly made from sugar cane or sugar beets. Through heating and mechanical and chemical processing, all vitamins, minerals, proteins, fats, enzymes and, indeed, *every* nutrient is removed until only the sugar remains.

Sugar cane and sugar beets are first harvested and then chopped into small pieces, squeezing out the juice which is then mixed with water.

This liquid is then heated and lime is added. Moisture is boiled away, and the remaining fluid is pumped into vacuum pans to concentrate the juice. By this time, the liquid is starting to crystallize and is ready to be placed into a centrifuge machine- where any remaining residues (like molasses) are spun away.

The crystals are then heated to the boiling point and are passed through charcoal filters. After the crystals condense, they are bleached snow-white, usually by the use of cattle bones.

During these refining processes, 64 food elements are destroyed. All the potassium, magnesium, calcium, iron, manganese, phosphate, and sulfate are removed. The A, D, and B vitamins are eliminated. Amino acids, vital enzymes, unsaturated fats, and all fiber are gone.

To a lesser or greater degree, all refined sweeteners such as corn syrup, maple syrup, etc. undergo similar destructive processes. Molasses are the chemicals and deranged nutrients that are a byproduct of sugar manufacture.

2.1 What Happens When You Eat Refined Sugars

When you eat a refined carbohydrate like sugar, the body must take vital nutrients from healthy cells to metabolize incomplete food. Sodium, potassium, magnesium, and calcium are drawn from various parts of the body to make use of the sugar. Often so much calcium is used to neutralize the effects of sugar that the bones, which are the body's storehouse of this mineral, become osteoporatic due to the withdrawn calcium. The teeth, too, are likewise affected and they lose their components until decay occurs and hastens their loss.

When sugar enters the stomach, glutamic acid and other B vitamins are denied to the body. The loss of these specific vitamins results in a confused mental state and a tendency to become sleepy during the day.

Since refined sugars are removed from their natural sources (which contain the necessary nutrients for their metabolism), sugar-eating causes the body to deplete its own stores of various vitamins, minerals and enzymes. *Not only does sugar provide no needed nutrients, it causes the body to rob itself of already present vital elements*. Sugar is both an imposter and a thief.

If the body is lacking the vital nutrients used to metabolize sugar, the result is failure to properly handle and expel poisonous residues such as lactic acid. These wastes accumulate through the brain and nervous system, which in turn accelerates cellular death. The bloodstream becomes overloaded with waste products, including incompletely metabolized sugar, and symptoms of carbonic poisoning result.

All of the untoward effects of refined sugar metabolism play havoc with the mind and emotions as well as the body. Research studies have demonstrated a link between juvenile criminal behavior and sugar consumption. A majority of the nation's prisoners are "sugarholics" and erratic emotional outbreaks often follow a sugar binge. As early as the 1940's, Dr. John Tintera discovered a relationship between sugar-eating and schizophrenic behavior, as well as other mental illnesses. The effects of sugar-induced depression are well documented in William Dufty's book *Sugar Blues*.

The endocrinologist John W. Tintera was very emphatic in describing the relationship between sugar and the whole person. He said: "It is quite possible to improve your disposition, increase your efficiency, and change your personality for the better. The way to do this is to avoid refined sugar in all forms and guises."

2.2 The Sugar Diseases

Sugar usage has been associated with so many different diseases and metabolic disturbances that it would be difficult to discuss them all in this lesson. However, four of the more common ailments related to sugar consumption can be briefly covered in this lesson. The reader interested in finding out more about the relationship between sugar and disease should consult the book *Sweet and Dangerous* by Dr. John Yudkin.

2.2.1 Tooth Decay

The connection between sugar and tooth decay is probably better known than any other hazard of sugar consumption. Sugar eating contributes to tooth decay because its metabolism by the body requires extra calcium to be drawn from the bones and teeth, thereby weakening the teeth and making them susceptible to decay. Not only white sugar, but all refined carbohydrates have been implicated as a cause of tooth decay.

2.2.2 Obesity

Sugar makes you fat because it supplies only calories, thus causing the body to overeat to obtain its needed nutrients. When you fill up on foods high in sugar, the body must have additional foods (and consequently calories) to get the nutrients it needs.

One pound of apples contains 263 calories, whereas one pound of candy typically has about 1800 calories. A chocolate bar has eight times as many calories as does a banana, ounce for ounce.

Fruit also supplies fiber and bulk to help make you feel "full." Sugar is fiber-free; you'll never experience a sense of physical fullness even after eating two cups of sugar. Consequently, you can overeat on sugar very easily.

If Americans would just eliminate sugar and all refined sweeteners from their diets, they would experience dramatic weight loss.

2.2.3 Diabetes and Hypoglycemia

Diabetes is the failure of the pancreas to produce adequate insulin when the blood sugar rises. Concentrated amounts of sugar cause a rapid rise in blood sugar. Eventually the pancreas can be worked to exhaustion trying to compensate for the unnaturally large amounts of sugar introduced into the body by way of white sugar and other concentrated sweeteners.

In a study of 16,000 people in the Mideast, Dr. Aharon Cohen discovered that among a population who had no past history of diabetes in themselves or in their immediate families, a significant percentage of them developed the disease after they introduced white sugar into their traditional diets.

Sugar-eating has also been associated with another metabolic disease, hypoglycemia. Hypoglycemia occurs when the body overreacts to the amount of sugar in the blood, and too much insulin is released. This condition often results when people have eaten concentrated amounts of sugar on a regular basis, and have "fooled" the pancreas into over-responding too often to the sugar level in the blood. Refined sugars are a no-no for hypo-glycemics and diabetics.

2.2.4 Heart Disease

In countries where there is a high amount of sugar consumption, there is also a high incidence of heart disease. The theory behind this is that high amounts of sugar cause the insulin in a body to convert blood glucose (sugar) into fatty acids and triglycerides (a kind of blood fat). People on a high-sugar diet develop a significantly higher level of fats in their blood than those who eat no sugar. This high fat content in the blood is believed to be related to the development of atherosclerosis. Sugar may also contribute to heart disease by increasing the blood pressure-raising effects of a high-salt diet.

2.3 Sweet Lies: The Sugar Defenders

Since sugar is a totally useless, destructive, addictive drug that is directly responsible for many debilitating diseases, why is its use tolerated or allowed? Our government shows little sympathy for the pushers of cocaine, heroin, amphetamines and other white powder drugs. Why then are food manufacturers allowed to dose their products with a sweet white poison that kills more people than all the illegal drugs combined?

Sugar is a cheap additive and food filler. As prices of raw food materials have increased, manufacturers of convenience and packaged foods add more and more sugar as an inexpensive extender. During the 1960's, for instance, the amount of sugar used in processed foods *doubled*.

Clearly there is a strong economic basis for putting so much sugar in packaged foods. The food processors and sugar industry have sought to justify this practice by hiring various spokesmen who defend sugar as an acceptable food. Hundreds of thousands of dollars are spent each year in a propaganda effort by the food and sugar industry to defend and promote the use of this refined sweetener. Advertising alone can sometimes convince the public that a harmful substance, like sugar, might have some legitimate use in foods.

Even twenty-five years ago, I remember seeing an ad for Baby Ruth candy bars that stated, "For QUICK ENERGY eat Baby Ruth candy! It's full of dextrose!" Dextrose is simply another refined sugar made from corn starch, no better than white sugar. Sugar has always been defended as a food on one basis alone: it is a "fast fuel"; it gives you a "surge of energy" and "needed calories."

Sugared cereals were promoted for breakfast a few years ago because they were "full of instant energy to start your day." Finally the government cracked down on the manufacturers for so unashamedly pushing their sugar products as something that might be beneficial. Sugar has always been defended and promoted on the fact that it has calories. That it does, and absolutely nothing else.

Consuming these nutrient-empty calories is dangerous—it's like racing a car on high-octane gas without any oil or water in the vehicle. You'll go fast for sure (ever notice a person who is jumped-up on sugar?), but you'll burn out in a very short time.

Still, sugar-cereal manufacturers, fast-food operators, and the processed food industry have to show a profit, and if it's by deceiving the public, well they can always find a person with credentials eager to sell their services.

Consider these amazing statements by Dr. Frederick Stare of the Harvard School of Nutrition:

"Calories are energy, and I would recommend that most people could easily double their sugar intake daily. Sugar is the cheapest source of food energy, and I predict it will become much more prevalent in the diets of the world. People say that all you get out of sugar is calories, no nutrients. Like many foods, I expect it to be fortified in the future. There is no perfect food anyway, not even mother's milk."

Can you picture this someday? "NEW! Fortified sugar, with vitamins A, B and C added! Better than Mother's Milk!"

Readers should be aware that the Sugar Foundation regularly contributes large amounts of money to Dr. Stare's department of nutrition at Harvard University.

There will always be sweet lies about sugar and refined sweeteners. There will always be defenders who can be had for a price. But the truth remains: sugar will kill you just as surely as anything you can eat.

Out of all this sugar, 20% of it is consumed in soft drinks alone: Many breakfast cereals are 40% to 50% sugar. The following table can give you a general idea of how much sugar is "hidden" in food.

3. Sugar: Where Does It All Come From?

3.1 Hidden Sugars In The Diet

Most people do not know that they regularly eat large amounts of sugar. "I never add sugar to my food or drinks," they say, "so how can I be getting that much sugar?"

Actually, over three-fourths of the 128 pounds of sugar most people eat each year is in processed foods. You never see it and you have no control over the amounts added. Sugar is used in packaged foods to prevent spoilage, to retain moisture, to maintain texture and appearance, and, of course, as a sweetener. It's an all-around, cheap filler.

So how much "hidden" sugar is in the American diet? About one-third of a pound every day or about 600 calories. One-fifth or more of the total food intake each day comes from refined sugars.

Food	**How Many Teaspoons of Sugar?**
Cherry pie (1 slice)	14
Soft drinks (16 ounces)	10
Chocolate milk (1 cup)	6
Canned peaches (2 halves)	4
Jelly (1 tablespoon)	3
Candy bar	18
Fudge (1 square)	4

Chewing gum (1 stick)	.5
Doughnut (1)	4
Cake (1 slice)	15
Cookie (1)	1
Icecream (1 cup)	12

The foods in the preceding table are only some of the more well-known sugar-containing foods. Many processed and packaged foods, however, contain sugar, such as most canned vegetables, frozen fruits, breads, food mixes and additives, baby food, salad dressings, peanut butter, and almost any food sold on the grocery shelf.

Foods prepared in restaurants and fast food places also may contain high amounts of sugar. French fries, for example, are often soaked in a sugared solution before they are frozen and shipped.

3.2 How To Avoid Refined Sugars

So, how can you eliminate sugar from your life? Simple. Buy no processed or packaged foods, be careful when dining out, and never add it to any foods or drinks you prepare.

Don't worry about "healthful" substitutes—there aren't any. You don't need refined or unrefined sweeteners in any form. You don't need to gradually taper off or reduce your refined sugar intake. You can stop immediately, today, and suffer no withdrawal effects.

Sugar use is indefensible. Not only should it be avoided, but it never should have been introduced into the diet in the first place.

Although we have been discussing common white table sugar, there are several other refined and unnatural sweeteners and sugars that you should also eliminate for optimum health. Some are the more common "health" substitutes for white sugar, such as brown sugar, raw sugar and maple syrup. Some are the more recently introduced artificial sweeteners such as saccharin and cyclamates. Others are the close sugar-relatives, like dextrose and corn syrup. And one is that favorite food of health enthusiasts—honey. Let's now look at the other sweeteners in the diet and see how they are harmful to the body.

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4. The Cousins of Sugar

Often in "health" food recipes, you'll see the use of *raw sugar* or *brown sugar* in place of white sugar. These two sugars have a bare minimal amount of vitamins and minerals—almost none, actually, but still more than white sugar. Brown sugar is just white sugar colored with a little molasses and raw sugar is simply white sugar that may be missing one of the many refining steps that all sugars go through. Another partially refined sugar is *turbinado sugar.*

All of these "cousins" are also sucrose—the same as white sugar, and the differences between all of them are so slight as to be indistinguishable. It's like arguing what will get you the least drunk—whiskey or scotch. The use of these sugar cousins is usually confined to those people who already know better than to use white sugar in the first place, but they attempt to assuage their guilt by using these equally harmful substitutes.

4.1 Sugar From Corn: Dextrose and Corn Syrup

Made from cornstarch, *dextrose* (also known as glucose) is a leading contributor to the adulteration of food. Dextrose is mixed into a wide variety of processed foods. As early as the 1920's, Dr. Harvey Wiley stated that flooding the stomach with dextrose creates an artificial situation that would require an additional half-dozen pancreases for our body to cope with it. The sugar refining interests influenced Congress so that dextrose (or glucose) was allowed to remain a legal food additive.

The liquid sugar form made from cornstarch is called *corn syrup*. It, too, is a widely popular food additive used in items such as frozen vegetables, pancake syrups, wines, and even aspirins.

Corn syrup is usually added along with salt, sodium citrate, citric acid, algin derivative, and artificial flavorings and colors, so the consumer gets a triple-deadly dose of food additives.

4.2 Fructose—the Sugar From Fruits

Fructose is commonly known as "fruit sugar" and is the predominant sugar in fresh and dried fruits. Along with grape sugar, dextrose, and levulose, fructose is classified as a monosaccharide carbohydrate with the chemical formula C6H12O6.

Fructose is a natural sugar, and it is found in many fruits along with wholesome nutrients such as vitamins, minerals, enzymes, etc. It is the energy component of fruits, and the liver converts it to *glucose* which is then either used for immediate fuel needs or is stored as *glycogen* for later energy use.

For each molecule of fructose, the body forms one molecule of glucose, and thus the energy needs of the body can be efficiently met by natural fruit sugars.

Fructose when it is consumed in *whole fruits* is a wholesome fuel. When it is made into a *refined powder* or separated from the sucrose of which it is a part, fructose is a disruptive toxin.

In recent years, fructose has increasingly been refined and made into a fine white powder and sold as a "safe", sugar substitute. While fructose use is promoted because of its presence in fruits, it is no different from white sugar because it is refined from white sugar.

In its refined state, fructose is a concentrated and toxic carbohydrate that has been stripped of all vital nutrients. It is a fuel devoid of nutrients, and is certainly not "health promoting."

Refined fructose is very soluble and is absorbed by the mucosal cells of the intestinal tract at a rapid rate. This quick absorption fructose, without any co-existing nutrients, can cause the same harm as sucrose, or common white sugar.

Refined fructose intake can result in several toxic effects, such as: disrupted liver protein synthesis, acute hypoglycemia, elevation of blood fats, and general metabolic disturbances.

When you eat fructose along with other nutrients in the form of fruits, you are receiving a high-quality and complete body fuel. When refined and stripped of nutrients, "pure" fructose becomes a disruptive toxin in the body.

4.3 Maple Syrup

If it comes from a tree, it must be okay for you to eat, right? Wrong. While maple syrup comes from a natural source (like fructose and sucrose for that matter) and it does contain some nutrients, it still is a nutritionally unbalanced food. It undergoes high-heating and adulteration in its processing and manufacture.

Besides being concentrated and deadened by high heat, maple syrup may also be contaminated by paraformaldehyde which is used during the tapping process to destroy bacteria. Formaldehyde compounds are poisonous and certainly should not be eaten in food.

Maple syrup is rarely a pure food; other sugars and sweeteners may be mixed in and added without telling the consumer. Sugar, corn syrup, and other refined sugars can be used to stretch out the more expensive maple syrup. Maple syrup is not a pure and unprocessed product; high heating alone makes it inferior and undesirable in an optimum diet. The sugars present in the syrup have become concentrated beyond their natural strength by the introduction of heat in its manufacture. Maple syrup seems to be especially popular with vegans (people who eat no animal products, such as honey), however, they should be aware that maple syrup is still a refined sweetener that has no proper place in the human dietary.

4.4 Molasses

Molasses is another highly heated sweetener like maple syrup. This food item is discussed in detail in another lesson as an example of a "junk food" product, so we will not go into detail in this lesson about it. Its use is chiefly promoted because it is a concentrated source of minerals (usually iron); however, the same process which concentrates the minerals (high heat, etc.) also destroys them. Further, pesticides and chemicals used in growing and processing are concentrated in the product. It becomes a heated, dead food that is a storehouse of toxic chemicals as well as toxic minerals. In addition, the high-sugar content of molasses is caramelized. It is poorly handled by humans. Molasses has no benefits. It is pathogenic from other nutritive aspects.

4.5 Honey—How Healthy Is It?

What could be more natural than honey? Health seekers have sung its praises for years, and it is promoted as a beneficial, healing food. Is honey a perfect food, easily digested, and toxin-free as so many writers would have us believe?

Actually, honey is little better than most of the other refined sweeteners and sugars. True, it can be had with little processing and no heating, but does that make it a natural food for man? The truth is that honey contributes to tooth decay, obesity, diabetes, and other diseases that white sugar use has been linked with.

Honey is defended as a wholesome food because it has been used for a long period, much like milk and dairy products. Like milk, honey is a food that is produced by an animal to *feed its own species*. It is not a natural food for man—it is a natural food for bees.

Honey is produced by the bees modifying the nectar of flowers with formic acid produced within their bodies. The bees regurgitate the honey after mixing. Water is evaporated from the honey by air currents generated by the wings of worker bees. The nectar is usually vomited up several times before it is mixed enough with the bees' own preservative secretions.

The honey is also produced with various enzymes to meet the special needs of the bees themselves; consequently, the changes that occur in the production of honey are not amicable to man's metabolism.

Bees are often robbed of their food product and forced to live on sugared water by their keepers. Often, poison sprays such as carbolic acid and benzaldehyde are sprayed into the hives (and onto the honey) to chase the bees away so that they may be robbed.

Most commercial honey is heated, filtered and processed. Even bees cannot live on heated honey for long. If fed such honey, the bees sicken and die. Honey may also be adulterated with white sugar syrup, corn syrup and other additives, so honey is rarely the "pure" product it's advertised to be.

Honey is almost pure sugar and water. There is a minute amount of mineral material in honey, and it is this mineral content that health enthusiasts point to as a justification for using honey instead of white sugar. This argument is faulty because the mineral content is so low that you would need to eat 200 tablespoons of honey a day to meet your calcium requirements, 91 tablespoons for your potassium needs, and 267 tablespoons to satisfy your phosphorous needs. Obviously honey has minimal nutritional value for humans.

Honey has also been shown to destroy teeth even faster than white sugar. A study at Oregon State University demonstrated that some honeys may contain cancer-causing substances that the bees have extracted from certain flowers. Other honeys have been associated with botulism, an often fatal form of food poisoning.

Honey is not for the health-seeker; indeed, it is not for any human being. Honey is not for the birds either—it's for the bees. They made it, let them eat it.

4.6 Sugars From Coal: Cyclamates and Saccharin

All the sweeteners discussed so far have been derived from plant sources either directly (corn syrup, white sugar, maple syrup) or indirectly (honey). Two popular sugar substitutes, however, come from coal-tar.

In 1879, a substitute for sugar was discovered that was 300 times as sweet as white sugar. Called *saccharin*, a pill the size of a pinhead can sweeten a cup of coffee.

In 1970, researchers at the University of Wisconsin reported a link between saccharin use and cancer of the bladder. Based upon this and other studies, the F.D.A attempted to ban the sweetener in 1977. A public uproar developed, however, because with the removal of saccharin from the market, there would be no way for diabetics and other people on a sugar-restricted diet to obtain concentrated sweeteners (or so the reasoning went). Congress therefore imposed a ban outlawing the removal of saccharin but required stores to post a notice indicating that products containing saccharin were sold there.

Needless to say, this artificial sweetener is dangerous enough to be banned, and should be avoided by ail people.

A relative of saccharin is a group of sweeteners known as *cyclamates*. Cyclamates were promoted in the 1950's as a way for obese Americans to satisfy their sweet tooth without paying the price in calories. Cyclamates are 30 times sweeter than sugar and had been manufactured as early as 1937.

By 1969, about 175 million Americans were consuming 20 million pounds of cyclamates every year. In the next few years, medical reports stated that injury to fetuses, diarrhea, and damage to kidneys, the liver, the intestinal tract, the adrenal glands, and thyroid could be traced to cyclamate use.

Cyclamates were finally banned in 1969, about 14 years after their harmfulness was first revealed. Unfortunately, the refined sugar products, equally dangerous in their own way, are still allowed to be sold. Perhaps in a few more years, an enlightened public will demand the removal of white sugar and other sweeteners from their foods as well.

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5. Some Final Thoughts about Sugars

Why do human beings want sweet foods in the first place? What are some safe ways to satisfy our sweet tooth?

Dr. Gary Beauchamp of the University of Pennsylvania stated that our sweet taste has served us well in the course of evolution. Our sweet tooth allowed us to know when foods like fruits and berries were ripe and ready to eat. It guided us to the selection of naturally wholesome foods. Our sweet tooth and desire for sweet foods is perfectly natural and desirable.

In recent times, however, our sweet tooth has become perverted. Dr. Beauchamp says that now "we've separated the good taste from the good fun," and our sweet tooth is leading us astray with the introduction of refined and supersweet artificial sugars in the diet. Actually, refined sugars and the like achieved their stronghold first in countries where there was not an abundance of fresh sweet fruits. White sugar has served as a poor and dangerous substitute for fruits in climates where fruits were no readily available. Fortunately in today's world, we are now able to satisfy our sweet tooth naturally, but we've been deceived so long by the artificial and refined sugars that it takes some time to readjust our taste.

Once refined and artificial sweeteners are eliminated from the diet, you will gradually re-acquire your naturally discerning taste and avoid all such refined and unnatural sugars with little effort. They will cease to appeal to you as you re-discover the natural sweetness and goodness of fresh fruits.

Humans naturally seek to eat sweets. Thus the act of sweetening foods is to meet our biological adaptation to sweet fruits.

One of the foremost evils of using sweeteners is on the grounds of incompatible combinations. Anything sweet naturally does not require sweetening and anything that we sweeten is intrinsically incompatible with sweets.

We are not natural fat or oil eaters. We get this incidentally but sufficiently from our proper foods of fruits. We are not natural protein eaters. We obtain our needs incidentally but sufficiently from fruits. We are not starch eaters. We have a limited capacity to digest starches—a capacity that was developed very poorly—sufficient to handle starches incidental to fruit-eating. The ptyalin of the mouth is so poor in its digestive capabilities that it digests less than 5% of the starch. Final digestion of starch must be carried on with pancreatic amylase in the small intestine.

While simple sugars such as fructose and glucose require no digestion, sucrose must be broken down into these respective monosaccaride components before absorption can occur.

Mixed with fats, starches or proteins, all sugars, simple or more complex like sucrose, are an abominable combination. The sugars are held up while the more complex foods are being digested. They quickly ferment, forming vinegar and alcohol. This is toxic enough in itself but the digestion of the foods with which they! are mixed is then vitiated so that marked indigestion occurs.

There are no counts justifying the use of sweeteners. Our yen for our natural sweet fare should be sated with our *natural* sweet fare.

Remember: when you eat fruits, you not only satisfy your sweet tooth, but you supply the body with the finest fuel available along with a storehouse of valuable nutrients and elements. Say good-bye to the sweet imposters, and hello to a new life of health and well-being as you eliminate sugar forever from your diet!

6. Questions & Answers

Well, you've pretty well eliminated any possible sweetener I could use. Isn't there anything we can use to add extra sweetening to our food that isn't harmful?

If you are having fruit meals, you can add dried fruits for a concentrated sweet flavor. In connection with that, you can also consider date sugar as probably the least harmful of all concentrated sweeteners. Although made entirely from dates, date sugar is still not an optimum food because it is usually dried at a high temperature before being powdered.

Another difficulty with using any added sweetening to foods is that it generally leads to unsuitable food combinations, unless the foods are fruits (which probably don't require extra sweetening in the first place).

If you're eating a proper diet, high in fresh fruits, your sweet tooth will be well satisfied without any concentrated sugars.

My husband is a diabetic, and we've been using artificial sweeteners instead of refined sugars. We're going to stop now since we've learned about the carcinogenic (cancer-causing) properties of these additives. But can he start to eat a lot of fruit, since he is diabetic?

Fructose, as it exists in fruits, has a greater advantage for diabetics than other sugars. Unlike other sugars, fructose does not require insulin to get into the liver and the body cells. So when you eat fresh fruits high in fructose (natural sugar), there's no sudden demand for insulin, which diabetics cannot produce in adequate amounts. Similarly, fructose in fruits is also an ideal sugar for hypoglycemics. Remember, don't get this confused with the refined fructose (the white powder) which should not be used by diabetics, or anyone else for that matter.

I've heard so many good things about honey. I just can't believe it could be as bad for you as you say. We have our own bees, and I think they give us the best sweetener available.

People who have milk cows frequently make the same statement when they are told about the harmfulness of milk products. People that hunt and kill their own meat also think that because they are getting their product "fresh," it must somehow negate the bad aspects of the food.

I congratulate you on having bees around. They perform a very vital job in the garden and orchard by pollinating these plants. But why do you want to rob them in return and eat a food that was made by the bees for themselves alone to eat? Every species has its own food to which it is uniquely adapted. We humans are best suited for the fresh fruits and vegetables of the earth; that is our physiological nature. Bees are best suited to the honey that they make with their own body secretions.

It often takes a long time for the realization that cow's milk (another animal food) is not suitable for man to eat, even if it is fresh and unprocessed.

The simple truth is that if you are eating a natural and optimum diet of chiefly fresh, raw fruits and vegetables, you will have no desire for a concentrated sweetener like honey in the first place.

This may sound silly, but what about desserts or candies? Without some kind of sweetening, you take a lot of pleasure out of eating. How could I ever make a cake for instance?

> You're not going to like this answer, but you really shouldn't be eating or making these foods in the first place. I repeat, if you are eating a sufficient amount of fresh or dried fruits throughout the day, you're not going to want cakes, pies, cookies or candy. You can make a whole meal one big "dessert" if you have an all-fruit meal.
>
> People desire pastries and other sweets when they have neglected the fruit part of their diet. However, don't use fruits just as a dessert for a conventional meal; this is a poor food combination. Make fruits a whole meal in themselves once, twice or three times a day. You'll never want pie or cake again once you've re-educated your taste buds.

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Article #1: Why Honey Is A Harmful Food By T.C. Fry

It is, of course, true that honey is a wonderful food—for bees! The popularly fostered idea among health seekers that honey is a wholesome, nutritious and natural sweet for humans is fallacious.

Honey is the product of the bee's stomach. The bee ingests pollen from flowers and, in its stomach, mixes it with formic, manite and other acids. Then the honey is deposited in cone cells and, by the wind created by a multitude of bees wings, substantially dehydrated.

Without these acids and the drying, honey would readily ferment and prove unusable for the bee which must have a dependable food supply for up to eight months in some of the harsher climates. Because of these acids and dehydration, honey is impregnable to bacteria. It is rather poisonous in the human digestive tract.

As a food for us honey is woefully mineral and vitamin deficient. Humans require infinitely more food factors than bees.

While honey contains several very desirable sugars, these have been rendered toxic by the protective acids imparted to them by the bees. These acids are the bees' preservatives. Humans do not have the enzymes to break these acids down, as have the bees, and must rob their bodies of vital base-forming minerals to neutralize the acids.

When humans eat honey, it immediately begins to reabsorb moisture from the stomach and stomach flora. It destroys our symbiotic bacterial population wholesale. Several tablespoons of honey makes most people very sick.

In humans honey, more so than cane and beet sugars, is acid-forming and decalcifying. The body draws calcium from its teeth and bones, if necessary, to neutralize the acids *introduced* and *formed*.

Manite acid of honey is a protoplasmic poison. It interacts with protein and from this, forms alcohol, ammonia and carbonic acid.

As eaten, honey is an atrocious food. It is usually added to starches and proteins as a sweetener. It readily ferments when held up in the stomach with other longer-digesting foods. The byproducts alcohol, ammonia and carbonic acid are deleterious to human health.

Honey is, therefore, neither a nutritious nor a safe food. Life Scientists should not use honey as a part of their diet.

Article #2: More About Honey By T.C. Fry

Ida Honorof publishes a newsletter entitled "Report to the Consumer." She usually goes into a subject in-depth and certainly she is one of the most outspoken persons in America on environmental concerns.

Anyway, in March she published an extensive article about honey. She recommends it in place of sugar. But, to her credit, she gives us a very frank appraisal of honey as a food and points out that better sugars are to be found in organically grown fruits.

First, she points out that, though pesticides are toxic to bees, not all bees succumb to toxic substances and that today's honeys cannot be called organic in any sense—most honey has pesticide residues in it. Bees gather this from flowers along with the nectar and pollen.

Then there's the matter of the nutritiousness of honey. It has only minute quantities of nutrients though it has "nutritional merit." Ms. Honorof says, "Many people converted to using honey, often excessively, despite the fact that to the human body, honey is hardly different than refined sugar—remember honey was meant for the bee." Which is to say that honey is not our natural food but natural food for the bee.

She quotes a famed bee specialist, Colonel Clair of Hawaii. Some of the data she quotes turns out to be very revealing, a lot more than honey promoters would appreciate.

First, most beekeepers rob their bees of practically all the honey and substitute for it water and sugar or wastes from candy factories. Anything sweet and cheap is substituted for the honey taken from the bees. The result is diseased bees. Further, the chemical industry has begun furnishing "medicines" or drugs for beekeepers just as they have furnished "medicines" for humans.

We Life Scientists have great concern for bees. They are our symbiotic partners in Nature. And the despoliation of bees must lead to our own—we are very much despoiled and depraved already.

It seems the worst enemies of bees these days are uninformed beekeepers who try to exploit bees to the maximum. They are paid for their hives by orchardists. Then they rob the bees of honey too. That doesn't mean the apiarists are making it rich but it does mean the poor bees are being meanly used, not only to their detriment but to ours! Of course this applies only to most beekeepers who supply in huge quantities the refined honey on supermarket shelves.

Ms. Honorof's article is in many ways revealing. One of the closing highlights is that honey, itself, is practically non-nutritious. It is the pollen grains in the honey that bear most of the nutrient complement.

Colonel Clair, her source of information, cautions against using heated honey altogether. He praises honey for its "antibiotic qualities."

That praise must be, to thinking people, damnation! For antibiotic means "against life." While they mean antibacterial, the word is correct, for an antibiotic is truly against all life.

But the clincher is the final admonition: "Honey must be eaten sparingly, in very small amounts." Our own admonition is: *If anything must be eaten in moderation or sparingly, it should not be eaten at all.*

Article #3: Blackstrap Molasses: Super Junk Food By T.C. Fry

The sales job the aluminum and chemical industries did to put their poisonous wastes, that is, fluoride compounds, into much of the nation's drinking water as a health measure must, by all standards, be called masterful even though fraudulent.

But, by comparison, you must positively applaud the sugar industry in selling its primary waste product to "health consumers" who pride themselves upon their food savvy, fastidiousness and awareness. In fact the sales job done on the "health food crowd" is so good the sugar industry gets more money from their poisonous waste than from the primary product, unwholesome white sugar.

The extent of the esteem in which blackstrap molasses is held merely points up the gullibility, credulousness and generally uncritical thinking with which "awakened" people accept "health claims" if they come from the "right" quarter.

Of course it is fitting that you and I should not have to be concerned with our food any more than the air we breathe. We should be able to accept all the food we eat as uncritically as the animals in their natural habitat eat the foods of their adaptation. *That's the way it should be!* For there are more productive, cultural and joyful pursuits in life than immersing ourselves in concerns about our stomach and what to put into it, our bowels and their business, our liver and its business, etc. Under the circumstances it is proper that we be deeply concerned. But our concern must be bolstered by deeper thinking than that which so readily endears such a pernicious product as blackstrap molasses.

Talk about candy, primarily a white sugar product, being a junk food, it can't even hold a candlestick to blackstrap molasses! Blackstrap is over 50% sucrose itself and that's the least of its drawbacks in the human diet! Anything bad that can be said about white sugar and candy goes double and triple for blackstrap molasses.

With candy at least you have sugar that has gone through only two or three cookings. And the chemicals used in its extraction are in the molasses, not in the sugar. Further, candy often has the virtue of having some nuts or nut butters, fruits, etc. in it. But, nevertheless, candy's reputation as "sugared junk" is well deserved.

But if candy is junk, then molasses is super junk! For molasses has more of the same evils that candy has plus some evils that candy and white sugar never had (unless it contains molasses which some candy and brown sugar does) and it has none of the "redeeming qualities" that some candy has.

I have several "health" publications that go into ecstasy over this "natural health food." A natural health food, mind you! And some mighty big names in the "health field" lend their endorsement—in fact almost all the big names in the popular health field would consider themselves remiss if they had not sung the praises of blackstrap molasses.

Before we get into the nitty gritty of just what blackstrap molasses represents and how this foul-tasting waste product came to be so popular, let's investigate that "natural" angle.

When we speak of a natural food we mean, of course, a natural food for humans.

Now Nature has been, on the scene for who knows how many eons of time. Blackstrap molasses has yet to reach its 300th birthday! *Nature came mightly late in providing us with this wonder food!* Nevertheless, let's put blackstrap molasses to the "natural" test.

1. TO BE NATURAL, a food must be one to which humans have adapted anatomically, physiologically and psychologically.
2. TO BE NATURAL, a food must be delicious to the palate of humans in its natural state.
3. TO BE NATURAL, a food must be eaten and relished in its living or raw state. Humans, like

animals, weren't endowed with cook stoves.
4. TO BE NATURAL, a food must have been nurtured to its finished state by Nature by strictly natural agencies.
5. TO BE NATURAL, a food must appeal to unperverted human gustatory senses, i.e., to our senses of smell, taste and sight such as does a beautiful redolent apple, for instance.
6. TO BE NATURAL, a food can be eaten alone and relished by unperverted palates.

These are only some of the criteria for a natural food of humans. How does molasses stack up against these yardsticks?

1. To begin with, humans haven't been eating molasses long. No adaptation whatsoever could be possible. Psychologically the product has no appeal at all except that we are conditioned to it as we are to other perversions. Children rebel against the stuff, something they don't do with, say, apples or bananas.
2. Molasses is not delicious to any normal palate and is repulsive to most who "eat it for health" reasons. Molasses has no natural state inasmuch as Nature never created such an abomination.
3. Of course Nature did not even get into the act on molasses—it is strictly a manufactured product. To represent that the sugar cane and beets from which it came is reared organically by natural means is a gross absurdity.
4. Molasses has no living state, for Nature did not create it. It is a waste product in the production of white sugar with all its evils plus a host of its own. Molasses is one of the most cooked substances you can buy. As our friends into Yoga would say—it has no prana or life force.
5. Blackstrap molasses is repulsive to our senses of smell of taste and sight.
6. And last, but not least, blackstrap molasses cannot be relished by itself by even the hardiest! A proper food of humans can be eaten as a meal. For instance we can make a mono meal of any one of these foods: apples, watermelons, cantaloupes, bananas, grapes, oranges, peaches, apricots, figs, dates, etc. And you can live well on one of these foods alone for several weeks with healthful results. Many people do! Can you imagine trying to live on a mono diet of blackstrap molasses for several weeks? Or some of its syrup cousins, including the highly touted maple syrup and honey?

So much for the "naturalness" of blackstrap molasses. It doesn't meet one single criterium as a natural food for humans. And certainly a food that is not natural to humans cannot be healthful for humans. Moreover, you wouldn't consider putting an unnatural, unhealthful food into your body, would you?

For more detailed information on molasses, see Lesson 35 - Junk Foods: A Case Study On Molasses

Lesson 31 - Refined And Processed Foods Are Hazardous To Your Health

- 1. Introduction
- 2. Questions & Answers
- Article #1: Pure Starch Factors by Thomas E. Scown
- Article #2: Cereals, Grain, Flour

1. Introduction

Every day the scientists looked in on their cage of mice. Each time one or more dead animals had to be removed from the cage. After about sixty days, more and more mice were dropping dead. One of the scientists looked worried.

"I don't know how much more of this experiment they can take. We may end up killing all of them in the next few weeks if we don't stop."

The other scientist nodded his head. "It seems cruel, I know," he said, "but I think we're discovering something important here. This diet we've got them on should tell us a lot more about proper nutrition—or rather, what poor nutrition can do to an animal."

The second scientist sighed. "You're right. Here's their meal for today."

"The same as yesterday?"

"Yes, and the same as the day before and the day before that. You know that's the only food we're feeding them for ninety days."

The younger scientist took the food and tore it into pieces and dropped it among the mice. They moved sluggishly toward it and sniffed it. Some were huddling in a corner, sick and barely able to move.

He finished feeding the mice their experimental diet. He brushed the crumbs from his hands. "Guess I better get another loaf of bread to feed them again tomorrow. Same brand?"

"Doesn't matter," said the older scientist, "Just so it's white."

After a ninety-day diet of white bread, 40 of the 64 mice were dead. The survivors had developed many of the diseases of "modern" man—heart problems, anemia, and extreme nervous disorders.

White bread, breakfast cereals, flours—all refined grain products contribute-greatly to this nation's ill-health. Yet studies indicate they make up *one-third* of the average person's total carbohydrate intake each day.

1.1 What Are Refined Grains?

A refined grain, or its product, is made by processing a natural whole grain so that some of its nutrients are lost. Flours, breads, cereals, noodles, pastries—almost all grain products have been refined in some way or another.

White rice, corn grits, wheat flour, hominy, a piece of toast, a cookie, the bowl of snap-crackle-and pop each morning—all are examples of refined grain products. *ALL* are harmful additions to the diet.

1.2 Why Are Refined Grains Harmful?

Refined grains and their food products are substandard foods for several reasons:

1. They're excessively starchy—in fact, they're the most starchy foods eaten by humans. All starches, even unprocessed and unrefined ones, are handled with difficulty by our digestive system. When refined, their starchy nature is emphasized.
2. They're almost always eaten in a poor food combination—such as sandwiches, or sweetened pastries, or bowls of cereals. Invariably, they're mixed or cooked with other starchy foods or heavy proteins, or fried in fats.
3. They are acidic in nature, due to their mineral content, and consequently, they acidify the body and predispose it to excessive mucus formation.
4. They are practically devoid of natural fiber and low in moisture, hence constipating.
5. They must be cooked, altered, and otherwise processed before being eaten.

And perhaps most important of all, refined grain products are *nutritionally imbalanced*. It is because of this imbalance that these foods are responsible for several degenerative diseases. Calcium-leaching from the bones and teeth occur because of the altered phosphorous-calcium balance in these products. Sugar and refined grain products are primarily responsible for all tooth decay in this country, as well as the major cause of brittle bones in the elderly.

In natural organic foods that are eaten in their whole and unprocessed state, all the elements for proper nutrition are in their proper balance. This balance is completely destroyed in the refining process of grains.

For example, the mineral cadmium always exists along with the mineral zinc in foods. The zinc acts as a balancing mineral for the cadmium and prevents it from being absorbed in too large amounts by the body. Cadmium, in excessive amounts, is hazardous to human health (it is one of the poisonous elements in cigarette smoke, for instance). When grains are refined, the zinc mineral is destroyed but the cadmium is not; so, you get a massive absorption of cadmium without the balancing effect of the zinc when you eat refined grains.

As another example, both iron and copper minerals are destroyed when grains are refined. Copper is necessary for the utilization of iron by the body to build a healthy bloodstream. Inorganic iron (useless to the body anyway) is added back to the stripped flour, but of course the copper is not. You can't fool around with the natural balance of nutrients in foods, and then hope to restore them or negate the harmful effects created by this processing.

The B-vitamins, vital for the health of the nerves and body, are quickly destroyed by any refining of the grain. Interestingly enough, the body requires B-vitamins to metabolize or use these grain products (which is why they are present in the food in the first place). If these vitamins are removed from the grain products, then the body must rob from the current supply of B vitamins in the body so that these refined grains can be digested.

Not only are refined grains and their products nutritionally deficient and imbalanced, they can also contribute to a loss of vitamins and minerals already present in the body.

Two of the most popular ways of eating refined grains are in the form of bread and cereals. We'll look at these two products in great detail so that we can understand why refined grains have no place in a healthy diet.

1.3 Food Processing and Grain Products

Food processing is used to describe everything from home cooking to sophisticated food-manufacturing processes. Actually, anything we do to alter the original state of food, be it cooking, blending, refining, or adding a hundred chemical ingredients, is a form of food processing.

When we talk about food processing and grains, however, we are mostly concerned with food refining. Refining is the breaking down of a whole food into various parts. Grains, for example, are often eaten in the form of flour products such as breads, pastries, etc. Few people in America eat grains in their whole forms as they are harvested. Whenever foods are eaten in fragmented, refined, or processed form, a lower level of health invariably results.

Food is man's most immediate point of contact with nature. As such, it must be suited to the laws that govern our body. While the human body is a remarkably flexible instrument, it cannot adapt to foods that have been radically altered from their natural form. Grains, as we shall see, are probably not an optimum food for man anyway; when they are processed, refined, and altered, they can become injurious.

When beginning the study of a subject such as this, it is useful to get a historical perspective. Fortunately, one area of food processing has been well documented for several thousand years: bread making. Bread is probably the first refined and processed food product eaten by man. We can understand the effects of refined grains on the body if we study the history of bread-eating from ancient times to the present.

1.4 The Early History of Grains

As long as primitive man could live in areas where fresh food was available for 12 months of the year, he had little need for agriculture. Fruits and vegetables, the mainstay of early man's diet, were well supplied in a semi-tropical environment. Foraging and food gathering were the main methods used to acquire food.

With the changing of the climate and the migration of primitive tribes, new food gathering methods had to be devised. Man needed to find some way to store nutrients for periods of time when no fresh foods were available. Seeds, such as cereal grains, seemed to be one way of solving the food storage problem, and so man became agricultural in lifestyle.

Grains were probably among the first cultivated crops. They were not as tasty or beneficial as the fresh fruits and vegetables, but they could be grown in large amounts for storage in climates where the winters were harsh.

This development occurred only about ten thousand years ago—a very short length in the half-million year or so span of, man: With this growing of grains, cooking developed. If cooking had not started, it is doubtful the cereal crops would have been of much use to man. Cooking, the first food processing, developed simultaneously with grain agriculture.

Early grain processing seems to have consisted of either toasting the whole grain, or heating it up in watery mixtures, such as porridges or gruels.

By the time of recorded history, however, man had learned to process the grains farther and farther until he was finally able to make bread from his crops.

1.5 The Loaf of Bread

Until about 3000 B.C., grains were pounded in mortars to make a rough meal from which the bread could be partially sifted. This meal was then mixed with water and heated to form a porridge.

The Egyptians developed a grinding process in which the grain was crushed between two rolling stones. This allowed the endosperm of the grain to be reduced to a fine flour so that it could be sifted finer and finer from the coarser bran. This produced a flour that was refined enough for baking or bread-making purposes. As you can see, bread is a relatively new food in the diet of man. The loaf of bread, "staff of life," has only been around for the last five thousand years or so, or less than 1% of man's existence.

The Greeks improved upon the grain-grinding process with rotary grindstones, and by 500 B.C., combined flour mills and bakeries were operating in Athens. Bread was being sold commercially, and already there were different types of bread one could buy (such as coarse barley bread for slaves, wheat for the upper classes, etc.)

It was the Romans, however, who gave us our first "white bread."

1.6 The Fall of the Roman Empire

During Roman civilization, flour milling technology rapidly developed, and soon the Romans were making four or five commercial grades of flour. The finest flour, almost a creamy color and not quite as white as that of our white bread, was sold only to the upper classes. Interestingly enough, the wrestlers and athletes of that time were fed the coarser grade of flour "to keep their limbs strong."

Of course the "finer" or more refined flour eaten by the Romans had far less nutritional value and was a more fractured and fragmented food than had been eaten by man until that time. The Romans associated their new white bread with goodness, purity, nobility, and birth. These emotional feelings of refinement, higher living, snob appeal, etc. soon became inseparable from the texture, taste, and appearance of the white bread. As in modern times, the rich or upper class were the first to adopt the highly refined foods as a mark of "class distinction." The health of the Roman upper class degenerated through the years—some blame it on the lead content in their cooking vessels, and others point out their fondness for the new white bread. Whatever the reason, as the health of its leaders failed, the empire itself crumbled.

After the Romans, it was 1500 more years before the "art" of flour refining reached this height again.

So, what can we learn from this bit of history? Have we proven anything, other than that man became increasingly "sophisticated" in this bread-making abilities? Fortunately, we can trace the health of man as he began eating more and more refined products.

1.7 Refined Grains and Dental Cavities

By studying the skulls and tooth remains of ancient, man, from 3000 B.C. all the way to the twentieth century, researchers have been able to devise a table showing the amount of tooth decay experienced by man during various time periods. Let's look at the figures:

Dental Cavities From Ancient Times To The Present

Time Period	Percent of Teeth With Cavities
3000 B.C.	3%
2000 B.C.	4.5%
1000 B.C.	5%
100 A.D. (Roman)	11%
1000 A.D.	5.5%

1950 A.D.	24%

It is no coincidence that the Romans had more cavities than any other ancient people; they also ate more highly refined flour products. After the "art" of flour refining was lost with the fall of the Roman Empire, notice that dental cavities decreased by half, or almost back to their level before refined flour products were introduced. Then, less than a thousand years later, the cavities' percentage of modern man has increased *five* times over most ancient peoples. Needless to say, there has been an enormous increase in the amount of increasingly refined flour products in the last few hundred years. Do you think there is a connection? Many people do.

As poor as refined flour and bread products have been throughout history, they were still able to support life, if not enhance it. With the nineteenth century, however, the quality of bread became so poor that it was anti-life, or destructive.

In 1826, an experiment was conducted with the newly developed white bread of industrial England. The researchers discovered that "a dog fed on fine white bread *does not live past the 50th day*. A dog fed on the coarse whole bread lives and keeps his health."

1.8 Bread Not Fit To Eat

In the nineteenth century, mass production of bread began in earnest. In fact, the first assembly line in the world was devoted to making bread sea biscuits for English crews. This mass production of bread required that the product have good storage qualities.

This extended storage time for bread is the most often cited reason for the amount of refining done to the flour. The nineteenth century miller and baker discovered that the germ of the wheat contains oils and these oils go rancid over a period of time. The germ and the aleurone layers of the grain also contain the major food value of the grain, and these attract rodents and bugs. Remove the nutrients, refine the flour even more, and the rats and insects will leave it alone. *They know what many humans still don't know: that such refined flour products cannot support life and are worse than worthless to eat*.

This removal of the wheat germ and other nutritive factors from the bread as a convenience to the baker and *not* the customer marked the beginning of an era in food production. As bread-making progressed in the 1800s and 1900s, any changes made in the process were always done for the benefit of the *producer*. The consumer just, had to unconsciously adapt his taste to the type of bread that was best suited for mass production and rapid turnover. Bread was the first "technological" food; it was industrial food for the masses, cheap in cost and devoid of nutrition: the first junk food.

1.9 A Loaf of Chemicals

Bad as the bread was in the 1800s and through the mid-1900; it became much worse after the end of World War II. The chemical warfare banned in the war in Europe was just transplanted to the bakeries of America as the bread-makers began to slowly poison their customers with all sorts of new additives, bleaches, and preservatives.

Even refined flour still has natural yellow pigments (such as carotene—a precursor of vitamin A). The millers discovered they could remove this color and make their flour even whiter by bleaching it. They started blowing chlorine gas into the flour after it was milled.

Chlorine gas, a deadly poison if inhaled, not only bleaches the flour but also reacts with other molecules in the flour. Many potentially toxic chlorinated lipid compounds are formed from this chlorine gas, such as dichlorostearic acid.

Chlorine also destroys major portions of Vitamin E as well as an important amino acid in the bread protein, methionine (which is classified as "essential" for human nutrition).

Other chemical oxidizers are added to bleach and "mature" the flour, such as nitrogen dioxide, bencoyl peroxide, potassium bromate, potassium iodate, and azocarbonamide. Are they dangerous? *Well, Germany banned all such oxidizers back in 1958, 24 years ago!*

For softness and that white-bread texture, mono- and diglycerides are added to the bread dough at the rate of about 1/4 pound per year per person consumption. The effect is to make the bread more "plastic" or squeezable—nobody knows the effects on those that eat such additives.

What has happened since World War II is that man, for 5000 years previously, *mechanically* altered the wheat molecule by pounding and grinding. Now he has been chemically manipulating and reorganizing the wheat molecules. These chemical alterations in our food must have serious and long-time effects on those that eat such foods.

Out of the 100 pounds or so of commercial bread eaten each year by the average person, he also eats besides the refined flour such things as 2 pounds of salt, 3 pounds of sugar, 2 pounds of skim milk powder, 2 pounds of yeast, 1 pound of "enzyme-activator," 1/2 pound of sulfate, chloride and bromate chemicals, and 1/4 pound of other food additives. When all of these chemicals and nonfoods are eaten together, a *multi-toxic* effect occurs that has never been thoroughly studied by scientists.

1.10 Are Homemade Breads Any Better?

By now, most health-conscious people know that commercial breads (even 'whole-wheat' and organic ones) are health-destroying foods. So, these people often make their own bread. Does this make bread a "good" food?

Actually, no. Unless these people *freshly* grind their flour from organic, whole grains immediately before they make bread, they're still going to be using a substandard, toxic, and probably rancid flour.

Even if they use freshly ground flour, they still must add such things as salt, a sweetener, maybe some yeast, possibly eggs, milk, etc., and the product has been transformed into a mishmash of indigestible food combinations. All bread is usually cooked as well, which also adds to its toxicity.

Some people who feel that they must have bread have managed to compromise by making an uncooked product using only sprouted grains. Used in moderation, this is a marginally acceptable food. Due to its starchy and indigestible nature, however, such foods are not needed nor recommended for an optimum diet. If bread is ever included in the diet, it should be eaten as a starchy food and combined with leafy and nonstarchy vegetables.

The best way to use grain foods is not in bread, crackers, pasta, or whatever, but in their raw sprouted state. However, grains are only eaten when such foods as fruits, vegetables, sprouts, nuts or seeds are in short supply or not available.

1.11 The First "Health" Food

In the late 1880s, Dr. John Harvey Kellogg ran a sanitarium for vegetarian Adventists. Searching for a healthy meat substitute for his patients, Dr. Kellogg invented "Corn Flakes" in 1895.

One of Kellogg's patients, C.W. Post, was experimenting on himself to devise a "food cure." He came up with "Grape-Nuts," and the breakfast cereal industry was born.

Within five years, Post's cereals were making over a million dollars a year, and Kellogg had taken over the town of Battle Creek, Michigan, with his cereal factories. Up in Niagara Falls, Nabisco's Shredded Wheat had arrived on the scene, and the dietetic character of the nation was being slowly molded.

These three cereal companies were almost solely responsible for making refined cereals a major part of the American diet. The cereals were originally promoted for their supposed health benefits, and industrialized America was ready for its first convenience foods. Breakfast cereals had become the first commercial "health" food.

1.12 How Healthy Are They?

Television commercials tell us that if we eat one cup of this or that specially fortified cereal, we'll get 100% of almost all our vitamin and mineral requirements. They don't tell you that these vitamins and minerals are *inorganic* fillers and additives which have been laced through a sugar-coated product that is destructive to our health and well-being.

Nor do they tell that the reason they add those vitamins, etc. is because all the original nutrients in the grain have been heated, rolled, puffed, squeezed and sugared out of existence. The vitamins and minerals are added so the manufacturers can justify the prices they charge for a product that is Only slightly more nutritious than the box it comes in.

And the cereal manufacturers really blow their own horn about these miniscule amounts of nutrition by the advertising on the boxes and on television. If your chief source of nutritional information about breakfast cereals has been the charts and panels on the sides of cereal boxes, then the following facts may open your eyes to one of the biggest food frauds of the twentieth century.

1.13 It Used To Be A Grain Of Corn

What is a corn flake? How is it made?

First, the kernels of corn are soaked in lye. Lye is a caustic, corrosive substance that will burn skin off your body. It's used in making rayon, soaps, and—breakfast cereals.

After the soaking, the kernels are blasted by live steam. Then a flavoring syrup full of mostly white sugar is poured over the soaked and steamed corn.

Next, the kernels are dried until they're hard. Then they're run through huge rollers that press down with 75 tons of pressure to flatten them out. Now they're ready to be toasted, heated and flaked one more time. Then they get their last dosing of preservatives, additives and chemicals and are packaged up in a brightly colored box with a picture of an athlete, animal, or cartoon character on the front.

Originally you had a grain of corn, fairly rich in protein, phosphorus, Vitamin A, and the three major B vitamins. Now you've got a sugar-frosted flake that has no original vitamins, few minerals, and an altered protein that is harmful to the body. What's more, you're probably paying five to ten times as much for this processed, denatured food than you would if you had just bought the original whole grain.

1.14 Why Do People Eat Prepared Cereals?

The American public has been completely sold on the healthfulness of eating an early morning breakfast and on eating cold cereals as a convenient, nutritious breakfast food. Consider what Richard Carter, author of "The Unappetizing Truth About Dry Cereals," says about cereal consumers.

"As they put this mixture into their mouths, many of the feeders actually glow with a sense of well-being. Decades of tradition and millions and millions of dollars in advertising have trained them to regard their ready-to-eat breakfast cereals as the last word in morning nourishment. Any suspicion that the stuff is nutritionally inferior to other breakfast foods, like fresh fruits, is bound to be dispelled by the sales literature printed on the brightly-colored boxes."

So people eat breakfast cereals because: 1) they feel that they should eat something every day as soon as they get up, according to conventional nutrition; 2) cereals require a minimum of preparation and are easy to eat; 3) people believe that the cereals themselves furnish "minimum daily requirements" due to the added vitamins and minerals.

In response: 1) Most people would be better off if they did not eat first thing in the morning; this is the body's time to clean house and it is not ready to digest food. Greater health could result if people would adopt a sensible "No-Breakfast" plan, and ate more nutritious foods later in the day. 2) Fruits are far superior to cereals as a nutritious breakfast food, and they are the ultimate convenience food—no milk, no bowls, no preparation or clean-up whatsoever. 3) Added nutrients to food ("fortified" foods) are riot utilized by the body like the naturally occurring organic elements. They in no way replace or serve the same functions as do vitamins, minerals, and co-existing nutrients in natural foods.

1.15 The Real Harm of Breakfast Cereals

For many people, breakfast is the same almost every day of the week. Most people eat breakfast out of habit. They rarely make a conscious decision as to what to eat first thing in the morning, and so if they eat cereals they do so almost every day.

The cereal habit is also hard to break not only because of mental habits, but because the high-sugar content of the cereals can create a physical, addictive habit as well. The most popular cereals are 25% to 50% *refined white sugar*, which makes them sweeter than chocolate candy. Granolas, or health food cereals, are hardly better; with their high honey and maple syrup content, they, too, may be 20% to 30% concentrated sugars.

Eating such heavily sweetened breakfast cereals first thing in the morning plays havoc with the blood-sugar levels, and creates the conditions for a life-long sugar addiction.

1.16 And It's Indigestible Too...

Not only is breakfast cereal an abysmal food by itself, it's usually eaten with such foods as milk and fresh fruits so that it becomes virtually indigestible.

Besides being a totally unsuitable food, pasteurized milk that is poured over cereal combines very poorly with any other food. Milk is a protein with a high fat content. Cereals are refined starches and sugars. Putting those types of foods together in the stomach is a sure invitation to acid indigestion.

Fresh fruits are generally acidic or sub-acidic in nature. Mixing them with starchy cereals creates a fermenting environment that negates any health benefits of the fruit to begin with. Better to just eat the fruit and forget the cereal.

If anything is to be eaten early in the day, it should be easily digested, high-fluid foods such as fresh fruits. Refined starches clog the body and their waste products create a feeling of heavy lassitude that lasts throughout the day.

1.17 Are Grains Good Food At All?

So far, we have discussed mostly refined grain products, such as flours, breads, and cereals. There is little disagreement among health-minded people that such refined grain products are harmful and should be completely eliminated from the diet. But what about *whole* grains? Are unrefined grains, like rice, corn, and wheat, eaten in their whole state beneficial and optimum foods?

If we strictly apply the test of an optimum food which is that it be palatable and nourishing in its raw state, then grains fail. Raw grains, except when they are in their young milky stage or sprouted, are virtually indigestible and high in phytic acid which tends to bind calcium, iron, and zinc and make them unavailable to your body.

Grains are also unbalanced in potassium and sodium. Grain-eaters often try to balance the sodium-deficiency of grains by adding salt which is an inorganic poison. In general, grains are deficient in the alkaline minerals, too rich in nitrogen and phosphoric acid, and tend to *acidify* the system.

The starches in grains are hard to digest (about ten times more difficult than potato starches) and are prone to fermentation.

Grains, according to Otto Carque author of *Rational Diet*, are incapable of building strong bones and teeth. Man cannot live exclusively on grains for any length of time and maintain the best of health. If grains are eaten, they must be accompanied by green leafy vegetables to supply needed alkaline elements.

Grains contain the largest amount of starches of all foods. Humans are not naturally starch-eaters. We only have one starch-digesting enzyme, and that is found in the saliva. Starches are difficult foods to digest, and we would do better to look to other foods, such as fruits, vegetables and nuts for our energy and carbohydrate needs. *Starches are not a necessary part of the diet*. There is not a particle of starch in the entire constitution of your body.

Grains are a relatively new food in the human dietary—hardly 10,000 years old—and refined grain products have really only been around for 200 years in their present form. Man prospered very well before the advent of grain foods, so they cannot be defended as an essential part of the diet.

In fairness, it must be noted that grains, because of their storage capabilities and other considerations, have formed a major part of the world's diet for many different populations. Grains, in their whole form, are not being degraded as an unsuitable food for man—but they are not optimum foods. As long as fresh fruits, vegetables, nuts and seeds are available, grains can be eliminated from the diet forever.

With a reorientation of agriculture from the mono-grain crops to the more productive tree crops (fruits and nuts), the world's population could be better nourished in a more ecological fashion.

1.18 Other Refined Grain Products

Although most grain consumed in America is in the form of breads or cereals, other products are used in large amounts. *White rice* is generally polished whole rice. This polishing strips away many of the B vitamins and some of the protein—about the same thing that happens to refined wheat. White rice is a nutritionally unbalanced food and should never be eaten.

Corn meal may also be degermed (refined) and then subsequently "enriched" just like the white flour from wheat grain. Eating such refined corn meal was one of the causes of *pellagra* in the South, or so it was speculated many years ago. Refined corn also causes a B vitamin depletion in the body, the same as refined wheat flour.

Pasta such as macaroni, spaghetti, noodles, etc. are usually made from *semolina* which is a refined white flour made from wheat. It, too, is like eating "white bread."

Of course, all such pastries like cookies, cakes, pies, doughnuts, and other such desserts are made with both refined flour and refined sugar and are "double-trouble."

For improved health, all such flour products, whether made from white flour or whole-wheat flour or whatever, should be eliminated from the diet. Once a grain is made into flour, rapid deterioration of the food starts, regardless of the amount of any additional refining or processing.

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2. Questions & Answers

Are you telling me that I should never eat another slice of bread? I always eat bread with about every meal. What could be wrong with that?

Whether or not you eat bread, or any food, is something only you can decide. We only try to present facts upon which you can base a rational decision. Most people eat foods without knowing the true nature of the food itself. Bread is a good example of this. Bread has been on the table for hundreds of years. It is a familiar food, so much that we frequently confuse its familarity with its necessity.

Most bread eaten today bears no resemblance to the bread of the past. You're eating a slice of fortified chemicals in a plastic, pasty form. This includes most whole wheat and other "organic" breads sold today as well as white bread.

Even if you can get "good" bread or make your own, bread is not a recommended food. For one thing, as you yourself said, people tend to eat it with every meal and all sorts of foods. Bread is a very starchy food, and if it is eaten at all, it should only be consumed with leafy green vegetables and little else.

There are better ways to eat grains, if you wan! them, instead of in bread or any flour products. Once you grind grains into flour, you've begun the total destruction of a food that was not optimum to begin with.

Of course, we're not "telling" you to do any one thing or the other, nor are we saying something is "wrong" or "right." We only wish to present the facts, as we currently understand them, about grains and grain products. You are to evaluate that information, and make your own decision as you see it for better health.

Most people in the world make grains a major part of their diet. Japan has rice, Mexico has corn, Europe uses wheat. Are you saying all these people are wrong?

Again, it is not a matter of right or wrong. When foods are in short supply, such as fresh fruits and vegetables, grains have served as a substitute for optimum nutrition. We should not allow a substitute to become a standard simply because it is widely used. Then, too, remember a distinction is made between whole grains and refined grains. If all these people had eaten refined grain products for all these years, I doubt if there would be many people left in the world today.

In America, Argentina, and New Zealand, for example, meat-eating is more widespread than grain eating. Do sheer numbers make a practice advisable or not? We're not playing a numbers game with nutrition—good health and diets are not dictated by majority rule.

My children just won't eat anything except cereals for breakfast. When I try to give them something else to eat, they become cranky and cry and refuse to eat it. What should I do?

There have been very few incidents where children immediately drop dead when not fed breakfast. If your children refuse to eat a healthy breakfast (usually fresh fruits), then serve them nothing at all. Better to go without food than to eat the sugared, chemical mess that is disguised as food in cereal boxes.

The fact that the children complain, whine and cry should indicate to you that they have become "addicted" to the sugar in the cereals. When their blood-sugar renormalizes and they kick the cereal habit, they will welcome wholesome foods such as bananas or grapes or melon for breakfast.

What's worse—white flour or white sugar?

An interesting question. I hope you're not considering eating the less harmful of the two!

> Actually, you often find these two items used together in foods—like in cakes, pies, doughnuts, cookies, pastries, and so on. The sugar rots your teeth and destroys your nerves while the white flour constipates you and gives you an acid stomach. I know of few white foods that exist in nature. White sugar, white flour, salt, cocaine, heroin, refined fructose—all the white powdery, grainy "foods" are drugs and poisons. Mushrooms I suppose are one of the few natural "white" foods—but even these are often poisonous and substandard foods for humans. So if your food doesn't have attractive colors (like yellow, red, green, etc.), you should probably avoid it (this would of course mean not eating black, grey and browned meats).

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Article #1: Pure Starch Factors By Thomas E. Scown

There are a number of "foods" which may be classified as pure starch: bleached flour, degerminated corn meal, corn-starch, white rice, "instant mashed potato" powder, dextrose, etc. When these refined starches are introduced into the body, a high percentage of the starch is quickly broken down into simple sugars. The sudden flood of sugar into the bloodstream stimulates the pancreas to produce an excess of insulin. The insulin rapidly burns the sugar, causing the blood-sugar level to drop far below normal. A prolonged state of low blood-sugar has been known to cause brain damage. Even short periods of low blood-sugar may cause trembling of the hands, temporary loss of visual control, alternating spasm and weakness in the muscles over the whole body, and many other effects.

Unfortunately, most people in the "highly advanced" nations are eating an ever-increasing proportion of foods composed primarily of pure-starch, sugar, salt, and plastic fat.

High energy potential

Many people have read of explosions in coal mines (from coal dust), but how many people have heard about explosions in flour mills? Many mill workers have discovered, the hard way, that one pound of white flour (suspended in air) has more explosive potential than one pound of T.N.T. The ignition factor may be a spark from the brushes of an electric motor.

Over the past one hundred years, dozens of flour mills have been blasted to bits, each of them destroyed by less white flour than the average American eats in one year.

The explosive potential of refined white flour indicates its chemical nature. It is a highly reactive chemical mixture when certain factors are added.

The human body has hundreds of chemicals involved in the act of living. Add to this the highly reactive chemical mix commonly called "white flour" and all manner of physical derangements will occur.

Artificial Flavorings

Such as used in icings and fillings for doughnuts, cookies, and cakes.

One flavoring product, labeled *Imitation Strawberry*, listed the following ingredients: Vanillin and other aldehydes, ethyl butyrate and other esters, oil lemon and other essential oils, Butyric and other organic acids, benzodi-hydropyrone, ionone and other ketones, alcohol, propylene glycol, water, artificial color and 0.1% benzoate of soda.

This chemical concoction is only the flavoring; there is also additional artificial coloring added to the "food."

A point to ponder: Most of these chemicals are made from coal and crude oil. Remember those news spots on television showing all the sea birds, fish and clams which died from ingesting crude oil from tanker spills?

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Article #2: Cereals, Grain, Flour

The basic grains used worldwide are wheat, rice, oats, rye, barley, millet, corn. Grains have been the mainstay of whole populations—particularly rice and wheat. The reason for this universal reliance on grains is the ease of cultivation, the short growing and maturing time and the facility of bulk transportation and storage for long periods of time. Grains used today are generally refined products and constituted almost exclusively of starch.

Cereals and grains, in their whole grain dry state, may contribute beneficially to the diet of man. But it must be pointed out that even in their most complete state they are not a necessary food and are quite inferior to true foods for man—vegetables, fruits and nuts.

Refined flour (made from any of the grains) is a devitalized substance not suited for human consumption. In fact, it contributes to the general degeneration of those who consume it. It has become one of the principal items in the diets of modern men in the form of bread, rolls, cakes, cookies, spaghetti, etc. There is no way that such devitalized flour can be 'revitalized,' 'enriched' or in any way improved by the addition of elements needed in nutrition (vitamins, minerals, etc.). It remains a nonfood, pure starch, of the worst order. Breads and pastries as the "staple" of the diets of modern life are the source of much of the physical distress of man.

Cereals in the form to be soaked and cooked and the roasted flaked cereals in common use today are produced from denatured grains and are a true curse to mankind. These devitalized substances, further adulterated with sugar, salt, preservatives, chemicals, coloring and artificial flavoring, are contributing to the rapid proliferation of disease among modern man.

Cereals and cereal products (starches) are among the most difficult substances to digest when eaten alone. When eaten in combination with protein, the results are disastrous, resulting in extreme fermentation, gas, acids and intoxication.

Cereal starches require about 10 times longer to digest than do potato starches—the longer the digestion period, the more the fermentation.

Cereals, grains and all concentrated starch foods are unwholesome for human consumption and should be carefully omitted from any health-promoting diet.

Lesson 32 - Why We Should Not Eat Meat

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1. The Principle Hygienic Concern Is Optimal Health

In the study of Natural Hygiene, we are concerned primarily with lifestyle and eating patterns which will result in optimal health and longevity. Much has been written about the "Vegetarian Alternative," and the many reasons for avoiding the consumption of meat—all flesh foods: beef, veal, lamb, poultry and fish. Such reasons run the gamut from compassion and humanitarianism, ethics and morality, religion, aesthetics, ecology, conservation of resources (land, water, energy, food), economics—and better health.

In this lesson, we will be concerned with the anatomical, physiological, pathological and nutritional reasons for eliminating flesh foods from the human diet, and why optimal health is not possible on a meat-based diet. We will discuss the health problems that can be caused by the consumption of flesh foods, and the vibrant health that can be attained (or regained) by adherence to Hygienic principles of living and eating—without flesh foods.

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2. The Best Fuel For The Human Body

The human body can be maintained on a conglomerate assortment of foods, or our race would have long since vanished. A gasoline engine can operate on kerosene, but it will clog up, parts will wear out sooner, and its serviceable life will be greatly reduced.

The human body will also work best and last longest when fed the fuel intended for man and on which he will best survive: raw fruits, raw vegetables, raw unsalted nuts and seeds, and sprouted legumes and grains. The biological equipment of humans is such that the body is much more capable of obtaining complete and optimal nutrition, without threat or stress, from plant foods.

2.1 Plants Are The Source Of Food Elements

It is a fact that all nutritive material is formed in the plant kingdom—animals have the power to appropriate but never to form or create food elements. Plants can synthesize amino acids from air, earth and water, but animals—including humans—are dependent on plant protein, either directly by eating the plant, or indirectly by eating an animal which has eaten the plant.

A plant-eater utilizes one-tenth of the energy stored in his food—a meat-eater utilizes from meat only one-hundredth of the energy that was originally stored in the primary source, the plants. (Robert H. Dunn, M.D., M.P.H., Director of Preventive Medicine, Washington Adventist Hospital, Introduction to *Meat on the Menu: Who Needs It?* by Raymond H. Woolsey, published 1974.)

Out of the amino acids found in plant and/or animal tissues used as food, the living organism synthesizes the numerous proteins needed by the cells and tissues of its own body. There are no amino acids in flesh that the animal did not derive from the plant, and that man cannot also derive from the plant.

Those who eat animals get only the nutritional elements which the animals have obtained from vegetation, and are of necessity deteriorated with the impurities. and putrescence invariably present in their blood and tissues.

When you eat foods from the plant kingdom, you receive the amino acids in ideal combinations with other substances which are essential to the full utilization of protein: carbohydrates, minerals, vitamins, enzymes, hormones—in addition to chlorophyll, which only plants can supply.

The best sources of concentrated protein for many are raw, unsalted nuts and seeds. In the raw state, all enzymes are intact and the amino acids are wholesomely alive and unchanged. They contain all the vitamins, minerals, trace elements, carbohydrates, hormones—and the life force necessary for the human organism to produce tissue and other body constituents of the highest quality.

3. Flesh Foods Cause Degenerative Disease

The habitual and frequent use of large amounts of flesh foods in the diet is actually one of the causes of degenerative disease in a substantial percentage of the population. The decrease in, or elimination of, flesh foods from the diet is one of the important steps toward optimal health.

Man's anatomy and physiology are poorly adapted to the processing of meat, and it cannot be done without some putrefaction (in addition to the putrefaction already present in the meat at the time it is consumed). The result is toxemia, which is the starting point of degenerative diseases like gout, arthritis, heart disease, hardening of the arteries, stroke, osteoporosis, cancer, etc.

3.1 Anatomical and Physiological Basis for Rejecting Flesh Foods

There is a sound anatomical and physiological basis for the recommendation against the consumption of flesh foods. The human anatomy and digestive system are totally dissimilar from those of carnivores, which have sharp claws and teeth for killing and tearing. Carnivorous animals have short intestinal canals, and strong secretions of hydrochloric acid, so as to quickly digest and expel the waste products of the flesh they consume, before putrefaction can occur.

Flesh-eating animals also have the enzyme uricase, which breaks down uric acid into a harmless substance called allantoin; man does not possess this enzyme. Vegetable proteins, including nuts and seeds, contain enough carbohydrates to render this enzyme unnecessary.

The carbohydrate content of nuts also prevents a process called de-amination. Because the carbohydrate content of flesh foods is negligible, conventional nutritionists advocate eating protein with a carbohydrate since it is thought that the presence of carbohydrates is necessary for the digestion of protein and, when none are present, the liver will break down some of the amino acids and convert them to carbohydrates. If this is true (and the experiments have not been conclusive), then it is obvious that the nuts supplied to us by Nature come completely packaged along with their digestive requirements, while flesh foods do not.

Lesson 18 of this course includes a preliminary discussion of this subject and contains an interesting chart, "Classification of Animals," which is an effective demonstration of the fact that man is not a carnivore.

One of the comparisons that is made in this chart is the length of the alimentary canals, which are three times the length of the body in the carnivora, ten times the length of the body in the omnivora, and twelve times the length of the body in the anthropoid apes and in humans. These figures, of course, are approximate. Gray's anatomy gives the length of the human alimentary canal as approximately thirty feet.

Hereward Carrington, in *The Natural Food of Man*, says that some have made the blunder of calling the proportionate length of the human alimentary canal one to six instead of one to twelve, by doubling the height through measuring humans while they are standing erect. He says, "This measurement is evidently wrong, for it includes the length of the lower extremities, or hind legs, whereas, in other animals, the measurement is made from the tip of the nose to the end of the backbone."

The human digestive tract is about four times as long as in the carnivorous animal. The gastric juices of humans have less active antiseptic and germicidal properties. The intestine of the carnivore is short and smooth, to dissolve food rapidly and pass it out of the system. The human digestive tract is corrugated or sacculated, for the express purpose of retaining the food as long as possible in the intestine until all possible nutriment has been extracted from it.

These (and the other anatomical and physiological characteristics of the human digestive system) are the worst possible conditions for the processing of flesh foods. The excessive secretion of bile (necessitated for the digestion of flesh foods) may result in the premature breakdown of the liver, and the large quantities of uric acid created by a flesh diet may have disastrous effects on the kidneys. Dr. Robert Perk says that the excess of uric acid "causes contraction of the minute blood vessels, resulting in high arterial tension and often the blocking of the blood vessels by the uric acid. This results in serious interference with the circulation and blood supply to the tissues and throws great strain on the vital organs, especially the heart and kidneys." (*Scientific Vegetarianism*, Szekely, p. 44.)

3.2 Morbid Results of Eating Flesh Foods

Meat is the most putrefactive of all foods. Flesh, when eaten by humans, tends to undergo a process of decay in the stomach, causing a poisoning of the blood. Putrefaction in meat eaters is evidenced by bad breath, heartburn, eructations, and the foul stool and odorous emissions—absent in vegetarians—and it is probable that the attempts of the body to eliminate these wastes has a profound influence on the shortening of man's life span.

If the body fluid that bathes our cell's is overloaded with waste, causing an excessive secretion of bile—fatigue, weakening and aging are the inevitable results. The accumulation of toxic substances in the body causes the deterioration of the intestinal flora, and the blood vessels gradually lose their natural elasticity—their walls become hardened and thickened. Irreversible damage to the organism proliferates.

3.3 Can You Face The Ugly Truth About Meat?

Meats contain waste products that the animal did not get to eliminate, and toxic hormones and fluids released into the blood stream and tissues at the moment of the death of the terrified animal.

An animal's cellular life continues after death. The cells continue to produce waste materials which are trapped in the blood and decaying tissues. The nitrogenous extracts which are trapped in the animal's muscles are partially responsible for the flavor of the cooked meat.

Humans who eat the livers of the animals are bombarded with an even greater concentration of waste products and toxic substances. The liver, being the filtering organ of the body, is loaded with elements the body cannot use, which are trapped in the liver and remain there. Liver eaters are treated to higher concentrations of mercury and artificial hormones, plus other "goodies" that remain in the animal's disposal system.

Liver increases, even more than muscle meat, the amount of creatine in the urine. Creatinuria (abnormal amounts of creatine in the urine) is involved in endocrine (glandular) disorders.

Meat not only harbors the bacteria infecting the living animal, but it may also carry molds, spores, yeasts and bacilli picked up during postmortem handling.

A book on meat processing explains that the flesh becomes more tender and palatable by the process of ripening, hanging and maturing (aging). Vic Sussman, in *The Vegetarian Alternative*, pp. 149-150, says, "Few meat eaters would like to hear the words putrefaction, rigor mortis, and rotting applied to their sirloin and pot roast. But flesh is flesh, though the euphemisms ripening, toughening and enzymatic action are kinder to the ear."

Trained government inspectors use sight, smell and touch in a constant battle to protect meat eaters from intentional and accidental abuses. But effective regulation of flesh food is enormously difficult. Sussman says (p. 151) "Even the most conscientious inspectors are forced by circumstances and the pressure of time to let suspect carcasses leave the plant."

Those who eat processed meats also get many of the odds and ends of the animals—eyes, ears, bladders, lips, udders, snouts and parts of the bones and skin. Not even a meat inspector can tell from what part of the body the sausages and frankfurters came—it is all meat tissue, and all legal. (Woolsey, *Meat on the*

Menu…, pp. 21-22.)

In his pediatrics textbook, Dr. Emmet L. Holt of New York City says that if two dogs were put on a leash and one fed water and the other beef tea, the dog getting the water would live longer, because beef tea does not contain any nourishment if the fat is skimmed off, but does contain urinary wastes, which poison the dog.

Owen S. Parrette, M.D., in *Why I Don't Eat Meat*, p. 13, says that when he was a medical student, the class was given glass test tubes to be used for growing bacteria that are present in human diseases such as typhoid, staphylocci, and bubonic plague. "The professor had us make up some beef tea, pour a little into each test tube, and place a cotton cork on top. We sterilized the tubes and later inoculated them with these dangerous bacteria. The germs all thrived on the beef tea. It was a perfect medium for them."

Carrington also says (p. 109), "Meat-eating is the more or less direct cause of various diseases." The tapeworm embryos are carried by beef, pork and fish. The deadly trichina parasite is found mainly in pork, but also in fish, fowl and other meats. Trichinosis closely resembles cerebro-spinal meningitis. Tuberculosis has been communicated from cattle, typhoid fever from oysters. Epilepsy has been traced to meat-eating.

Twenty-six diseases, including salmonellosis, staphylococcus and psittacosis, are known to be common to both man and poultry. (*Meat on the Menu...*, Woolsey, p. 27.)

Since little or no progress has been made in eradicating these dangers, the only people who are immune are those who never eat meat. Authorities recognize that the basic problem is with the nature of the product itself. The National Academy of Science reports, "Reluctantly, we are forced to recognize the infeasibility of eradicating salmonellosis at this time." ("An evaluation of the Salmonella Problem," National Academy of Sciences, Washington, D.C., 1969)

The late Dr. John Harvey Kellogg said, when he sat down to his vegetarian meal, "It is nice to eat a meal and not have to worry about what your food may have died from."

3.4 Meat-Eating Predisposes to Disease

In addition to directly causing certain diseases, meat-eating also predisposes the body to disease. In pestilences of any character, meat-eaters are the chief sufferers. Wounds heal far more rapidly in vegetarian soldiers. Carnivores are far more subject to blood poisoning than are vegetarians. Vegetarians survive major operations more frequently than meat-eaters. (Carrington, pp. 111-112).

John A. Scharffenberg, M.D., in *Problems with Meat* says, "Meat is a major factor in the leading causes of death in the United States, and probably in similarly affluent societies. In fact, next to tobacco and alcohol, meat is the greatest single cause of mortality in the United States." He makes this statement on p. 101 of his well-documented book, in summarizing "the formidable and persuasive scientific evidence we now have." He marshals this scientific evidence of the disease potential of meat and the relationship of meat to these specific problems: atherosclerosis, cancer, decrease in longevity or life expectancy, kidney disorders, osteoporosis, salmonellosis, and trichinosis. He quotes an editorial statement in the Journal of the American Medical Association: "A vegetarian diet can prevent 97% of our coronary occlusions." (Editor: Diet and Stress in Vascular Disease, JAMA, 76:134-35, 1961).

Several more recent, well-organized studies have identified the risk factors of atherosclerosis and heart attacks: a 1970 study by twenty-nine voluntary health agencies, in cooperation with the American Medical Association (these study groups consisted of many of the nation's top scientists); a 1977 study by the Senate Select Committee on Nutrition and Human Needs: a twelve-year Finnish Mental Hospital Study (Effect of cholesterol-lowering diet on mortality from coronary heart disease and other causes, *Lancet* 2:835-38, 1972); and a 1975 study comparing Seventh Day Adventists who had different dietary habits. The Seventh Day Adventist study revealed a 64% vulnerability to coronary heart disease in meat-users, 40% for lacto-ovo-vegetarians, and 23% for total vegetarians. The 1977 study by the Senate

Select Committee on Nutrition and Human Needs reported the significant deleterious influence of. the consumption of dietary cholesterol (animal fat) and recommended the increased use of fruits, vegetables and whole grains, and a decrease in the use of foods containing saturated fat (animal fat).

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4. Vegetarianism Is Receiving More Attention

A consideration of an article from *Today's Health*, published by the American Medical Association, appeared in the February 1975 *Readers' Digest*. The article states: "Americans are meat eaters by tradition. Yet statistics show that vegetarians in this country are thinner, in better health, with lower blood cholesterol, than their flesh-eating fellow citizens. They may even live longer."

The article mentions studies by Dr. Frederick Stare (!!) of Harvard and Dr. Mervyn Hardinge, Loma Linda, California School of Health, indicating that vegetarians have consistently lower levels of cholesterol. (It is rare indeed that Dr. Stare is ever "caught" criticizing the conventional diet.)

Quoting further from the article: "Meat eaters also may be bothered by poor elimination. Food with a low fiber content, such as meat, moves sluggishly through the digestive tract, making stools dry and hard to pass. Vegetables, by contrast, retain moisture and bind waste bulk for easy passage."

The article cites documentation of the excellent health and longevity enjoyed by the Hunzas of Pakistan and the Otomi Indians of Mexico, confirmed by field investigations of these nonmeat cultures.

Reference is made to the experiences of Denmark and Norway, where the general health of the people improved when vegetarian diets were adopted during World Wars I and II, including a significant reduction in heart disease. "Both nations, however, reverted to meat diets as soon as the crises passed, and subsequent studies showed that the temporary health advantages apparently subsided."

Remember, THIS INFORMATION WAS PUBLISHED IN THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION IN 1975. Since then, vegetarianism and low-fat diets in general have been receiving more attention, and reports are trickling down of medical doctors who are recommending eliminating meat from the diets of arthritis and cancer patients, and even of medical doctors who are acknowledging the health benefits of vegetarianism for themselves and all of their patients.

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5. The Evidence Is Mounting

Autopsies performed in Korea showed that 75% of American soldiers had hardened arteries, regardless of their age. Korean soldiers, on a simple diet of vegetables, grains, and very little meat, showed essentially no hardening of the arteries.

Worms are found in fish taken in the cold waters of Yellowstone Lake, and even in fish taken twenty miles out into the Gulf of Mexico. Dr. Parrette's *Why I Don't Eat Meat*, published in 1972, says on page 17, "On the desk in in front of me is a clipping from a recent *Los Angeles Times* entitled "Disease Causes Halt of Some Trout Imports." The article tells of the California Fish and Game Department turning back six tank cars of rainbow trout fingerling that were shipped into California to stock our lakes and streams, but were found to be infected with liver cancer ... Rabbits are susceptible to diseases of many kinds. As a lad, I had a friend who used to hunt rabbits and sell them. I often helped him clean them and noticed that nearly all the cottontails were infected with tapeworm."

The rapid rise of leukemia in cattle calls our attention to the fact that blood cancer, or leukemia, is now a major cause of death among children in the United States.

Meat has been implicated in a wide variety of factors and processes known to be associated with cancer, including the following:

1. Chemical carcinogens, added to the meat, or produced by heating.
2. Cancer viruses found in tumors in animals, transmittable to humans.
3. Lessened host resistance to invasive disease.
4. Lack of fiber in meat, increasing transit time through the colon. Adequate fiber is also necessary to help remove bile acids from the gastrointestinal tract. (Colon cancer patients tend to produce more bile acids than other people.)
5. Rapid maturation, early menstruation, higher rates of breast cancer.
6. High-fat diet is also associated with breast cancer.
7. High Prolactin levels—Prolactin is a pituitary hormone promoting milk formation and lactation. A high-fat diet increases the prolactin-estrogen ratio, which then enhances mammary tumor growth. When humans change from a meat to a vegetarian diet, the prolactin surge appears to be reduced to almost one-half. A diet high in fat, meat and milk (high in cholesterol) tends to increase the incidence of breast cancer. (Dr. Scharffenberg, *Problems with Meat*.)

It has been demonstrated that cancer can be transmitted from one (animal or human) species to another.

When one considers the evidence of the cancer-causing potential of meat, it seems incredible that it is ignored by so many intelligent people. Malignant tumors are found in animals. Many years ago I saw a tremendous tumor on the "innards" of a chicken that had been sold at the City Market in Indianapolis. I witnessed the noisy altercation between the indignant customer who was returning the chicken and the proprietor of the stand. An .exchange was made, and the returned chicken was dipped in water and returned to the sales counter.

In addition to cancerous tumors in fowl, there is a carrier form which is impossible to detect except by painstaking laboratory experiments. "The conclusions drawn must consider the possibility that all chickens show the basic microscopic lesions of lymphomatosis." (Dr. Eugene F. Oakberg, *Poultry Science*, May, 1950, p. 434)

Colon cancer is acknowledged to be the predominant type of cancer in the United States and the second leading cause of cancer mortality. An article in the Wall Street Journal several years ago tells about a study of colon cancer by Dr. William Haenzel, Dr. John W. Berg and others at the National Cancer Institute, as a result of which Dr. Berg said, "There is now substantial evidence that beef is a key factor in determining bowel cancer incidence."

Scientists have reported evidence that two characteristics of meat-based diets are specific influences in colon cancer:

1. Fecal transit item; a low-fiber diet allows carcinogens to be concentrated and held in contact with the bowel mucosa for long periods, while a high residue diet (a vegetarian diet) produces more rapid passage of body waste.
2. Influence of the diet on the amount of carcinogens produced by the body. It has been found that meat fat tends toward production of carcinogens in the intestine.

Dr. Ernest L. Wynder, president of the American Health Foundation, and a long-time cancer researcher, reported long ago that the results of his studies had convinced him of the cancer hazards of diets high in animal fats. On March 31, 1982, Dr. Wynder, now renowned as the health detective who first linked smoking and cancer a generation ago, reiterated his findings. He said that a low animal fat, high fiber, fresh fruit and vegetable diet helps fight both cancer and heart disease. He said that the American Heart Association and the National Heart, Lung and Blood Institute also recommend such a diet.

Sussman (*The Vegetarian Alternative*, p. 61) gives documented reports about experiments with an anti-cancer enzyme, which can be produced by the liver, depending on the components of the diet. Dr. Leo Wattenberg of the University of Minnesota School of Medicine isolated the dietary elements that increased ability to produce this enzyme. The agents (called indoles) that induced formation of this enzyme were found in alfalfa, Brussels sprouts, cabbage, celery, turnips, broccoli and cauliflower. Citrus fruits also contain similar enzyme-inducing agents (flavones) and beans and seeds yield a type of plant protein (lectins) that also has demonstrated cancer-resisting effects.

Dr. Anthony B. Miller, director of the National Cancer Institute of Canada, said: "Evidence suggests that certain foods, particularly high intake of dietary fat, are associated with increased risk of colorectal, pancreatic, breast, endometrial, ovarian, prostate and possibly renal cancer." He also recommends increased consumption of fresh fruits and vegetables.

Although these doctors aren't specifically advocating totally vegetarian diets, it is interesting to note that more and more "conventional" professional people are warning against high consumption of animal fat, and recommending increased use of fresh produce.

Hygienists, of course, prefer not to use any part of the animal as food, and find it difficult to understand how so many people can ignore the overwhelming evidence against the use of flesh in the diet.

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6. Modern Methods Accentuate Risks

Most of the deleterious influences of meat-eating which have been discussed thus far apply to any flesh foods, even those which are raised the "old-fashioned" way, without chemicals or hormones. The "modern" methods of producing and marketing flesh foods, and fish taken from polluted waters, increase the risks astronomically.

Those who eat processed meats are not only treated to sodium nitrate and sodium nitrite (which, together, form cancer-causing nitrosamines in the body), they also get sodium sulphite. Sodium nitrate and sodium nitrite are used as preservatives to retard the putrefaction process in processed meats (frankfurters, salami, bologna, sausage, etc.) The food can still spoil, but it is not as obvious.

Consumer Reports, February 1972, p. 76, reported that, after studying samples from thirty-two brands of frankfurters bought in supermarkets throughout the United States, researchers stated: "Food experts generally agree that putrefaction has set in when a frankfurter's total bacteria count has reached ten million per gram. With that as a yardstick, more than forty per cent of the samples we analyzed had begun to spoil. One sample tested out at 140 million per gram."

Dr. Charles C. Edwards, Commissioner of the Food and Drug Administration, testified before a House Subcomittee in March 1971, stating that sodium nitrite is potentially dangerous to small children, can cause deformities in fetuses, can cause serious damage to anemic persons, and is a possible cause of cancer.

Sodium sulphite is used to give meat a fresh, red appearance, even after it has become rancid and turned black. This chemical will change it back to bright red, and will also "miraculously" eliminate the strong odor of putrefaction.

Dr. Michael Jacobson of the Center for Science in the Public Interest says that sodium nitrate and sodium nitrite in processed meats have caused numerous cases of blood poisoning (methemoglobinemia), many reported in medical journals. He says that meat contains residues of more than a dozen chemicals used to fatten the animals— all of them proven in the laboratory to cause cancer.

The chemicals and hormones are mixed and administered on the farms by stockmen, who often use greater than recommended amounts, and fail to withdraw drugs far enough ahead of slaughter.

Both penicillin and tetracycline are routinely used in poultry and cattle feed. When the FDA moved toward restricting the addition to animal feed of antibiotics that are also used to combat human diseases (because of the consequent growth of antibiotic resistant bacteria), the meat industry was outraged at the proposal.

Most laws relating to "wholesome" meat apply only to their processing. Some local laws apply to monitoring of sanitary conditions in the market. After that, the consumer is at the mercy of the retailer. Labeling, classification, pricing are variable and undependable. "Economical management" by market owners does not always include discarding spoiled meat. Mold can be washed off, or the meat can be recycled by cutting up, grinding, adding spices, or cooking to disguise color, odor and taste.

"Hearings before a Senate Investigating Committee in 1969 revealed that a major, brand-name, nationally famous meat packer on the West Coast accepted unsold meats from retailers and repackaged and recirculated them. Reasons for returning included moldy, sour, discolored, slick and slimy.'" (Woolsey, "Meat on the Menu..." p. 38).

Charcoal broiled steaks contain an average of nine micrograms of benzopyrene, a cancer-producing agent. The fat dripping into the fire changes the chemical properties of the fat and the benzopyrene goes up in the smoke from the charcoal and coats the steaks.

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7. Eating Low On The Food Chain

Eating low on the food chain significantly reduces the threat of pesticide residues. Tests in Britain have shown the pesticide residue levels to be highest in meat eaters, lower in lacto-vegetarians, and lowest in total vegetarians.

This is due to the concentrating factor as the contaminant goes through the additional link in the ecological chain, and the animal concentrates the pollutant in its body. The meat eater may eat in a few minutes the pesticides that an animal has accumulated over a lifetime.

A study by the Washington, D.C.-based Environmental Defense Fund revealed that breast milk of vegetarian women contained significantly lower levels of pesticide residues than that of meat-eating women.

Further research by author Nat Altman disclosed that vegetables and nuts contain about 1/7 the pesticide residues of flesh foods; fruits and legumes about 1/8 as much; and grains about 1/24 as much.

8. Meat-Based Diet Presents Complex And Grave Nutritional Problems

Even beyond the grave dangers presented by meat-based diets is the misconception that meat is an ideal nutritional source against which vegetable proteins are measured and found wanting. The fact is that it is much more difficult to have even a reasonably good diet with meat than without it.

8.1 "Complete Protein" Status of Meat?

In the first place, even the much vaunted "complete protein" status of meat is, at best, based on a colossal error (if not a hoax). The complete protein of the animal could exist only if the animal were consumed raw and whole. Meat-eating animals eat the blood, bones, cartilages, liver, etc. of their prey—not just the muscle and fat. They eat it raw—so that they do not lose any of the mineral elements. The muscle meats (most commonly consumed by humans) are grossly inadequate as a protein source.

On the other hand, humans who eat the livers of the animals don't win either. As previously indicated, those who eat liver are exposed to greater concentrations of morbid substances. Even though liver is touted as an optimal source of such substances as iron, Vitamin A and Vitamin B-12, it can hardly be regarded as anything remotely resembling wholesome food.

For years, conventional nutritionists have maintained that complete and optimal nutrition is assured on a diet using animal foods as the primary source of protein, and that a vegetarian diet presents many problems. Dr. Scharffenberg produces well-documented scientific evidence (*Problems with Meat*) indicating that *the truth is exactly the opposite*.

8.2 Meat Deficient in Vitamins, Minerals, Fiber and Carbohydrates and Excessively High in Fat and Concentrated Protein

Meat is one of the main sources of food that provide little fiber—*flesh foods lengthen the average transit time through the gastrointestinal tract from thirty hours to seventy-seven hours*.

Colon cancer patients produce more than normal amounts of bile acids which enhance cancer growth. A more rapid transit time through the digestive tract reduces exposure time to these acids.

Meat contains virtually no carbohydrates and is excessively high in fat and concentrated protein.

Dr. Bircher-Benner, the great Swiss physician, said, "Meat does not give strength. Its composition is one-sided, lacking certain minerals and vitamins, and it introduces too much fat and protein into the system, disturbing the balance of nutrition and giving rise to intestinal putrefaction."

8.3 Meat is Highly Stimulating and Innutritious

Hereward Carrington, *The Natural Food of Man*, p. 114, says, "In the first place it must be pointed out and insisted upon that meat is a highly *stimulating* article of food, and for that reason, innutritious. Stimulation and nutrition invariably exist in inverse ratio—the more the one, the less the other, and vice versa. The very fact, then, that meat is a stimulant, as it is now universally conceded to be, shows us that it is more or less an innutritious article of diet, and that the supposed "strength" we receive from the meat is due entirely to the stimulating effects upon the system of the various poisons, or toxic substances, introduced into the system, together with the meat. It is for this reason that those who leave off meat and become vegetarians experience a feeling of lassitude and weakness for the first few days—they lack the stimulation formerly supplied, and now notice the reaction which invariably follows such stimulation. This feeling of weakness, or "all-goneness," is therefore to be expected, and is in no way a proof that the diet is weakening the patient. Let him persist in his reformed manner of living for some time, and he will find that this reaction wears off, and that a general and continued feeling of energy and well-being follow."

8.4 Results of High Protein Diets

Organism Subjected to Toxic Byproducts

Protein is the most complex of all food elements, and its utilization is the most complicated. People with impaired digestions will find it preferable to ingest a lesser quantity of concentrated protein, which they are capable of utilizing, rather than a greater quantity, which not only cannot be processed efficiently, but which may poison the body. When protein is eaten in greater amounts than the body is capable of utilizing, the organism is subjected to the toxic byproducts of protein metabolism, which it has been unable to eliminate—and the inevitable result is degenerative disease.

The tremendous amounts of protein frequently recommended—75 to 100 grams daily (or more)—are far in excess of the body's needs, and are the source of much trouble.

The famous nutritionists Dr. Ragnar Berg, Dr. R. Chittenden, Dr. M. Hindehede, Dr. M. Hegsted, Dr. William C. Rose, and others, have shown in extensive experiments that our actual need for protein is somewhere around thirty grams a day, or even less. Many leading contempporary scientists and nutritionists in Europe, such as Dr. Ralph Bircher, Dr. Bircher-Benner, Dr. Otto Buchinger, Jr., Dr. H. Karstrom, Prof. H.A. Schweigart, Dr. Karl-Otto Aly, and many others, are in full agreement with the findings of Drs. Berg, Chittenden, Rose, et al, and are recommending a low protein diet as the diet most conducive to good health.

High Incidence of Degenerative Diseases

The Seventh-Day Adventists and The Church of Jesus Christ of Latter Day Saints, who advocate a low animal-protein diet, have fifty to seventy per cent lower death rates than those of average Americans. They also are reported to have a much lower incidence of cancer, tuberculosis, coronary diseases, blood and kidney disease, and diseases of the digestive and respiratory organs.

Negative Lime Balance (Calcium Transfer)

Bone calcium is at dangerously low levels in those using meat as compared to vegetarians, especially in people over fifty. A high-protein diet (especially meat protein) increases the urinary excretion of calcium. Thus vegetarians are less prone to osteoporosis (porous bones).

H. J. Curtis' *Biological Mechanism of Aging* gives documentation of the role of high protein diets, particularly animal protein, in causing osteoporosis. Calcium is transferred from the hard tissues (bones) to the soft tissues (arteries, skin, joints, internal organs and eyes). The transfer of calcium to the soft tissues results in catastrophic fractures, hardening of the arteries, wrinkling of skin, arthritis, the formation of stones, cataracts, high blood pressure, degeneration of internal organs, loss of hearing, senility and cancer.

A study of elderly female vegetarians at Michigan State University showed they lost less bone to osteoporosis than a group of the same age that ate meat.

Researchers at the University of Wisconsin found that when the protein intake of young men was raised to 140 grams per day, they all proceeded to lose bone calcium, even though they took liberal amounts of calcium and magnesium supplements and protein extracts which contained no fat and little phosphorus—the supplements didn't help at all.

Young men had strong bone retention with protein intake of around fifty grams per day—only a reduction in protein consumption avoids the threat of osteoporosis.

Athletes who eat much meat are especially susceptible to arthrosis, a degenerative process of the joints. Among twenty conventional-diet professional football players who were observed for eighteen years, 100% incidence of ankle arthrosis and 97.5% of knee arthrosis were found.

A negative lime balance is easily produced by increased protein supply. The eminently important minerals—potassium and magnesium—are known to be deficient in an every day diet rich in meat, eggs, cheese, fat, sugar and grains, but richly present in a full-value vegetarian diet predominating in raw food.

Rapid Maturation and Early Death

Examples are repeatedly cited of robust and apparently healthy individuals who are heavy meat-eaters. Dr. L.H. Newberg of Ann Arbor University found that when he fed large quantities of meat to test animals, they grew bigger and more alert than other animals on a vegetarian diet. But three months later these animals contracted kidney damage and died, while the vegetarian animals lived on healthily and happily. (Wade, C., Vegetarianism, Herald of Health, LXXII, Ap. 1967, p. 14)

Accelerated growth = accelerated maturity, accelerated degeneration and accelerated demise. Rapid growth and short life go together, verified by repeated studies and experiments.

Since rapid maturation occurs as a result of high protein diets, this produces earlier onset of menstruation. Girls who start menstruation before thirteen have a 4.2 times greater incidence of cancer than those who start several years later. In countries with higher meat fat consumption, breast cancer mortality rates increase, and there is a higher incidence of colon and prostate cancer.

It must be emphasized that diet alone is not the single component in cancer and other degenerative diseases, but optimal nutrition does play a fundamental and preventive role, and faulty dietary habits play a causative role.

Kofranyi of the Max Planck Institute in Russia proved that complete nitrogen balance and performance ability could be maintained on 25 grams of protein daily, and Oomen and Hipsley found a population that develops not just full health, but magnificent structure and corresponding physical performance on 15 to 20 grams of protein daily.

8.5 The High-Protein Hoax

Dr. Bircher-Benner describes the method used by the American Research Council's Food and Nutrition Board to agree on a daily requirement for adults of seventy grams, found in their tables.

Sherman, a member of the board, said that evidence pointed toward a much lower amount, somewhere around thirty-five grams. But if the protein requirement had been set so low, there would have been a public outcry. And so, a corresponding "margin of safety" was adopted, and "seventy grams" was published. Because the scientific basis for this was nonexistent, the word "recommendation" was used instead of "requirement." Of course it was publicly interpreted as the requirement, in fact, as the minimum.

"The smallest amount of food able to keep the body in a state of high efficiency is physiologically the most economical, and thus best adapted for the body's needs." This is the Chittenden concept, stated years ago by Russell Henry Chittenden, which applies forcibly to protein. The average American diet contains 45% more protein than even the National Academy of Sciences recommends, and is certainly not "best adapted for the body's needs."

8.6 Insoluble Problems of Meat-Based Diets

Flesh eating is defended almost entirely on the premise that it is a source of superior proteins. The truth is exactly opposite. The pathological effects of encumbering our bodies with the proteins of other animals is Nature's method of vetoing these proteins for human consumption, in order to promote the stability of the human species and to protect the health of the individual. Dr. Herbert M. Shelton says (*Animal Foods*—booklet) that allergy and anaphylaxis (see definition) are not mysterious; they are due to long-standing poisoning of the body by excess or inappropriate protein foods.

Animal proteins are often not reduced to their constituent amino acids, but are absorbed in more complex form. Absorption by the body of such partially digested proteins poisons the organism, and so-called "allergic symptoms" may be the result—or gout, arthritis, cancer, or any one or more of a host of degenerative diseases.

A meat-eater must also be concerned about digestive problems caused by too little dietary fiber; circulatory problems due to excessive cholesterol deposits from animal fats; loss of bone mass due to inadequate ingestion and retention of calcium; deficiency of vitamins and minerals; and inadequate carbohydrate intake (without increasing calories).

The Senate Committee recommended fifty to sixty per cent of daily calories from carbohydrates, but, actually, it should be more like ninety percent *(provided, of course, that they are natural and not refined)*.

It is well-nigh impossible to solve such problems on a meat-based diet.

9. A Healthful Diet Without Meat

Dr. Scharffenberg says, "In contrast, contrary to conventional belief, it is simple for a vegetarian to maintain a healthful diet. There is no worry about cholesterol and little concern about saturated fat. Fiber and carbohydrate are adequate without any special calculation. HOW IRONIC THAT FOR SO LONG IT HAS BEEN THOUGHT THAT IT WAS THE VEGETARIAN WHO HAD DIFFICULTY.

IN LEARNING TO GET ADEQUATE NUTRITION... THE OLD WORRIES ABOUT A VEGETARIAN DIET BEING PROTEIN-DEFICIENT ARE GROUNDLESS AND SHOULD BE LAID TO REST." (Caps mine—author)

The intelligently planned meatless diet has none of the disease problems of flesh foods and provides a dependable source of all the nutrients—including adequate protein.

Complex judgments or computations, such as are necessary in planning a meat-based diet, are obviated. It is extremely difficult for meat eaters to maintain a diet low in saturated fat and cholesterol, high in carbohydrates and fiber, and containing adequate calcium to compensate for the effects of meat in increasing excretion and transfer of calcium.

9.1 The Obsolete Amino Acid Theory

One of the favorite arguments of flesh eaters is that proteins from the plant kingdom are "incomplete," because no one plant food contains all of the twenty-three identifiable amino acids (although the carrot, with twenty-two amino acids, comes quite close). Studies of man's physiology, and the effects of his consumption of foods from the plant kingdom, have shown conclusively that it is not necessary to consume all of the amino acids at one sitting, not even the eight (some references say ten) "essential" amino acids that are not fabricated within the body.

The foods we eat are processed by the body, and the amino acids, vitamins and minerals, and other nutrients are reserved in a pool for later use as needed. When we eat, we replenish the reserves in this pool, to be drawn upon by the cell as required. We do not live upon one protein food, but upon the protein content of our varied diet, which supplies all of the protein needs of the body. Guyton's "Guidance Textbook of Medical Physiology" is authority for this important information. The book contains five pages showing that amino acids are picked up from the bloodstream and cells of the body.

If you have read *Diet for A Small Planet*, you are familiar with Frances Moore Lappe's assumption that it is necessary to consume all the "essential" amino acids at each meal, and her complicated "solution" to this "problem" for vegetarians by combining certain foods from the plant kingdom to form complete proteins, resulting in some abominable food combinations, which, of course, do not take into account human digestive limitations.

Nowhere in Nature is there any evidence of the necessity for such complicated maneuvering to obtain optimal nutrition. Not only are humans not dependent on the animal kingdom for their nutrition—it is also not necessary to play a numbers game with nutrients or foods at each meal.

9.2 The Truth About Amino Acids

New knowledge has completely reversed the old theory, which was based on studies between 1929 and 1950 that used purified amino acids. We eat foods—not purified amino acids Recurring studies reported in the *Journal of the American Medical Association* and other medical journals (since 1950) show that it is not necessary to feed complete protein at each meal. One such study by E.S. Nasset, reported in World Review of Nutrition and Dietetics 14:134-153, 1972, indicated that the body can make up any of the amino acids missing in a particular meal from its own pool of reserves, as long as a variety of foods are included in the diet.

Only gelatin and isolated protein factors are completely devoid of one or more amino acids. "Vegetable protein foods are not lacking totally in any specific amino acid.... the average vegetarian ingests adequate amounts of protein, and the amounts of essential amino acids in the diet not only meet the minimum requirements—they more than twice exceed them." (Scharffenberg, *Problems with Meat*.)

There is also a proliferating availability of additional documentation of the fact that humans and animals fast for lengthy periods, and that, instead of suffering protein deficiency, the end of the fast finds them with restored protein balance. Those individuals who have experienced prolonged fasts (of perhaps fourteen days or longer) invariably have experienced remarkable improvement and hardening of the nails of the fingers and toes. During my twenty-nine day fast in 1967, I marveled at the improvement in my own finger nails, which lengthened and hardened, a new experience for me.

If the body were not capable of storing amino acids, this obviously could not have occurred during a period of abstention from all food. Nor could this have occurred if the protein supply were dependent on continuous and simultaneous external sources of all the essential amino acids.

It is true that protein is not stored in the body in the same sense that excess carbohydrate is stored as glycogen or fat. But the body can compensate for temporary deficiencies by withdrawing what it needs from the pool of materials within the organism—as material is sloughed off intestinal walls, from digestive secretions, and from the autolysis of old cells, fat, etc.

Many foods from the plant kingdom contain so-called "complete" proteins; that is, humans may obtain from them all of the essential amino acids which they cannot synthesize, but from which other amino acids may be synthesized as needed.

The argument that the best source for protein is meat because the analysis of animal protein (amino acids, particularly) is much closer to that of the human body than is plant protein is an excellent argument for cannibalism. If that contention were true, all animals would be best nourished by eating their own species since, obviously, that would be the only source of identical protein and their best source of optimal nutrition. I believe that even the heartiest flesh eaters would find this idea repugnant.

Besides, it must be remembered that no human can use the protein in the form in which it is consumed. It must always be disassembled into its constituents and reassembled or synthesized into the particular protein required by the cells and tissues of the new host. As previously explained, cooked and coagulated animal protein presents great difficulties in this necessary breakdown of the long chains of amino acids.

9.3 Superiority of Uncooked Plant Proteins

All nuts, except the hickory, contain complete proteins. This has been verified by experiments by Cajori, Kellogg and Berg. Sunflower seeds and sesame seeds are in the same category. Peanuts, beans, and a long list of vegetables also contain all the essential amino acids: carrots, Brussels sprouts, cabbage, cauliflower, collard greens, fresh corn, cucumbers, eggplant, kale, okra, peas, potatoes, summer squash, sweet potatoes, and tomatoes. This listing is by no means complete. Most vegetables, of course, contain lesser amounts of amino acids than do concentrated proteins like nuts, seeds and legumes. Soybeans (which may be sprouted and eaten raw) contain all of the essential amino acids—in fact, a higher quantity of all amino acids (weight for weight) than meat or eggs.

Some grains do not contain all of the essential amino acids (as far as has been presently determined). When grains are used together with an abundance of raw green vegetables, whichever amino acids are missing from the grains are well supplied by the green vegetables. But remember that you do not need to concern yourself about securing all of the essential amino acids at one sitting.

An adequate supply of protein in the overall diet is indispensable for normal health and well-being. But such an adequate supply of protein is not dependent on killing animals for food, nor upon using a calculator to add up the amino acids at each meal.

Use a variety of the available Hygienic foods—choosing from fruits, vegetables, nuts, seeds and sprouts—not all at each meal, of course—or even necessarily, every day—but over the course of the weekly diet.

Dr. Hoobler, who did some research at Yale University, demonstrated the superiority of nut protein. It was he who proved conclusively that the protein of nuts not only provides greater nutritive efficiency than that of meat, milk and eggs, but that it is also more effective than a combination of these three animal proteins.

Fruits and vegetables, though containing relatively smaller amounts of protein in their natural state, are excellent sources of supplementary amino acids for complete and optimal nutrition.

The protein in raw nuts and seeds, and in uncooked fruits and vegetables, are readily available to the body, and are therefore said to be of high biological value. During the process of digestion, the long chains of amino acids (the building blocks of protein) are gradually broken up for the body's use in synthesizing its own protein (as any species must do).

It must be reiterated and re-emphasized: when proteins have been cooked or preserved, they are coagulated. Enzyme resistant linkages are formed which resist cleavage, and the amino acids may not be released for body use. In this case, the protein is useless and/or poisonous to the body, becoming soil for bacteria and poisonous decomposition byproducts.

Since the nutrients available from raw food are several hundred per cent greater than those available from food that has been cooked or otherwise processed, and since, obviously, flesh foods are usually not eaten raw by humans, this in itself would be an important reason why first-hand protein foods from the plant kingdom, which may be eaten uncooked, are superior.

Raw food decreases the need for protein in yet another way: the usual conventional diet requires six to eight grams of protein per day for the synthesis of digestive juices. But raw food, with all the enzymes intact, economizes on digestive enzymes.

Nuts are subject to few contaminating influences; they supply everything we can get from flesh foods, in better form, better condition, cleaner, more easily used, and without the risk of eating chemicalized or diseased flesh foods. And nuts can be eaten without cooking or processing.

Utilization of nuts is best if eaten with uncooked plant foods of high biological value, such as large green salads. Sprouted grains and legumes are excellent supplementary sources of protein of high biological value.

In abnormal conditions, as after a prolonged fast, recovery from a debilitating disease, during lactation or pregnancy, or during weight training, a slightly greater amount of protein may be necessary, *if not in excess of the digestive capabilities of the body*. Concentrated proteins are more difficult to digest than most other foods, and must be consumed within individual limitations rather than according to charts.

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10. Vitamin-B12

Some people are fearful that a diet which does not include animal proteins will be deficient in Vitamin B-12, and that they may become victims of pernicious anemia. Beef and beef liver are said to be the finest sources of B-12. Well, where does the herbivorous cow get this vitamin? Vitamin B-12 is manufactured by the friendly bacteria in the animal's intestinal tract. This is true for all vegetarian animals, including the human being, as well.

A deficiency of Vitamin B-12, which is a forerunner of pernicious anemia, is not necessarily due to dietary inadequacy. A report released from a Vitamin B-12 Conference stated, "Pernicious anemia appears to arise not from shortage in the diet, but from impairment of the ability to absorb Vitamin B-12." (Proceedings of the Nutrition Society, 71st Scientific Meeting, London School of Hygiene and Tropical Medicine, January 5, 1952, p. 295)

Study after study has shown that the deficiency of Vitamin B-12 is due to the lack of absorption of the vitamin from the intestinal tract, due to the absence of "intrinsic factor," a substance which is normally present in the gastric juices.

Putrefactive bacteria can destroy friendly bacteria, thus inhibiting the synthesis and absorption of Vitamin B-12. The principal cause of putrefaction in the digestive tract is the ingestion of cooked animal protein (though putrefaction can occur as a result of bad food combining, overeating of any concentrated protein foods, chemical additives and drugs).

There have been repeated instances of improvement in the condition of the blood as a result of fasting, plus subsequent improvement in the diet, especially when flesh foods are eliminated.

The myth that plants do not contain B-12 has been propagated and fostered by vested interests. The truth is that B-12 is found in plants in very small amounts. This is consistent with the fact that our need for Vitamin B-12 is miniscule (*under* one microgram (a millionth of a gram) daily, and the body can store it for two to eight years. (Vitamins of the B Complex, 1959 U.S. Department of Agriculture Yearbook of Agriculture, Section on Food, pp. 139-149) Robin Hur's article in this lesson suggests that our actual need for Vitamin B-12 is considerably less than one microgram per day.

Vitamin B-12 has been found in significant amounts in many plant foods, some of which are bananas, dates, greens, peanuts, and particularly sprouts and raw sunflower seeds.

A correspondent to the *New England Journal of Medicine* (12/7/78, p. 1319) notes that vitamin B-12 is manufactured by micro-organisms, making it possible to obtain B-12 from certain seeds and nuts, and from soybeans. He also cites synthesis of the vitamin in the digestive tract of humans when adequate amounts of unheated seeds are eaten, and points to healthy babies who are breast-fed by strict vegetarian mothers.

In studies on vegetarian humans, Dr. Wolfgang Tiling discovered the synthesis of B-12 in the intestines of children on a soy milk diet.

Dr. Karl-Otto Aly of Sweden examined the Hunzakuts and they showed no B-12 deficiency symptoms, though they have been almost 100% vegetarians for 2,000 years.

Dr. Alec Burton (Australian Hygienic professional) has seen countless people go for 25 to 30 years on vegetarian diets, and never display a deficiency of Vitamin B-12.

Current research at Loma Linda University found excellent B-12 levels for tested vegans (people who eat plant foods only), who eat all, or most, of their food fresh and unheated. Vitamin B-12 is water soluble, and therefore best obtained in raw foods.

Studies have demonstrated that Vitamin B-12 is heat sensitive and normal cooking can destroy as much as 89% of it. High consumption levels of fat and protein, refined foods and tobacco increase the need for B-12, while at the same time interfering with the synthesis and absorption of B-12. Thus the conventional meat-eater may indeed be a more likely candidate for Vitamin B-12 deficiency and pernicious anemia than the individual on an adequate vegetarian diet.

I have known a number of people who were found to be deficient in B-12 and who were receiving injections of this vitamin, but they were all flesh eaters. I have never known a Hygienist or vegetarian who was receiving these injections.

The list is long of children who nursed at their vegan and Hygienic mothers' breasts, and grew into exemplary specimens of perfect health: Dr. Virginia Vetrano's daughter and granddaughter, Helen Lamar's son, Dr. Bressak's children, Jay Dinshah's children, and others.

Vitamin B-12 (Cobalamin) is the only vitamin that contains a mineral—cobalt. It has been hypothesized that supplying this mineral to growing plants will increase their potential for being a source of the natural phenomenon which results in the production of Vitamin B-12.

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11. Recap

Dr. Scharffenberg (p. 84, *Problems with Meat*) says: "The reality of the problems" (with meat-based diets) "is evident in the high mortality from cancer and atherosclerosis, among other disease problems, which makes it tragically obvious that it is not easy for the average person to learn how to eat properly on a meat diet."

A summary of the specific health reasons for eliminating flesh foods from the diet follows.

1. Flesh foods cause putrefaction by decomposing in the intestines, reducing the functioning of intestinal flora, and interfering with the synthesis and utilization of Vitamin B-12.
2. Their byproducts of toxic substances (uric acid, purines, etc.) and carcinogens cause degenerative diseases.
3. Saturated fats from meat produce abnormal cholesterol deposits, causing heart and arterial degeneration.
4. Meats contain parasites, chemicals and hormones, which damage the body and cause disease.
5. Diseased animals pass their diseases on to humans.
6. Flesh foods provide a favorable medium for the multiplication of the bacteria of disease.
7. Flesh foods lessen the resistance of the body to disease.

8. Vegetarians have stronger bones.
9. Meat-based diets present complex and grave nutritional problems.
10. People who eliminate meat from their diets are better nourished, and have better health and greater longevity than meat eaters.

As indicated at the beginning of this lesson, there are many other arguments against the use of flesh foods. In addition to the reasons listed there (that are not specifically health-related), the following should be included:

1. The lack of strength and endurance of meat-eaters, compared with vegetarians, has been repeatedly demonstrated (e.g. Olympic champions, etc.).
2. A meatless diet is conducive to symmetry and normal development of the human body.
3. A meatless diet improves the various senses and renders them more acute.
4. Meat, being highly stimulating, tends to cause overeating and other excesses (e.g. alcohol).
5. Meat-eating influences the mental, emotional and moral life. Flesh foods tend to make a person pugnacious.

The poet Shelley maintained that there is no disease, bodily or mental, which a meatless diet does not mitigate. He said, "On a natural system of diet, old age would be our last and only malady."

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12. Questions & Answers

How can I be sure I am getting enough protein? What percentage of the Hygienic diet should be concentrated protein—nuts, seeds or legumes?

First of all, don't forget the considerable protein in sprouts, bananas, potatoes, and, of course, a variety of vegetables. Most foods (including fruit) contain some protein, even though they are not thought of as protein foods because they do not contain concentrated protein. Concentrated protein foods usually contain somewhere between eight and twenty-five per cent protein. Actually, the protein in the foods that are less concentrated is easier to digest and assimilate than that of any concentrated foods (concentrated proteins, starches, dried fruits).

Dr. Scharffenberg says that if 10% of a vegetarian diet contained concentrated proteins, the person would be getting approximately 56 grams of protein daily. If the concentrated protein were reduced to 5%, the individual would still be getting approximately 34 grams of protein daily—no deficiencies there! Even the Food and Nutrition Board regards 56 grams as the recommended daily allowance and 34 grams as the minimum required daily allowance. Hygienists know we need even less.

Dr. Scharffenberg calculates that about 28 grams would be enough to maintain nitrogen equilibrium, based on a calculation of a nitrogen loss each day equivalent to 20 grams of protein of 100% biological value. Hygienists know that the biological value of uncooked proteins is highest, and it is well-nigh impossible to come up protein-deficient on a Hygienic diet that includes a small percentage of concentrated protein foods. A vegetarian might be protein-deficient if he regularly ate a considerable percentage of "cheat foods" containing refined sugars and starches.

The following two studies indicate:

1. The average vegetarian ingests adequate amounts of protein. (Hardinge, M.G.; Stare, F.J.; "Nutritional Studies of Vegetarians, I. Nutritional Physical and Laboratory Studies." J. Clin. Nutr. 2:73-82, 1954.)
2. The amounts of amino acids in the diets of vegetarians not only meet the minimum requirements— they more than twice exceed them. (Hardinge, M.G.; Crooks, H.; Stare, F.J.: "Nutritional Studies of Vegetarians, V. Proteins and Essential Amino Acids." J. Am. Diet Assoc. 48:25-28, 1966.)

Can humans be infected with diseases of plants?

There is absolutely no evidence that diseases of plants can be transmitted to humans.

I am under the impression that only hogs are injected with trichinosis—and that other meats do not carry these larvae.

The trichinae do originate in the hog. But, in 1974, New Jersey had more cases of trichinosis from beef than from pork. It seems that kitchens use the same knives and meat grinders for the beef and pork, and the trichinae may be thus transmitted to the beef. Studies by the New Jersey Health Department and the National, Center for Disease Control showed that as many as 8% to 20% of stores had beef contaminated with pork. (National Communicable Disease Center: Trichinosis Surveillance, Atlanta, May 1969)

Is the "Prudent Diet" the same as the Hygienic diet?

No, but it is several steps in the right direction. The Prudent Diet is one that was used by Dr. Norman Jolliffe of New York City's Bureau of Nutrition in an "anti-coronary" club. Dr. Jolliffe was successful in reducing the incidence of heart problems by one-half during a ten-year period. The Prudent Diet is low in meat, cholesterol, saturated fat and calories, and high in fruits, whole grains, vegetables and legumes.

How would you rate the health hazards of meat as compared to other health hazards?

I believe Dr. Scharffenberg's Health Hazard Poll is fairly accurate. He rates the various health hazards as follows:

25%	Tobacco
25%	Meat
15%	Dairy Products, Eggs, High-Fat Foods
10%	Obesity
10%	Lack of Exercise
15%	Alcohol, Tea, Coffee, Stress, Sugar, Snacks, Lack of Sleep, etc.

Dr. Scharffenberg includes "No Breakfast" in the final 15%, which I left out, because Hygienists know this is definitely not a health hazard, but an excellent practice. I am in basic agreement with Dr. Scharffenberg on his other factors, except that I know that lack of exercise deserves a larger percentage. Alcohol, a metabolic poison, should also be much higher on the pole.

My Health Hazard Poll would look like this:

30%	Tobacco and Alcohol
25%	Flesh Foods

25% Lack of Exercise and Obesity
10% Dairy Products and Eggs
10% Tea, Coffee, Stress, Sugar, Snacks, Lack of Sleep, etc.

Isn't it true that when meat is "bled," as in kosher meats, all or most of the toxic wastes are drained off?

Some may be, but not enough to really matter, especially as far as urea and uric acid are concerned. Most of the flavor of meat is due to these wastes. If all the blood were really drained off, the meat would be almost tasteless. Besides, many of the waste products are trapped in the tissues themselves. In addition to the urea and uric acid, there are large amounts of adrenalin produced during the pre-slaughter and slaughtering, dead and virulent bacteria, contamination from fecal matter, and, of course, various chemicals and hormones. There is no way to make meat really fit for human consumption.

I know that a vegetarian diet is said to regulate (or actually lower) the serum cholesterol level. Is there documentation for this claim?

A diet high in fiber increases the amount of lipids (fatty substances) eliminated by the body in the feces. Plant sterols—substances with a chemical structure similar to that of cholesterol—appear to help in the regulation of the human cholesterol level. Pectin (contained in fruits and vegetables) has also been shown to actually lower abnormal serum cholesterol levels. Fifteen grams of pectin eaten daily (corresponding to the upper level found in natural fruit and vegetable diets) result in an average decrease by 5% of the serum cholesterol in a three-week period. (*Unmeat*, Stoy Proctor, p. 16.)

Four studies (among many others) which have been published and reported in scientific journals, documenting these phenomena, are listed below:

1. A. Keys, F. Grande, J.T. Anderson, "Fiber and Pectin in the Diet and Serum Cholesterol Concentration in Man," Society for Experimental Biology and Medicine, Proceedings, Vol. 106 (1961) p. 555.
2. A.R.P. Walker and U.B. Arvidsson, "Fat Intake, Serum Cholesterol Concentration, and Atherosclerosis in the South African Bantu," *Journal of Clinical Investigation*, Vol. 33 (1954) p. 1358.
3. C. Joyner, Jr. and P.T. Kuo, "The Effect of Sitosterol Administration Upon the Serum Cholesterol Level and Lipoprotein Pattern," *American Journal of the Medical Sciences*, Vol. 230 (1955) p. 636.
4. Knut Kirkeby, "Blood Lipids, Lipoproteins, and Proteins in Vegetarians," *Acta Medica Scandinavica*, Supplementum 443 (1966) p. 70.

I have been under the impression that meat-eating maintains bodily heat in the winter, and in cold climates. I note that vegetarians often are bothered by air conditioning, while meat-eaters are comfortable.

You have it backwards. Vegetarians maintain body heat well, while meat-eaters are continually in a more or less feverish condition.

Dr. Trall pointed out that ordinary vegetarian foods contain all the carbon and hydrogen requisite to sustain the animal (or human) heat in all climates, and under all circumstances of temperature; and if every surplus carbon or hydrogen is taken into the system, it is, of course, thrown off; and when a large amount of surplus carbon and hydrogen is taken, the labor of expelling it is attended with a feverish excitement—which, instead of warming the

> body permanently, only wastes its energies, and renders it colder in the end. (Carrington, *The Natural Food of Man*.)
>
> Carrington says, "All the conditions requisite for the due regulation of the animal" (including human) "temperature are: good digestion, free respiration, vigorous circulation, proper assimilation, and perfect depuration; in two words—*good health*." (p. 115)

Article #1: Osteoporosis: The Key To Aging by Robin Hur

Robin Hur is the author of *"Food Reform, Our Desperate Need"*

Osteoporosis, which means "porous bones," is the foundation of the entire so-called "aging" process; it produces the decrepitness of old age and it leaves in its wake a maelstrom of age-related degenerative conditions. Osteoporosis results from an insidious process of bone demineralization, which, over a period of many years, robs the bones of up to half of their original calcium content. The bones are left frail and weak, and to make matters worse, much of the lost bone calcium ends up in the walls of the blood vessels, the skin, the eyes, the joints and various internal organs.

The calcium that finds its way to the blood vessels causes hardening of the arteries; that which ends up in the skin causes wrinkling. In the joints the errant bone calcium takes the form of arthritic deposits, in the eyes it takes the form of cataracts and in the kidneys and bladder it becomes what we know as stones. Thus, osteporosis is (literally) the source of a broad range of degenerative processes.

The development of osteoporosis has now been linked to cancer, but even before the discovery of the cancer ties, gerontologists had concluded the "aging" process centers on the transfer of calcium from the hard tissues (bones) to the soft tissues (skin, arteries, joints, retina, etc.) It follows that keeping the bones intact, that is, prevent osteoporosis, is tantamount to preventing the degeneration of aging itself.

It is doubtful the bones of Westerners ever reach full maturity. It is beyond doubt, however, that at some stage of adulthood, their bone calcium begins to ebb and be carried away in the bloodstream. In time, the entire skeletal structure becomes porous, frail and weak. As members of that weakened structure, the vertebrae tend to yield to the load of the torso, so the back is wont to become crooked, compressed and painful. Such are the earmarks of osteoporosis, and with its onset, the individual tends to become stooped and normally loses inches off of his or her height. Spontaneous fractures of the vertebrae are common, as are fractures of the hips, arms, and legs. All of the bones are left vulnerable to breaks, which, when they do occur, are slow to heal.

A study at the University of Tennessee indicates that women usually develop osteoporosis following menopause but that men normally do not contract the disease until their early sixties. Other research indicates both sexes experience serious bone losses at much earlier ages.

Grim reports concerning the attrition of bone calcium in America should not be taken to mean that osteoporosis, nor for that matter what we call "aging," is unavoidable. Poor posture is the hallmark of osteoporosis, and Sula Benet describes the Abkhasians posture as "unusually erect, even unto advanced ages." Elderly Abkhasians are unbothered by spontaneous fractures, but as horsemen and mountain climbers, they do sometimes break bones and when such breaks do occur, they are wont to heal rapidly and completely, which would not be the case if they were suffering from osteoporosis.

Vilcabamba centenarians are, in Grace Halsell's words, "known to have healthy bones." Hundred-year-old Vilcabambans still work in the fields, bending the whole day, and show no ill effects. Ms. Halsell reports never having heard of an elderly Vilcabamban's having fallen and broken an arm, leg or hip. She adds that she saw not one Vilcabamban who limped or was disabled.

Other groups that manage to avoid osteoporosis include the Hunzas and Yucatan Maya. Like the Abkhasians and Vilcabambas, these groups live in traditional ways and take low-protein, primarily vegetarian diets. And from the way groups taking flesh-based diets decline with age, there is little doubt it is the diet of the Hunza, Abkhasians, et al. rather than their lifestyles, that enables them to circumvent osteoporosis.

The heavy meat eating Masai males, Eskimos, and Greenlanders apparently develop osteoporosis at very early ages. The Eskimos normally become bent, shrunken and disabled in their late 20s while Greenlanders become decrepit in their 30s. The most interesting case, however, is that of the Masai. The tribe's males spend their formative years roaming with their herds, drinking the animals' blood and milk, and eating only small amounts of plant foods. Then, at the age of 20 or so, they take off to do a two-year stint as warriors, during which time they try to live on flesh alone. Following the warrior stint, and while still in their early 20s, they migrate to the tribes' villages, arriving at the villages with bent backs, diminished heights and debilitated bodies, whereupon they are cared for by the villages' women until they die. Now here's the rub: the tribe's females, who remain in the villages while the males are out subsisting on flesh and making war, raise and eat plant foods, and remain remarkably free of osteoporosis.

Research linking osteoporosis and high-protein diets is upending the foundations of modern nutrition. In the words of Drs. Ammon Wachman and Daniel Bernstein of Harvard, "the association (of meat-based diets) with the increasing incidents of bone mass loss with age is inescapable." They go as far as to say "it might be worthwhile to consider" a diet emphasizing fruits and vegetables and only a moderate amount of milk. The head endocrinologist at the Jewish Hospital in St. Louis acknowledges that "vegetarians suffer less osteoporosis than people who eat lots of meat and have high-protein intake." The relationship between high-protein intake and loss of bone calcium was the subject of a major address before the nation's nutritionists in April. The speaker was Dr. Helen Linkswiler who, as head of the Nutrition Department at the University of Wisconsin, pioneered in protein-calcium research. Dr. Linkswiler and her colleagues are firmly convinced high-protein intake causes the bones to ebb.

Sharing that opinion are a growing number of nutritionists including two of the world's leading authorities on protein and calcium, Doris Calloway of Cal-Berkeley and Mark Hegsted of Harvard.

In the first protein-calcium studies (now just eight years old) it was found that a protein intake of 140 grams per day caused young men to lose their bone calcium at a rate of 3% of total bone mass per year. The subjects evidenced no capacity to adapt to the high protein intake, and at the rate they were losing calcium, they would have had no bones at all by their mid-fifties.

Subsequent studies showed young men experienced no bone losses when they were put on diets containing less than 50 grams of protein per day; but when their protein intake was raised to 95 grams per day, their ability to keep their bones intact depended on the amounts of calcium and phosphorus, the 95 grams of protein per day resulted in relatively small losses of bone calcium. But when the diet contained more realistic (albeit still favorable) levels of calcium and phosphorus, the 95 grams of protein per day resulted in calcium losses amounting to 2% of total body calcium per year. At that rate it would take the young men about 15 years to develop severe osteoporosis. It should be pointed out that the average protein intake of young American males exceeds 95 grams per day.

Studies with young women began only recently, and their peak protein intake was scaled down to 100 grams per day. It had been predicated that the presence of female sex hormones would protect the young women from serious bone losses, but this proved not to be the case. The young women responded to 100 grams of protein daily in essentially the same way the young men had responded to much higher intakes.

It is noteworthy that every single individual involved in one of these protein-calcium studies has responded to increased protein intake with decreased calcium retention. And, so far, all such studies have been conducted with young adults, who by virtue of their age, should be relatively resistent to bone deterioration. What is more, the reported losses were, in all cases, understated, for they took no account of sweat losses, nor did they make any allowances for any calcium that may have been deposited in soft tissues (measurements focused on what was excreted rather than what ebbed from the bones.) And with one exception, the experimental diets were fortified against loss of bone calcium through the presence of abnormally low amounts of phosphorus. Thus, the results of these studies actually tend to *understate* the effects of protein on the bones.

Phosphorus vs. Calcium

There is, of course, more to "protein foods" than just protein. Animal products are all high in phosphorus, and with the exception of dairy products, they all have very low calcium-to-phosphorus ratios. All animal products are high in chlorine and sulfur, low in manganese and magnesium, and with notable exceptions, they are high in fat and low in Vitamin C. Surprisingly, everyone of these characteristics tends to impair bone development and/or retention.

The relationship of phosphorus intake vis-a-vis calcium intake to bone development and retention has been the subject of extensive research. It has been found that when the phosphorus content of the diet is not excessive, a high calcium-to-phosphorus ratio promotes strong bones.

When, on the other hand, the phosphorus content of the diet is very high, bone deterioration is unavoidable.

High-phosphorus diets effect substantial rises in the level of phosphorus in the blood; and in what amounts to an effort to control the ratio of calcium-to-phosphorus in the blood, the body responds to a rise in blood phosphorus by removing calcium from the bones and releasing it into the bloodstream. Boosting intake of conventional calcium sources (dairy products) does nothing to alleviate the situation. Calcium absorption drops sharply when intake is elevated, so little of the added calcium actually reaches the bloodstream. Moreover, dairy products are high in phosphorus as well as calcium, and almost all of the phosphorus does get into the bloodstream. Thus the addition of dairy products to a diet already high in phosphorus may actually speed up the rate of bone deterioration.

Studies indicate the phosphorus content of typical diets is 20 to 100 percent above safe levels; moreover, calcium-to-phosphorus ratios are less than half what they should be. Meat and dairy products account for two thirds of the total phosphorus in typical diets. Eliminating just the meat would reduce total phosphorus intake to acceptable levels—it would also bring a dramatic increase in calcium-to-phosphorus ratio.

Phosphorus tends to acidify the blood. Chlorine and sulfur have the same effect, so when intake of one or more of these three minerals is excessive, the body goes in search of a buffering agent. Without some means of buffering the blood, a single overload of one or more of these minerals could cause severe acidosis, and even death. The body contains four minerals that can act as buffering agents, but only two of these, namely potassium and calcium, are available in quantity. Unfortunately, excesses of the acid-forming minerals are almost always accompanied by a rise in blood potassium levels, and since further increases in serum potassium could have dire consequences, the body tends to call upon its calcium bank (i.e., the bones) for a buffering agent.

The mechanism that initiates the removal of calcium from the bones also puts a halt on the excretion of calcium by the kidneys. The result is a rapid rise in blood calcium, which tends to bring about the deposit of calcium in the soft tissues in the form of kidney and bladder stones, arthritic deposits, etc. Thus, the acid-forming minerals are capable of triggering the entire "aging" (i.e., calcium transfer) process.

Foods that contain an excess of the acid-forming minerals (phosphorus, chlorine and sulfur) over and above the alkaline-forming minerals (calcium, potassium, sodium and magnesium) are said to have an "acid ash." Foods that are on balance, alkaline in nature are said to have an "alkaline ash." Protein itself forms an acid ash and this may explain why high-protein intake causes the bones to give up calcium.

All so-called "protein foods," including milk, tend to acidify the blood. Without exception, they are rich in the three acid-forming minerals; moreover, all of their chlorine, and a major segment of their phosphorus, lies external to their protein. Thus, they have an acid-forming capacity which is independent of their protein. It follows that protein foods, such as beef and eggs, would be expected to cause even greater bone losses than isolated protein extracts, which served as the principle sources of protein in all but one of the aforementioned protein-calcium studies. And in the one study in which meat did serve as the protein source, calcium losses were indeed accelerated.

The addition of fruits and vegetables to the diets of young men taking 140 grams per day cut their bone calcium losses by 25 percent. Fruits and vegetables have an alkaline ash, so their addition to an acid-forming high-protein diet would tend to cut the need for bone calcium as a buffering agent.

Typical diets have a strong acid ash. The first step to alleviating this situation is to eliminate from the diet those items with really high acid ashes, namely meat, eggs, fish and poultry products. Without these, normal diets would be tolerably close to neutral and the individual would be in a position to work towards a truly good diet—which means, among other things, an alkaline ash diet.

Inactivity is still another, and possibly important, cause of skeletal erosion. Extended bed rest led to calcium losses at a rate of 6% of total bone mass per year in young men. On the other hand, exercise tends to enhance calcium retention and it has been shown that low-protein, low-fat diets boost endurance and engender spontaneous activity. High-fat, high-protein diets cut endurance and promote inactivity. It's just not a good day for the meat group.

The integrity of the bones depends on the supply of a number of minerals, including manganese and magnesium. An adequate supply of manganese enhances the strength and density of developing bones, while an adequate supply of magnesium tends to prevent bone calcium from ending up in the kidneys and bladder as stones.

Ironically, cow's milk is used to induce both manganese and magnesium deficiencies in animals.

Manganese-deficient milk left young rabbits with bowing front legs and a bone structure that was weak and porous. Magnesium-deficient low-fat milk induced kidney stones in 97 percent of a group of rats; it can offer no solace to milk drinkers that researchers believe the protein in milk played a role in the stone formation. In all fairness, though, it should be pointed out that milk is not the only dietary item that is low in manganese and magnesium: all animal products are markedly low in both minerals; in fact, the entire American diet is dreadfully low in both.

High-fat intake tends to inhibit calcium absorption through the formation of insoluble calcium compounds of the gut. Calcium absorption is aided by the presence of Vitamin C which tends to keep calcium in an absorbable state. It hardly needs pointing out that animal products are grossly high in fat and scurvy-low in Vitamin C.

The ties between animal products and the entire "aging" process (i.e., the transfer of calcium from the bones to the soft tissues), and osteoporosis in particular, make the cornerstone of the "four basic food groups" look like a tombstone. To recoup, *normal diets contain enough protein to produce rapid bone losses, even among young adults*. They also contain enough phosphorus to cause debilitating bone deterioration; and they have a calcium-to-phosphorus ratio that would be expected to both thwart bone development and speed deterioration. Normal diets have an acid ash capable of producing both bone deterioration arid the accumulation of calcium in the soft tissues:

Animal products are the principle source of the protein, the phosphorus, the low calcium-to-phosphorus ratio, and the acid ash in normal diets. What is more, animal products tend to effect bone-degenerating inactivity and deficiencies of bone formation-dependent manganese and stone-preventing magnesium.

On top of this, animal products are very low in Vitamin C, which aids calcium absorption, and overloaded with fat, which inhibits calcium absorption. It's a one-sided picture, but it's a one-sided scene—and it bears a message of hope.

We don't have to face advanced age as less than skeletons of our former selves. It is clear, though, that walking tall and, painlessly into the years ahead requires our abstaining from meat, eggs, poultry and fish. Little is to be gained by switches to meat substitutes, synthetic eggs, etc.—we need to get away from the protein, the fat, the phosphorus and the acid ash, not simply take them in "vegetable" form.

We do need a good source of calcium in the diet, but we don't need milk. Milk is, after all, merely a substitute, and a poor one, for dark green leafy vegetables. Collards, parsley, turnip greens, watercress, kale, mustard, spinach, etc. provide twice as much calcium as milk and yet they contain considerably less phosphorus. They have calcium-to-phosphorus ratios three to four times that to milk. And unlike milk, greens have a strong alkaline ash; what is more, they are excellent sources of manganese, magnesium, and Vitamin C. They are also free of the troublesome protein, fat and cholesterol of milk. As for the problem of excess protein, replacing the milk and cheese with a few ounces of greens (which is all that is necessary) would cut protein intake by 10-15 grams per day.

A few greens, including spinach, are high in oxalic acid, which may reduce the availability of their calcium. It is advisable to include at least one oxalate-free green (see earlier lessons on oxalic acid and which vegetables contain it and/or other irritant properties) in the diet, but there is no reason to avoid these vegetables *completely*. Vegetables are best taken raw, of course. Take them in salads, or enjoy their company and taste right in the garden.

We are going to hear a good deal more about osteoporosis during the next few years. The protein-calcium studies have upended the foundations of modern nutrition. Critics simply can't find any loopholes in the results. No exceptions. No extenuating circumstances. No inconsistencies. In the words of one of the nation's best known nutritionists: "I now realize we know almost nothing...." She went on to extol dark green leafy vegetables, leaving the impression they were a new thing to her.

It's happening. Meanwhile don't be fooled by claims you need a "protein source." Stick with the juices, fruits, greens and sprouts; they'll keep your bones intact, your soft tissues soft and your years without worry.

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Article #2: Vegetarian Mother's Milk Safer

The breast milk of vegetarian women is significantly safer than that of meat-eating women, according to a study conducted by the Washington-based Environmental Defense Fund (EDF).

Last June, government and university researchers testified before a senate subcommittee that it is difficult, if not impossible, to find safe milk for new-born infants anywhere in the world. The researchers cited an Environmental Protection Agency (EPA) study conducted in 1975 which indicated that 99% of breast milk samples taken from more than 1,400 nursing mothers in 46 states, were contaminated with pesticides, such as Dieldrin and DDT, and other industrial compounds such as polychlorinated biphenyls (PCBs).

PCBs are suspected carcinogens, and in low doses can cause sterility in animals. They are now widespread in the environment, because of accidental spills and deliberate, covert dumping of the chemicals into public water supplies.

For instance, a number of factories along the Hudson River have for years been circumventing state water purity laws by processing PCBs, benzene, chloroform, and other chemicals through municipal sewage treatment plants— despite the fact that such plants are incapable of filtering out toxic chemicals before dumping the water into the river.

This fall (however), the EDF tested breast milk samples from 50 predominantly vegetarian women, and found that the levels of pesticides such as DDT in their milk were only 1/3 to 1/2 those of mothers eating a conventional diet.

The levels of PCBs, however, were only slightly reduced from the average breast milk concentration of 1.8 parts per million—10 times higher than the maximum amount considered "safe" for babies.

The women chosen for the study ate milk and dairy products as well as fruit, grains, and vegetables, and a few ate fish as often as once a week.

The EDF researchers say they cannot explain why not eating meat should make such a difference in the pesticide levels of nursing mothers. They suggest that it's probably that vegetarians eat more organically grown foods (foods grown without pesticides) than do most carnivores.

The foregoing article and headline (with a rather sensational sub-heading, "Meateaters Breast Milk Laced with Pesticides") was found in a recent Earth Watch section of New Age Magazine.

It may be that some vegetarians eat more organically grown food, but this is a lame explanation for the reduced levels of pesticides as noted. In the last issue of VV, Nat Altman noted that dairy products contain "only about 2/5 the pesticide residues as (compared to) red-meat, fish, and poultry. Oils, vegetable fats, and leafy vegetables contain about 1/7 as much; fruits and legumes are about 1/8 as much; and the figure for grains and cereals is only 1/24 the pesticide residues found in meat."

This is due to the concentrating factor as the contaminant goes through the additional link in the ecological chain; that is to say, an animal (or human) is likely to concentrate the pollutant in its body; it may also dispose of some of it in milk. Actual tests in Britain have shown the pesticide residue level in humans to be highest in. meat-eaters, lower in lacto-vegetarians, and lowest in total-vegetarians. It is very likely that the PCB levels would follow a similar pattern, as PCBs are not just industrial pollutants but are largely produced by the breakdown over the years, of DDT in the soil and environment.

Given the many proven advantages of breast-feeding by a healthy human mother, we do not feel that vegetarians should be stampeded into forsaking this practice that is so potentially beneficial for both mother and baby. Considering that the pesticide (and probably PCB) level of vegetable-source foods is such a small fraction compared to that of even the dairy products, it may well be considered by even lacto-veg. mothers to substitute leafy greens and other rich sources of nutriment, for dairy products, at least during pregnancy and lactation. Also, we cannot refrain from commenting that even eating fish "as often as once a week" could easily be a factor in keeping PCB levels up.

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Article #3: Booklet Review - Meat And The Vegetarian Concept, Part I

This review concerns the 20-page pamphlet, *Meat and the Vegetarian Concept*, published by the National Livestock and Meat Board.

Intended to refute various aspects of meatless diets, it has been circulated extensively to educators, nutritionists, media people, and other individuals throughout the USA.

The text itself is carefully written and attractively presented, and at first glance seems to offer very convincing arguments in favor of eating meat.

However, a careful reading reveals a plethora of inaccurate and incomplete data, outright distortion of fact, and even the tendency to create an argument where none, in fact, exists.

Because of the extensive distribution of this pamphlet and the highly misleading statements it contains, NAVS feels that a swift and factual response is warranted.

As the pamphlet takes a rather disorganized "shotgun" approach, a point-by-point analysis would be impractical. However, NAVS has requested 3 well-known vegetarians active in the movement to comment extensively on the main points, making full use of documented material from non-vegetarian as well as vegetarian sources.

The three are: Nathanial Altman (author of *Eating For Life*; NAVS board member); Robert Pinkus (director of Metropolitan Veg. Assn.); and H. Jay Dinshah (Pres. of NAVS).

NAT—Very often, meat industry spokespeople, such as the National Livestock and Meat Board, find it in their interest to classify vegetarians along with those few enthusiasts of the radical and nutritional unsound "Zen macrobiotic #7 diet," which calls for the consumption of only brown rice. It should be made clear that macrobiotics and vegetarianism are not the same, as many macrobiotic diets involve the liberal consumption of seafood, such as fish, clams, shrimp and other crustaceans. In addition, certain vegetables such as eggplant are enjoyed by vegetarians but frowned upon by macrobiotic enthusiasts as "poison." Fruit and salads are also generally avoided.

Thus, it is absolutely necessary to define our terms: Vegetarians do not eat the meat of domestic or other animals, whether it is beef, pork, veal, lamb, poultry, fish or other "sea food." Most vegetarians—perhaps 90-95%—are either lacto or lacto-ovo vegetarians, eating such foods as eggs and/or dairy products in addition to plant foods. A small percentage of vegetarians—called "total vegetarians"—abstain from animal foods altogether, and consume only plant-source foods, such as grains, legumes, nuts seeds, fruits, and vegetables. "Vegans" are total vegetarians who also refuse to use nonfood animal products, such as leather, furs, silk, wool, and soon.

BOB—In his forward to this pamphlet, NLSMB President David Stroud (whose commercial interest in promoting meat-eating seems obvious) sets a very low tone in trying to equate vegetarianism with some vague and unspecified "commercial interest"; with "food fadism and nutrition quackery, higher grocery bills and complicated meal planning," as well as potential poor nutrition. *All of which could hardly be further front the truth*.

While commercial interests have always abounded in human endeavors, seldom have they been less important as motivations (when they exist at all) than in today's vegetarian movement, either with the average vegetarian or the more outspoken vegetarian advocates.

As we get deeper into this curious pamphlet, we shall soon see where the label of "nutrition quackery" rightly belongs.

A considerable saving can be expected on grocery bills for persons changing from a meat-based diet to a well-planned nonmeat diet, as noted briefly in *Facts of Vegetarianism* (10-cent booklet from NAVS).

Meal planning can, if anything, become much simpler, although with the tremendously increased available variety of natural non-animal foods that many newcomers to vegetarian living seem to "discover" for the first time in their lives, it often happens that one soon discovers that vegetarian dining can also be more fun and much more delicious.

VEGETARIAN VOICE—On page 6, the NLSMB dismisses, in a single paragraph, religious reasons for abstaining from certain or all types of meats, calling these "religious taboos." Is the characterization fair and is it accurate?

BOB—The pamphlet cites Hindus, Moslems and Jews, and 7th-Day Adventists, in regard to opposition to some or all types of meat. Conveniently omitted are such groups as Trappist and Benedictine monks, Jains, Buddhists, Essenes, and others who at various times in history help to fill out the picture of widespread partial abstention or outright injunction against flesh eating.

JAY—First, I would point out that "poor sanitation" in meat handling is hardly limited to Biblical times or the Middle or Far East as this paragraph implies: indeed, it does not seem to be altogether unknown even nowadays.

We may sympathize with the embarrassed reluctance of the NLSMB to go into further detail about the shellfish, the swine, the vulture, etc., said to be stamped "unclean" and declared by their own Creator to be unfit for human consumption (even under the more liberal demands for flesh-eating raised by erring humanity); this was clearly due to their being much less fastidious in their dietary habits—i.e., the consuming of river sewage, the omnivorous scavenging of fecal matter or carrion—than the vegetarian creatures in general. (See Deuteronomy 14:3-21; also see Genesis 1:29-30.)

Doubtless, many of our friends in the movement who happen to be 7th-Day Adventists, will be surprised to be singled out and to learn that their reason for not eating meat is supposed to be "as an expression of their religious devotion."

I commend to you the chapter on Flesh As Food, including, "Reasons for Discarding Flesh Foods," in *The Ministry of Healing*, by Ellen G. White: the reader may judge whether the health reasons for vegetarianism presented so eloquently therein are mere superstitions or "religious taboos." But it will be crystal clear why the meat promoters may wish the public to think so, especially when one considers the long and illustrious tradition of SDA researchers, dieticians, and M.D.'s in documenting and publicizing the superiority of vegetarian living, purely from the secular standpoint of better health and longevity.

In a recent year, the livestock feed production alone in the U.S. was 165 million tons, not including the wheat consumed by animals. One half of the total of all U.S. crops are fed to animals, including 86% of corn, oats, and barley, 90% of the non-exported soybeans, and 42% of the wheat Americans consume, for an overall consumption picture of 78% of all U.S. grains going to feed animals.

Nor does this include the huge areas of land misused for grazing purposes. And all this is IN ADDITION to any molasses-soaked old newspaper, silage, excrement, or whatever else they now call "recycled" feed, either experimentally or commercially.

JAY—Obviously, the 3:1 ratio cited in the NLSMB booklet refers to the very "best" meat producer—the chicken—although all fowl and fish are conveniently omitted when the board wants to convince Americans that they aren't eating enough meat (p. 10). We are not going to say that the use of a 3:1 figure is a deliberate attempt to distort the facts; an alternative explanation would be that the experts of the National Livestock and Meat Board just don't know the difference between a chicken and a steer, and hope the public will be just as much in the dark. So it might be an honest mistake.

Of course, it is not just vegetarians who are drawing the public's attention to "preposterous stories" of the waste of grain in feeding food animals. But it is the practice, not the stories, that we find preposterous. The figures that Nat and Bob gave are corroborated in the special section on the "World Food Crisis" in the Nov. 11, 1974, Time magazine. It notes the 400 lbs. of grain eaten by a person in a year in a poor country versus an American consuming "five times that amount, mostly in the form of grain-fed beef, pork and chicken. The industrial world's way of eating is an extremely inefficient use of resources. *For every pound of beef consumed, a steer has gobbled up 20 lbs. of grain*. Harvard nutritionist Jean Mayer notes that "the same amount of food that is feeding 210 million Americans would feed 1.5 billion Chinese on an average Chinese diet." This is a food ratio of 7:1, and it would be much worse but for the fact that "meat-eaters" do not eat only meat, but rather a mixed diet, and this helps keep the ratio down to "only" 7-to-l in this case.

The booklet does seem to confuse the protein-conversion ratio with the grain-to-meat conversion ratio, which is obviously not quite the same thing. In the 20 lbs. of grain cited by Time magazine, there might run, say, 2'/i lbs. of protein (about 1/8). In the single pound of beef produced, it might run around 1/6 lb. of protein. So the actual protein conversion ratio (grain:beef) would run about 15:1, close enough to the

17:1 cited by Nat (allowing for reasonable variables), but five is as great as the meat propagandists would have us think, by their literary legerdemain of just lumping everything together as "meat" and claiming the greatest "efficiency" as if it represented an average. I feel we have every right to "beef" about this figures finagling, because that's just too much bull to hide behind a little chicken.

Averaging out the food waste factors on the various types of meat—even including fowl—in the quantities actually consumed, you would probably come up with a rule-of-thumb average in the vicinity of that of Prof. Isaac Asimov's estimated 90% waste, or 10:1 ratio overall (see "Our Wasted Land" in *Facts of Vegetarianism*, published by NAVS). You know, Dr. Asimov is a noted science writer, who is also in the top ranks of science-fiction authors. He used to be my favorite in the latter field until recently. But now I eagerly await further literary efforts of the NLSMB, as I find their creative style of subtly blending science with fantasy to be so much more imaginative and entertaining than even that of Dr. Asimov, providing one does not take them too seriously, of course.

In all candor, though, I must admit that we vegetarians must be stronger of conscience than of stomach. Personally, I don't think I would have the guts to stand right up and look down on a starving sister or brother and say right out that I have "only" three lbs., or 10lbs., or 20lbs. of food, but I'd rather throw it to the pigs or the cows than share it with a human being. I don't think I could bring myself to brag about the efficiency of "only" throwing two chapatties out of three into the dung-heap. It really takes a rare kind of cool to pour water from your overflowing canteen onto the desert sand in front of a fellow human dying of thirst. It really must have taken a lot of nerve for the NLSMB to make a statement like that.

This kind of machismo, we can all live without. But the real question is: can this hungry world live with it?

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Article #4: Booklet Review - Meat And The Vegetarian Concept, Part II

—continued from previous issue. Comments by Nat Altman, Bob Pinkus, and H. Jay Dinshah.

VV—On Page 7, the booklet (published by the National Livestock and Meat Board) claims that "the biological quality of protein found in animal foods is superior to that in vegetables" and implies quite strongly that vegetarianism is a major reason for people in developing nations suffering "rampant malnutrition—stunted growth, small brain development, and the disease kwashiorkor...."

NAT—What was omitted was the fact that there is absolutely no connection between "rampant malnutrition" etc., and a Vegetarian diet. The basic factors in malnutrition are either lack of the availability of nutritious vegetarian food or inadequate knowledge of nutrition.

Nutritional studies on the Hunzas, the Otami Indians in Central Mexico, the "old men in Vilcabamba," Ecuador, certain tribespeople of South Africa, young girls in Appalachia, and other people in various parts of the world, all showed that one doesn't need meat to ensure an adequate intake pf protein, calories, fat, and essential vitamins and minerals.

The booklet also failed to note the well-known fact that the biological quality of those plant proteins that are low in specific amino acids dramatically improves when combined with other plant-source foods, such as rice and legumes, or/grains and legumes. Most predominantly vegetarian people have been habitually combining these foods for thousands of years, and have enjoyed sound nutrition and excellent health.

The argument that because animal protein is much closer to that of the human body makes it preferable to plant protein is absurd. If this were true, all animals would be carnivorous if such a bizarre criterion needed to be met.

JAY—Worse than that, Nat; it's a powerful argument for universal cannibalism. What could be closer to human flesh than human flesh?

But this whole scare about protein is pretty much of a red herring. It is most inaccurate to make a blanket statement that animal protein is superior to vegetable protein. They talk about "vegetables" as if vegetarians only ate carrots and turnips. Nuts and seeds generally have protein of roughly equivalent biological value to meat, and in greater proportion than in meats generally. Muscle meat is "deficient" compared to organ meat. And even leafy greens have a moderate proportion of protein of very high biological value. Nor does the term "incomplete" mean a protein is valueless by itself; only that even a single essential amino acid is a percentage point or more less than an arbitrary dividing line of 60% (for adults) or 70% (for children) of what is considered an ideal balance. The difference between a "complete" protein and an "incomplete" protein is not—as some would like us to believe—the difference between 100% and zero: it is often so marginal as to be meaningless for any practical relationship to the actual needs of the human body.

Nor is it even necessary that all the essential amino acids be present in the same meal (let alone the same food), as the body recycles amino acids from dying cells and maintains, in effect, a pool of amino acids. (See p. 383 of *Laurel's Kitchen*.) For further information on vegetable proteins and their complete adequacy, see The Protein Problem, The Happy Truth About Protein, About Protein (in *Facts of Vegetarianism*), and the Vegetarianism special supplement to Life and Health magazine, all available from NAVS.

As for their view of malnutrition, they seem to just throw in "a deficiency of calories" as if it were a separate problem from the better-publicized protein deficiency. Actually, the former usually accompanies the latter, as it is a matter of just too little food available (see p. 385, Laurel's Kitchen), a fact the meat people seem understandably anxious to obscure.

This reminds me of old Calvin Coolidge's sage observation that when a lot of people were out of work, the result was unemployment. The NLSMB wants us all to know that when people are too impoverished to obtain *enough* vegetarian food, the result is malnutrition and starvation. But as we shall see, their "solutions" to such human difficulties seem more in line with the naive advice given by another historic figure, Marie Antoinette.

VV—On page 6 of the booklet, it is claimed that the conversion ratio is 3:1 for vegetable protein to animal protein in raising animals for food, and that much of the protein for feeding animals is obtained by recycling otherwise inedible "wastes" for feed.

NAT—Actually, the demand for meat in the USA contributes markedly to rampant malnutrition in the developing countries. *Despite a world food deficit of over ten million tons, over 580 million tons of grains were fed to livestock in a recent year.* In the U.S. alone, approximately 87% of all the corn, oats, barley, and grain sorghum crops are fed to livestock, not directly to people.

In converting this high-protein feed into meat protein, the productivity rate is far different from the 3:1 ratio claimed.

According to the June 6, 1968, issue of Chemical Industry it takes 1250 lbs. of plant protein to produce 75 lbs. of beef protein, an efficiency factor of just 6%, or a ratio of 17:1. The corresponding efficiency factor for lamb is 9% (11:1); for pork, 15% (6 2/3-to-l); while the most "efficient" protein converter is chicken, and even that only yields 2.5 lbs. of protein for every 8 lbs. of plant protein consumed, a factor of 32%, or a little less than 3:1. Something they do not mention is another serious barrier to good nutrition in developing nations. It is a well-known fact that many of the developing countries are utilizing their best land for cattle raising for export to the USA, instead of using this land for growing staple crops which could feed their hungry people.

In Guatemala, for example, where 75% of the children under five years of age are malnourished, nearly 23 million pounds of meat were sent to the USA from January to November 1976 (Foreign Ag. Calendar, USDA, of Dec. 1976). At present, Guatemala has a shortage of low-priced corn and beans, the staple foods of the peasant population.

BOB—The meat people admit that the ratio for protein conversion is "only about 3:1." Even if true, what would be moral about even that ratio, in a world in which each year millions of humans die of diseases related to malnutrition?

A fact ignored by the booklet is that in a country such as India, the average person can only get about 400 pounds of grain per year, but can live by eating it instead of feeding it to animals. In America, the average meat-eater consumes 2000 lbs. of grain per year, but only 150 lbs. direct and the rest second-hand through animal products.

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Article #5: Scientific Vegetarian Nutrition

(NAVS Western Coordinator and Board Member Dixie Mahy reports on a 2-day class presented by Dr. Aly at the 23rd World Vegetarian Congress....)

Although a qualified medical doctor Dr. Aly utilizes vegetarian diet, fasting, and non-drug therapy. He stated that scientific thought is just now coming to favor vegetarianism, and that early scientific errors have been made which have taken a long time to correct.

Error #1) Scientists thought that since protein was the most important nutriment in the body for growth and repair, and that since animals were rather similar in construction to humans, meat was therefore the best food for the human body.

The error was that they did not realize that the body can build up its own human protein from proteinaceous food sources within the vegetable kingdom.

Error #2) Scientists thought that by refining carbohydrates—which the body needs for energy—it would make them easier to assimilate, e.g.: pure white sugar, white flour, polished rice, etc.

The error was that, most unfortunately, the vitamins, minerals, and enzymes are largely destroyed in refining, processing, or even in long cooking; and the body needs these nutriments.

Error #3) Scientists thought the body needed more dietary fat than it actually does, and began recommending too much in the diet.

The error was that, although the body needs fats, it gets an excessive amount of saturated fats as a result of high meat intake and saturated oils as a result of processing.

The Protein Myth

Dr. Aly discussed more fully the "protein myth" perpetrated by western scientists, who made two major errors on protein: As previously noted, proteins from the vegetable kingdom were considered inferior; and the protein minimum daily requirement was set at a figure far too high for the body's actual requirements. (In addition, it should be noted, the RECOMMENDED daily amount was arbitrarily set at DOUBLE the supposed minimum amount proven adequate, -ed.)

In the East, the question was, "How little protein do we need?" But in the West, the question was "How much protein do we need?" Scientists are now starting to slowly correct their mistakes. Ironically, for example, they once recommended the optimum "to make sure" but today modern scientists recommend the minimum of before (1/2 the former *recommendation*) as the optimum of today.

Dr. Aly went on to state that meat is not a good energy source as it is not easily combusted and needs several enzymatic processes to metabolize, with lots of waste products, nitrogen waste, uric acid, and urea, which the body disposes of with difficulty. Waste from protein cannot be disposed of so easily as waste from carbohydrate. (Consider that carbohydrate breaks down easily with water, h3O, as a waste product which the body can easily get rid of through perspiration, or via the lungs or kidneys.) On the other hand, the kidneys are the only way of eliminating protein waste. When there is an overload, material is stored in all connective tissues, etc., throughout the body. This overload along with no exercise, will eventually destroy the kidneys and/or the heart.

The Circulatory System

Dr. Aly cited new scientific findings showing that the walls of capillaries are destroyed by waste products from protein and excessive protein which is stored there. These studies were made by Prof. Lother Wendt of the University in Frankfurt, Germany. (Unfortunately, these studies are only available in German at this time—a language spoken fluently by Dr. Aly—but hopefully they will be translated for American scientists, doctors, and nutritionists.)

Dr. Aly went into great detail showing how important the circulatory system is for good health, and how the combination of saturated fats and too much animal protein causes many diseases not usually thought of as being directly associated with it. The arteries, veins, and capillaries carry the nutriments and oxygen for all the cells of the body. Every cell is dependent on this circulatory system for its nourishment.

All waste products from the metabolic process are returned to the blood vessels to be eliminated from the body. Thus, good circulation is essential! The walls of the blood vessels need to be elastic, thin, permeable. When excess fats and amino acids are deposited on the walls of the blood vessels, the walls become thick, inelastic, and impermeable.

When the passageways become narrowed, occlusions can occur causing (for example) a coronary of the heart. Another less known effect, however, is the above-mentioned interference with cell metabolism. When the long chains of amino acids from animal protein along with saturated fats catch on the small pores of the walls of the blood vessels—especially the capillaries—the surrounding cells become undernourished.

Normally, the capillary walls should be 300 angstroms thick (an angstrom is a unit equal to 1/100,000,000 of a centimenter). If the walls become thicker, 500 to 1000 angstroms, nutriments and oxygen are unable to get to the cells adequately and waste products cannot get out. Even diseases such as cancer may be caused by this clogging of the vessels as these cells deteriorate and become susceptible to numerous diseases. There is also the theory that the body has to raise the pressure to force the blood through the clogged vessels, in order to get nutriments to the cells. Again, perfect circulation is essential to perfect health!

Dr. Aly feels that a person would be much less likely to get excessive amounts of protein from vegetable sources. Protein in general in the vegetable kingdom is not so highly concentrated as animal protein is, and he views this as a desirable feature rather than undesirable as was formerly thought. The body can make up its proteins provided the essential amino acids are present. He believes in complimentary proteins such as beans and corn, and felt that a vegetarian diet containing a variety of foods is adequate for promoting and maintaining good health. (It is also now known that so-called "complete" proteins are also widespread in the vegetable kingdom, as in most nuts and seeds, and leafy greens. Even "incomplete" proteins may often rank a mere few percentage points lower than an arbitrary dividing line, in one or two of the essential amino acids and thus be stigmatized as theoretically inferior—yet it is quite possible to utilize even such erroneously-classified "incomplete" protein foods as the only concentrated protein sources, without resorting to combinations at all. -ed.)

Dr. Aly did not feel that protein concentrates as a supplement are necessary in a balanced vegetarian diet.

Harmful Effects Of Salt

Dr. Aly discussed the overuse of salt in the diet and its consequences. Natural sodium is needed in the body only in small quantities, one to five grams. Sodium is found naturally in foods, so one can live well without adding inorganic table salt to food at all. (See: chapter on *Salt Eating* in Dr. Shelton's Vol. 11, chapter on *Salt is Poisonous*, in his Superior Nutrition, and Lesson 29 on eliminating condiments from the diet.)

Table salt (sodium chloride) causes osmotic changes in the blood. The tissues fill with fluids and then must be cleaned out through the kidneys and skin. At Dr. Aly's clinic, he puts his patients on a modified fast, giving them fluids, juices, and water to get rid of the sodium chloride. (He prescribes an alkaline vegetable juice program—e.g. carrot juice—rather than a plain water-fast, as he feels the juice counteracts acidity.) Too much salt overtaxes the kidneys. Regular doctors give their patients diuretics which take fluid and salt away, but are harmful as they also take away essential minerals.

Salt causes more fluid in the blood vessels, and the body tries to force elimination of the fluid to get rid of the salt. The combination of salt, animal protein, and saturated fats—all so typical of the average American diet—forces the blood pressure to rise.

Intestinal Flora

Dr. Aly discussed the importance of the intestinal flora in the lower intestines. Lactobacillus acidophilus is necessary in the intestines to help digest, food and to produce vitamins B12 and K.

The intestinal walls serve an important function in acting as "traffic police" to prevent poisons from passing into the body. He felt that allergies are caused by the loss of the flora in the intestines and poisons getting into the blood. He emphasized the beneficial effects of eating raw foods as they have their own enzymes for digestion, and these are destroyed by cooking. That is one reason why *more* food is needed when it is cooked.

He felt that a high-protein diet is not necessary if one has good intestinal flora. He cited the study of New Guineans of Mt. Hagen, who are very healthy people although they eat 15 to 20 grams of vegetable protein a day (compared to current recommendations of 45 to 55 grams for the average adult female and male). Amazingly, these New Guineans put out far more nitrogen than could be accounted for with their meager protein intake. Dr. Aly felt that they must have good flora and are producing their own protein.

Dr. Aly does not recommend such a small amount of protein for most people, as there are so many things in modern society that interfere with good intestinal flora. He felt, for example, that the artificial fertilizers have depleted the trace minerals in the soil, which are therefore deficient in the fruits and vegetables. Organic manure, for example, would be better; and bacteria in the soil would be just as necessary as in the intestines. He also felt that pesticides, artifical colorings, etc., are all carcinogenic, allergenic, and harmful to the health although they make things look good and sell better. He believes that additives destroy the natural intestinal flora.

Regarding vitamin pills, his view is that they contain what scientists know, but not what has not yet been discovered; and that the natural fruits and vegetables in a fresh state and organically grown if possible, are more desirable. He recommended that a strict total-vegetarian (using no dairy foods or eggs) eat three to five grams of parsley every day, as it helps the intestinal flora (which in turn produce vitamin B2).

Superiority Of Natural Unrefined Foods

Dr. Aly went into great detail regarding the superiority of natural unrefined foods. He cited studies by Prof. Burkitt, and the English studies by Cleave and Campbell, the Saccharine Diseases, which state that most diseases arise from abuse of refined products. They say that essentially the diseases are different symptoms of the same problem.

Dr. Aly demonstrated what occurs through the refining of a grain of wheat, for example. This takes away the vitamin E, essential fatty acids, trace minerals, the wheat germ, and an essence that scientists do not as yet know about. What remains is mainly carbohydrate. He asserted that scientists know about elements, but they do not know about the essence of life itself. Putting a few of the known synthesized vitamins back into the refined flour cannot make it equal to the original whole grain. Although scientists could even copy the wheat grain exactly as they know its component parts, it still would not grow. Yet grains found in tombs 4000 years old will still grow. There is a life essence locked in, which scientists do not know how to reproduce. That essence is destroyed by refining. (He added that grains can be stored in dry tins if kept cold and dark, but they will not store well after they are ground.)

Nutritional Disaster Of Refined Sugar

Dr. Aly was adamant that if white sugar were banned, everyone's health would improve. He explained, that there is a constant blood sugar level of 80mg in the blood, needed for muscles and organs. When white sugar is eaten and gets into the blood, it gives a high blood-sugar level of 150 to 200. Low blood sugar is bad—no energy—but the body has no use for high blood sugar either. The body takes it and stores it as fat. If an apple or an orange or an unrefined carbohydrate is eaten, it takes a longer time to get the sugar and energy; thus there is a normal rise in the blood sugar level. When refined sugar is eaten, it gets into the blood stream quickly, and the blood sugar level becomes too high; insulin is then secreted to break down the sugar and store it in the body as glycogen. Then the blood sugar drops below normal level, and there is a feeling of a lack of energy.

If a lot of refined sugar is eaten, the pancreas is overworked. People who eat refined sugars for "quick energy" are taxing their systems and not really getting lasting energy, because the body will over-react and drop the blood sugar level below normal, and they will then have less energy than before. Unrefined carbohydrates will provide an even, long-term energy level, and not the "yo-yo" effect of extreme high followed by extreme low.

Although honey, maple syrup, blackstrap molasses, dates and other dried fruits are in varying degrees better than white sugar as they have other nutriments, they too will cause high blood sugar if too much is eaten, as they are highly concentrated though not refined. (It is often recommended to soak dried fruit in pure water overnight, to reconstitute it in fluid content and reduce the sugar concentration, -ed.) He also felt that too much of fruit juices would not be good as the sugar gets into the bloodstream too quickly, and that it would be better to eat fresh fruit.

In summing up, the best diet for good health would be a balanced vegetarian diet containing a variety of (if possible) organically-grown fresh fruits and vegetables, whole grains, nuts and seeds, and dairy products if desired.

Reprinted from the *Vegetarian Voice*, September/October and November/December 1976.

Article #12: What's Wrong With Your T-Bone Steak? by Alvin E. Adams, M.D.

Flesh food in the diet is an important cause of disease and death among humans. Meat, Fish and poultry transmit bacterial and parasitic infections to man. Pesticides, antibodies, and hormones find access to our bodies through the meat we eat. Also, flesh foods, by their very nature, are harmful to human health because of the effects that cholesterol, animal fat, blood, and lack of fiber have on various body systems.

Meat Lacks Fiber

Flesh foods lack natural fiber found so abundantly in whole grains, fruits, and vegetables. Fiber is composed of cellulose. It is indigestible and therefore adds bulk and moisture to the stool. A high meat diet is low in residue-containing foods resulting in constipation with hard and infrequent stools. This in turn often results in the development of hemorrhoids.

Straining and increased tension in the smooth muscle of the colon wall are thought to be the cause of diverticulosis. The pouches of diverticulosis often become impacted with fecal material and may become infected resulting in abdominal pain. Diverticuli occasionally perforate or hemorrhage, requiring emergency surgery.

Meat Is Suspect In Cancer

Meat in the diet is now suspected by many scientists to be a major cause of cancer of the colon. With a high meat diet the transit time of food through the gastrointestinal system is prolonged. Waste matter which should be eliminated promptly remains in contact with the rectal tissue for long periods of time. Cancer-causing compounds may be formed by chemical reactions or as byproducts of bacterial metabolism. These chemicals may initiate cancer in the colon wall. Cancer is the number two killer in the U.S., and colon cancer is the most common cause of cancer deaths. Seventy-five percent of all colon cancers occur within the last six inches of the colon where feces are stored.

Meat Is High In Saturated Fats

The fat found in dairy products and all animals except fish is highly saturated. Saturated fats in the diet tend to raise the blood cholesterol and accelerate the development of hardening of the arteries by the process of arteriosclerosis. Wherever an artery becomes completely clogged because of this pathologic process, a disaster occurs in the tissue beyond the point of obstruction. A blocked cerebral artery results in a stroke, an obstructed artery in a leg may lead to gangrene, and an obstructed coronary artery results in a heart attack. Heart attacks and strokes are the number one and number three killers in this country but are only minor causes of death in countries where there is little or no meat in the diet.

Blood In Meat Can Be Harmful

The blood remaining in meat can be a source of potentially harmful compounds. The blood is the vehicle which carries waste products from the site of their formation to the organ of elimination or metabolism. The bloodstream carries carbon dioxide to the lungs for removal from the system, and it carries other waste products such as urea, uric acid, and creatine to the kidneys for elimination from the body. The blood, also, distributes hormones from the site of production to target organs. Blood in the meat you eat contains the waste products of the slaughtered animal. The removal or metabolism of these chemicals places an extra work load on your liver and kidneys. If the animal was in a state of excitement or fear when it was slaughtered, animal adrenalin and other hormones never reach their target organs but remain in the meat only to have an effect upon you as you eat your blood rare steak.

Meat Contains Pesticides

Many pesticides are fat soluble chemical compounds which are accumulated and stored in animal fat. After eating feed sprayed with pesticides, surprisingly high levels of these complex hydrocarbons are found concentrated in choice-cuts of meat. It has been estimated that 80% of the pesticides which find their way into the human diet come from the meat we eat.

Meat Has Hormones

Hormones and antibodies administered to animals to force growth and prevent disease are metabolized fairly rapidly by the animal. Frequently, however, animals are slaughtered before the drugs have been cleared from the animals' systems, and humans are exposed unnecessarily to these compounds. Until recently, D.E.S. (Diethylstilbestrol) was mixed with feed to promote rapid growth and development in animals. Women who have taken this drug during pregnancy are likely to have boys who are sterile or girls who are susceptible to genital tract cancer. Residues of D.E.S. were frequently found in meat while its use was authorized by the F.D.A.

Meat Has Bacteria And Parasites

Outbreaks of Staphylococcal Enteritis, Shigella Dysentery, and Salmonella often have been traced to meat dishes improperly prepared or preserved. Oysters and shellfish taken from waters contaminated with human waste are a significant cause of Infectious Hepatitis.

Parasitic infections frequently are traced to a flesh food diet. Tapeworms are found in beef, pork and fish. Tapeworm infestations result in chronic disability, weakness, and anemia. Trichinosis is the most important parasitic disease transported by meat in the U.S. THIS COUNTRY HAS THE DUBIOUS DISTINCTION OF LEADING THE WORLD IN TRICHINOSIS. We have approximately three times as much trichinosis as all the rest of the world. About 16% of all adults in the U.S. are found to have trichinosis at autopsy. A heavy infection of trichinosis may cause death, but more often the only manifestations of trichinosis are chronic aches and pains which usually are passed off as a rheumatism or arthritis. Unfortunately, there is NO CURE for trichinosis.

Proper cooking can kill the parasites and bacteria found in meat but when meat, poultry, and seafood are eaten raw or only have a brief exposure to heat, one is inviting bacterial or parasitic disease.

Good Health Requires Effort

If flesh foods were eliminated from the diet, there would be a significant decrease in the disease, disability, and death which result from the conditions that have been discussed herein. Good health is not an accident; it must be pursued with diligent effort. It results from adhering to a healthful diet, avoiding all that is harmful to health and using moderately those things which promote it. Eliminating or reducing flesh foods from the diet is a step toward better health.

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Article #13: Fishitarian Or Vegetarian? The Difference Might Be Fatal! by Bob Pinkus

A lot of people are becoming vegetarians these days. For a great many people the world food crisis provides sufficient motivation to change from carnivorous livestock-based diets to vegetarian diets. Some of those so motivated have contended that a diet which includes fish would be a smaller strain on the resources of the land to produce food for our planet's large human population. This statement overlooks the fact that fish use plankton of plant origin as a primary food at the low level of the food chain. A plankton cultivation system arising from a future technology would be a much more efficient method of producing food for earth's people than eating fish which are much higher on the food chain than plankton.

Plankton cultivation of course would require the development of a technology which did not remove this key planetary input from its role as an oxygen provider. Much of the world's oxygen is provided by plankton. A plankton cultivation system could be developed without too much effort if it became necessary. To date it is not. The produce of the land if eaten directly can today supply more than enough food for all of the planet's human inhabitants. We now have available about one acre of arable land per person on which to produce food for everyone now living. A vegetarian diet requires about half an acre per person; and half of that will provide a total vegetarian or "vegan" diet.

Jacques Cousteau has been quoted as saying that *some 40% of the life in the seas has died in recent decades*. Pollution has been a major factor in this devastation. So has so-called "overfishing" of the world's waters. To the fish which is caught, any fishing is "overfishing." The massive scale of modern fishing has led to a great increase over time in fish yields up until recent years. A few short years ago a decline in yields was noted even though fishing was being attempted on an even grander scale. Clearly the fish population is being decimated by fishing. Massive fish kills caused by pollution have also been reported in recent years around the world. Like other animals fish concentrate environmental pollutants the higher one goes up the food chain. Recently fishing the Hudson River was banned because of the presence of PolyChlorinated Biphenyls (PCBs) in fish at levels up to 350 parts per million. FDA surveys of grocery store foods in 1972 had shown PCBs to be present at levels up to 35 pans per million in fish. A 35 part per million level constitutes 7 times the level of PCBs which sterilized mink whose diets included Lake Michigan Coho Salmon. Lake Michigan residents were warned not to consume more salmon. The PCB dietary levels of the mink were determined to have been 5 parts per million. That level caused complete reproductive failure in the mink. The mink ranchers have since switched to other foods for the mink. The presence of 70 times the 5 part per million level in Hudson River fish was blamed on General Electric which had been dumping the industrial chemical in the river for years. Widely used in industry, PCBs have also entered the environment through the burning of containers in which they have been used.

PCBs are used in plasticizers, adhesives, sealants, transformers, and a wide variety of industrial applications. A 1973 study by scientists at the Davis Campus of the University of California reported that PCBs were the environmental derivative of DDT degrading in the environment. Recognition of PCBs in walruses, seals and polar bears at the Arctic Circle had prompted the research of the Davis scientists. The Arctic Circle is thousands of miles from the nearest industrial application of PCBs. DDT has been used worldwide. Spread by wind and water, DDT is estimated to be present in every human being. The Davis team reported that the interaction of time, about four years, and sunlight causes DDT to break down becoming PCBs. Half the American population is estimated to have measurable amounts of PCBs. Concentrated up the food chain via fish and other animal products, PCBs like other pollutants, reach the consumers of these products in high levels. Fish kills caused by PCBs have been reported around the world. PCBs at low levels have also caused mutations in plankton.

A sampling of massive fish kills from various sources of pollution in recent years would paint a picture somewhat like this:

June 1968, 100,000 fish in the Stanislaus River in California including carp, catfish, sturgeon, striped bass, sunfish, shad, smallmouth black bass, hardheads, blue-gills are found dead in the river. The California State Fish and Game Department calls the fish kill the result of pollution.

August 12, 1968, a number called significant by the Virginia State Water Control Board is reported in fish killed in the James River because of toxic human-made chemicals introduced into the water.

August 29, 1968, 1,000 small fish of different species are found dead in Accabonac Harbor at Riverhead, Long Island, New York.

Pesticides Spray

The New York State Bureau of Marine Fisheries calls pesticide spraying the cause of the fish kill.

Scuba divers off Sea Bright, New Jersey, in the spring of 1969, report a graveyard of crustaceans and fish at depths of less than 100 feet. Cunner, black sea bass, ocean pout, rock crabs, tautog, lobsters, mussels are among those found dead. Great migrations of fish and crustaceans away from the region are reported by other divers. A low level of dissolved oxygen in the water is estimated to be the cause of death.

The Rhine River in West Germany and Holland in June of 1969 is the site of a fish kill of perhaps 40 million fish. Endosulfan, a chlorinated cyclic hydrocarbon marketed by the Hoechst chemical firm as Thiodan, is the cause of the kill.

May 5, 1970: 349,000 plus fish die in Missouri's Crooked Creek after a large quantity of toxic material is dumped into the water. Clordane and Malathion in Xylene is blamed for the kill. Ninety percent of the dead fish are orange throat divers and minnows. All other aquatic life in the stream is killed for a distance of two miles from the dumping. Snakes, turtles, tadpoles, crayfish and large numbers of frogs are among those killed.

December 18, 1970: millions of fish wash ashore dead off the Peruvian coast of Pisco. A thick layer of dead fish 15 feet wide is formed stretching nearly two miles. Flounders, "cabrillas" rays, "corvinillas," ayanques, and "pintadillas" are among those killed. Toxic sewage is a suspected cause of the kill.

May 30, 1971: Large numbers of dying fish drift ashore between Jubail and Ras Tanura on the Saudi Arabian Persian Gulf. Hamoor, black sbaitee, and angel fish are among those killed. Large mature adults weighing from one to 10 pounds with some up to 20 pounds are the principal victims of the kill. A large octopus and a large barracuda are also found killed. The cause of the kill is not discovered to date. All of the fish have grossly inflated air-bladders. The network of blood vessels in the airbladder's dorsal wall is enormously distended and filled with blood. All the fish have empty stomachs but were fat and seemed normal.

August 5, 1971: Lees River, Massachusetts is the site of a fish kill involving nine species of marine fish and two species of invertebrates. Over one million juvenile menhaden are killed. Lesser numbers of weakfish, cunner, American eel, tautog, oyster toad fish, white perch, silver-side and mummichog also die. Half a million prawns are killed. A depressed level of dissolved oxygen is blamed on industrial and commercial discharges. Excessive nitrogen, phosphorus and ammonia are found.

Metropolitan New York: Fish "caught" off the New York gap, the site of sewage dumping for large parts of the Metropolitan area, are being brought on board ship decks and breaking up on the decks. As a result the fish are being sold fillet rather than whole. The situation continues to date.

Clearly the dangers involved in eating fish ought to be reason enough to be truly vegetarian. The tragic case of the many Japanese children born deformed because polluted fish were eaten by the parents (of the Minamata, Japan children) is one which may be repeated more often as people continue to eat animals from the sea. Mercury is blamed for pollution of the fish in that case.

The fact that PCBs have been found to produce cancer as well as sterility, disfigurement, liver problems, and other horrors, ought to prompt officials to ban fish containing PCBs under the provisions of the Delaney Amendment. The Delaney clause states that chemicals found to cause cancer cannot be present in foods. If PCBs cannot be removed from "foods," those containing PCBs should be banned from human consumption.

What of the ethical side of the question? Dolphins face extinction because modern tuna fishing catches and kills large numbers of them each year. We should be concerned about the tuna also. Each tuna is a living creature with a right to live. To a fish being caught the concept of "endangered species" is immediately reduced to one of "endangered individual." Can we relate as well to fish as we do to land animals? As vegetarians we can see that land animals move, breathe, feel, think, live. Do we not also realize that fish do all of this too? Perhaps a few days in a so-called "seafood" restaurant might convince one that the bodies of the fish being consumed are indeed bodies of once living, breathing, thinking, feeling animals who happened to live in water. In Taiwan live puppies are found in cages as one enters a restaurant. One can then select the dog to be killed for one's meal. The "chow dog" of old China is the original reason why chow mein has its name. In America and elsewhere in the world one can find live lobsters similarly displayed ready for murder, in the midst of restaurants. Aren't both acts equally horrible?

We can look too, to the meaning of the word "vegetarian;" it is derived from the Latin *vegetas*—full of life! Clearly if we fill our bodies with the bodies of murdered fish we are full of death instead of life.

Fishitarian or vegetarian, which will it be? The choice belongs to us. The victims cannot vote. In a sense though we are all victims of the fish-eating habit whether we eat fish ourselves or others do. The continued fishing of the world's waters may result in a disturbance of the already fragile eco-system of the waterlife of earth.

That fish and plankton are interdependent ought to be clear. Fish feed on plankton. Fish wastes and decayed fish become a basis for plankton nourishment. There is a symbiotic system among plants and animals in water just as there is on land. Plankton produce oxygen which is used by all life on earth. With increasing fishing removing fish from the waters of the world plankton may become a vanishing species. Without plankton earth would be deprived of vast amounts of oxygen. Without that oxygen it is likely that planetary extinction for all forms of life would follow. The continued plunder of earth's waterways for fish is senseless and dangerous. Whether we remove animals at the top of the ocean food chain like whales or animals near the bottom of the food chain like krill which are a fish type of plankton, we are dangerously jeopardizing the planet's ecosystem. Krill has been looked upon by some as a potential new food for people. Hundreds of millions of tons of krill may soon be "harvested" annually for human consumption. That these fish plankton are interlocked with plant plankton which produce oxygen should be clear. Removing them may endanger the continued existence of the plant plankton they have interplay with.

Even those who do not consume fish directly may be consuming them indirectly. Fish are now a major source of animal feed in America and other parts of the world. The use of animals and animal products as food actually involves the indirect consumption of many fish. Fish oils are also often used as a source of the Vitamin D added to milk. Some dairies use irradiated ergosterol, also called viosterol, as a vegetarian source of Vitamin D, but switch to fish oils as price dictates.

Conscience then dictates abstinence from animals and animal products in one's diet. As a first step in one's vegetarianism the elimination of *all flesh* as food is a good move. Fish, like other animals, belong in their native environment and not in our stomachs. As we are what we eat, if we do not eat corpses we are less likely to become corpses quickly ourselves.

Fishitarian or Vegetarian? Hopefully a wise choice to be vegetarian will be made by all of us.

Article #14: The Facts About Vitamin B12 by Robin Hur

Vitamin B12 is an essential nutrient; it is involved in the production of red blood cells and in the utilization of nervous system-dependent carbohydrates. The inability to absorb B12 leads to so-called "pernicious anemia" in which abnormal red cells are formed, while a lack of B12 in the diet raises the risk of damage to nerves of the spinal cord. Inasmuch as nutritionists report that there is little, if any, of the vitamin in plant foods it behooves strict vegetarians to assure themselves of adequate supplies of B12.

A Mt. Sinai researcher suggests adults need about 0.1 microgram of B12 per day. However, this recommendation is based on observations of individuals taking conventional diets. Normal diets contain gross excesses of fat, protein and refined foods, all of which tend to elevate needs for B12.

Indian researchers found that high-fat intake causes marked B12 deficiency in laboratory animals fed normal amounts of the vitamin; saturated fats, in which beef, eggs and dairy products are extremely high, had an especially severe effect. High protein diets tend to deplete the vitamin in the blood, liver and kidneys of laboratory animals; animal proteins evidently produce more rapid loses than plant proteins. A diet dominated by refined foods more than doubled the B12 needs of baboons. Diets high in animal products, fat and refined carbohydrates lead to conditions in which absorption of B12 is inhibited in humans also.

It appears adults taking low fat, whole food vegan diets should need no more than 0.05 micrograms of B12 daily. The National Research Council recommends adults take 100 times that amount, or 5 micrograms per day. With consistent inconsistency they recommend 1.0 microgram of B12 per day for infants, which is a high multiple of what breast-fed tots get.

It's not altogether clear that nonsmoking vegans need any B12 as such in their diets. The vitamin is normally synthesized by bacteria in the lower regions of the digestive tract and nonsmoking vegans evidently develop the capacity to absorb adequate amounts of their bacterial supplies. British researchers report that only one nonsmoking vegan is known to have suffered from "manifest symptoms and signs" of B12 deficiency. On the other hand, the serum B12 levels of British vegans tend to be very low during their first few years on a vegan regime. And as long as serum levels remain low the possibility of neurological damage persists.

There are several ways in which vegans can protect themselves against declining amounts of B12 in their blood and elsewhere. They could of course take supplements, but supplemental B12 should not be necessary if the diet itself is a sound one. To this end vegans should avoid high levels of fat and protein and avoid tobacco and refined foods. These moves will keep B12 needs down and facilitate synthesis and absorption of the vitamin. As added precautions vegans can include good sources of cobalt and/or B12 itself in their diets.

Each molecule of Vitamin B12 contains a molecule of cobalt so the diet must include a source of cobalt if the intestinal flora are to synthesize the vitamin. Seaweeds are incredibly rich in cobalt: the amount of kelp it takes to flavor a single bowl of salad contains enough cobalt to synthesize a year's supply of B12. And there is growing evidence that raising cobalt intake raises the body's supplies of B12.

The serum B12 levels of rabbits rise when they are fed inorganic cobalt or hay and oats grown in soil containing normal amounts of cobalt. Hamsters fed inorganic cobalt and no B12 had relatively high tissue levels of B12 and seemed to be obtaining entirely adequate amounts of the vitamin.

The Cal-Berkeley researchers who conducted the hamster study reported their result to be "a new finding among the nonruminants." Prior to this finding, though, a Russian researcher had reported that the combination of iron, vitamin C and cobalt had a positive effect on B12 deficiency in humans.

Vegans who want to get their B12 ready-made need look no further than their gardens. An ounce of the roots of leeks, beets, and other vegetables would provide .1 to .3 micrograms of B12 which is more than a day's needs. By eating vegetables right out of the garden one inevitably takes in a little soil and healthy soil contains healthy amounts of B12.

When livestock are taken from open areas and put in feedlots, broiler "hotels," and hog "factories," the animals must be given supplemental B12 to compensate for their inability to nose (or beak) around the soil. All foods in the wild tend to pick up B12-bearing soil and micro-organisms. South African researchers discovered bats that live exclusively on fruit need as much of B12 as humans. The "fruit bats" get plenty of B12 when living in the wild but when brought into captivity and fed store-bought fruits they developed severe B12 deficiency.

Seaweed contains not only enormous amounts of cobalt, but rather substantial amounts of B12 itself. Concentrations vary widely, however, ranging from 0.004 micro-grams per gram for kelp to 0.6 micrograms per gram for calothrex parientina. Two ounces of the latter would provide an adult with a whole year's supply of B12. It would require about a third of an ounce of kelp per day to obtain all one's B12 needs in the form of active B12 from kelp. In view of the large amount of cobalt in kelp, though, vegans should need no more than sprinkling amounts of that (or any other) seaweed.

Seaweeds are actually species of algae. Other algae, including the "moss" that grows on the north sides of trees and the "scum" that builds up in ponds, are also good sources of B12. Algae from Lake Chad is dried into B12-rich cakes which have a taste and texture not unlike cheese. You can get a week's supply of B12 from the water you take in while swimming in a fresh water pond or an unchlorinated swimming pool.

Greens and sprouts offer the broadest possible array of vitamins and minerals: if grown in soil rich in cobalt and iodine they are apt to provide everything the body needs except a source of energy. Vegans who raise their own food can assure themselves of adequate intakes of iodine and cobalt by enriching their soil with seaweed. Those who rely on store-bought foods can include a little seaweed in their diets. Both groups can boost their B12 intakes by eating, rather than discarding, the stringy roots of common vegetables and eating in the wild. AH vegetarians should avoid tobacco and refined foods and keep fat and protein intakes down; these moves will lower B12 needs, enhance absorption of the vitamin and insure the individual good health.

There are reports that greens and sprouts contain active B12. Comfrey was said to be a rather good source of the vitamin but British researchers claim they found no B12 in comfrey. Meanwhile, we have plenty of known sources of the vitamin in our gardens, forests, ponds, lakes and oceans. We need only reunite ourselves with our natural surroundings to abound in what our bodies need.

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Article #15: Wolf! Wolf! by V.V. Vetrano, B.S., D.C.

Wolf! Wolf! cry the media. Then everybody runs as fast as they can, including *Hygienists* and some *Hygienic doctors*.

There were too many people becoming vegetarians, so something had to be done to scare them away from this healthful and unprofitable practice. The animal-exploiting industry was probably behind the study which was done on the Vegans in England, and other studies that were done here in America and elsewhere.

Hygienists, vegetarians, and Vegans are all in a dither because of the newspaper stories in the regular media about the dire consequences of a strict vegetarian diet. Some are buying dulse. Some are eating brewer's yeast; some are taking vitamin B12 supplements; and some are eating meat, cheese and eggs again because they are actually afraid.

Why should they be afraid? I'm not the least bit afraid. Our principles are either right or wrong. They have worked for *Hygienists* for over a hundred years, so how can they be wrong? I've seen these principles properly applied succesfully over and over again in pernicious anemia and other so-called "deficiency" diseases and I know for sure it is not the principles that are wrong.

We are going to devote much of this issue of the *Review* to exposing the vitamin B12 hoax. It must be done because unfortunately people will allow themselves to be tossed about like houses in a tornado instead of realizing that *Hygienic* principles are *not* wrong.

When the vitamin B12 scare occurred and the media kept telling us we couldn't get our vitamin B12 from the diet to which we are anatomically and physiologically adapted, I immediately suspected something. To myself, I said: "If we can't get vitamin B12 from our foods, or if bacteria cannot manufacture it in our intestinal tracts, then everything we are fighting for and everything we believe in is untrue. If we have to go out and become a coprophagous (manure-eating) animal and eat inadequately washed vegetables to secure our vitamin B12, then *Hygiene* as a science is invalid. We are either frugivores or we are not."

Since numerous scientists for the past 200 years have shown us that we are primates, and that fruits, vegetables and nuts are the proper foods for people, then the fault lies elsewhere.

Dr. Shelton is not able to keep everybody in line because he is busy writing a book. He has not been keeping up to date on some modern issues.

Somebody has to help prevent people from being scared by the wolf call every time the medical profession, the meat packing industry, and the purveyors of so-called health foods cry "wolf!" So I'm going to do it.

For all those who will listen, I'm going to do my best to uphold the principles of *Natural Hygiene* in the future. This does not mean that our growth will be stifled as some claim simply because we stick to *Hygienic* princples. To insult *Hygienic* principles merely because they were discovered years ago is as foolish as casting aside Newton's Law of Gravity because it was discovered years ago. The passage of time does not invalidate truth. We are going to look for the real cause of the problem and place the responsibility where it really belongs. We will get rid of causes instead of palliating symptoms with supplements.

For those people who are in doubt about *Hygienic* principles, I suggest that you study *Hygiene* more thoroughly. If it is wrong in this one instance then the whole system is wrong—and the whole system is *not* wrong.

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Article #16: The Vitamin B12 Hoax by V.V. Vetrano, B.S., D.C.

The medical profession is screaming "wolf" and we are foolishly falling for it. Physicians are constantly bombarding the country with articles telling vegetarians that they must eat animal products such as meat, fish, eggs, or milk and cheese in order to make a sufficient amount of vitamin B12. They are grouping all vegetarians together and not discriminating at all. Just because there may be some sick vegetarians who cannot absorb vitamin B12 (and this is questioned by eminent scientists), it does not follow that all vegetarians cannot absorb this vitamin. Most people who have turned to vegetarianism were sick to begin with and this sickness is the reason they changed their diets. Most of them willingly state they have been healthier since changing than ever before in their lives. One or two vegetarians may seem to be a little low in Vitamin B12 but this does not mean that all strict vegetarians are, or ever will be.

I'm surprised that *Hygienists* are falling for the propaganda that is purposely put out to scare people away from becoming vegetarians. It is a scientific fact that we are frugivores and the frugivorous diet has been well established scientifically. We know the *Hygienic* diet of fruits, nuts, and vegetables is the diet that we are supposed to live on. We will be well-nourished and more healthy if we eat only those foods to which we are constitutionally adapted.

There are so few people who live strict *Hygienic* lives that I can't say that anyone has superior health at the present time and in the present polluted environment. Simply because in our present polluted environment, where people are forced to overwork, very few people are living *Hygienically* does not mean that people *cannot* live *Hygienically*, and the fact that one or two Vegans (not *Hygienic*-Vegans) may be low in vitamin B12 does not mean that a strict *Hygienist*, living correctly in all other aspects, will lack vitamin B12.

Here is another thought: Nature puts very little vitamin B12 in foods meant for people. This should tell us something. If she put very little of this vitamin in food, it must mean that either we don't need very much, or that we must rely on bacteria to form it for us. Also, who can say how much of this vitamin is necessary? According to medical sources only one microgram a day is adequate to "cure" pernicious anemia, so the minimum requirement has been set at this level. We may not need even this much. Just because some scientists took a group of conventional people on an omnivorous diet and determined the amount of vitamin B12 in their systems, averaged that, and came up with a figure, one cannot conclude that this is the amount of B12 necessary for normal healthy *Hygienists*, vegetarians, and Vegans. How many times has Dr. Shelton pointed out to us that taking the averages of anything from a group of sick people means nothing? Why should an average of B12 in a lot of people eating haphazardly and gorging daily on gore, guts and garbage made of animal bodies and their secretions, scare us to death? Have we no faith in the living organism? Have we no faith in the natural scheme of things? Are we forever going to let ourselves be blown hither and thither like a feather in the wind by every two bit scientist that comes along? Have we no faith in the principles of *Hygiene*? We should be standing firm like a mighty oak with our roots deeply planted into the solid foundation of *Hygiene* that Dr. Shelton structured so well for us. Instead, we are a group of wishy-washy people, frightened to death about one case of a vegetarian lacking vitamin B12. The papers capitalized on this one case to scare people into the meat markets and vitamin shops.

I've fasted numerous cases of people with pernicious anemia who have recovered their health by turning to *Hygiene*. I've never seen a *Hygienist* who had pernicious anemia. The flesh eaters supposedly secure plenty of vitamin B12. Why do *they* develop pernicious anemia? They are overloaded with vitamin B12. Why couldn't they recover under medical care? They had had vitamin B12 shots, liver extract, and vitamin pills. Why did it not cure them? I'll tell you why. Simply because life and health are more than one vitamin. Life is more than two vitamins. Life and health depend on a myriad of reactions and inter-reactions of materials and influences, not just one. Supplying just one element of the physiological needs of the body won't produce superior health. It may mask symptoms sufficiently for a while to fool the physicians with the scientific minds, who believe in specific cures for specific diseases, but it never fools Nature.

We are in a world that is rapidly deteriorating. We are turning out children who are sickly and who have very little vitality. Because of the environmental pollution, they are sometimes lacking in digestive enzymes as well as one or more enzymes or hormones that are absolutely essential for health and sometimes life. You can't blame *Hygiene* for this deterioration. The fault lies not in *Hygiene*, whose principles are eternally true, but in our wrong way of living and our polluted environment. How quick we are to point the finger at *Hygiene* and say; "It's lacking. It must be changed. We must go forward. *Hygiene* must not be stifled." I do not call sticking to basic principles being stifled. If someone feels he or she is dusting antiques when upholding the principles of *Natural Hygiene* then he or she doesn't understand *Hygiene*, or he or she is looking for ways to compromise.

Instead of looking for the reasons why *Hygiene* may not appear to be valid, people immediately condemn *Hygiene* and revert back to their dirty, disease-producing omnivorous diet.

Instead of trying to prove the validity of the science of *Hygiene*, modern *Hygienists* seem to be busily engaged in trying to disprove it. With so little faith, how can we expect to grow?

Just because pollution in our environment from cars, nuclear plants, power plants, microwave stations, etc. causes some people to be born with deficiencies so they are unable to digest, absorb or utilize vitamin B12, one cannot infer that every vegetarian has this defect. Therefore, it is not true that every vegetarian needs to eat some dairy products in order to have sufficient B12.

Some *Hygienists* may complain that they don't have the discipline to live *Hygienically* in an un*Hygienic* environment. If they develop anemia, one cannot say that *Hygiene* is at fault; if *Hygienic* principles are violated, the individual must suffer. In addition we must not overlook the fact that some people say they are living *Hygienically* when they are not. We must delve deeply into their life history to see whether or not they are truly carrying out a *Hygienic* life. Nine times out of ten they are not.

Why do people with pernicious anemia recover their health when coming to the Health School? Simply because the cause of the anemia is removed and the conditions of health are supplied and the body heals itself. Why haven't those supposed Vegans who developed vitamin B12 deficiency come for real *Hygienic* care instead of listening to researchers who are subsidized by the meat packing industry? Why do they think they have to take shots of vitamin B12 and resort to eating dessicated liver? Why do those who guide them assume they cannot, recover? Have they not thought of living completely *Hygienically*? Why do they not fast to see what the body can do before they fall prey to the vendors of medications and drugs? One reason is because they have been frightened to death and led astray by the vendors of palliatives.

I fasted one woman who had pernicious anemia and who was taking vitamin B12 and iron shots once a month. She was very sick before coming to the Health School but she recovered, not only from that trouble but from several other problems, at the same time. Why? Because disease is a unity and people don't have just one disease. When a person is toxic the whole organism begins to deteriorate, and piecemeal treatment to hide symptoms is not satisfactory. Nothing short of total Hygienic care will suffice.

Let us not forget that Dr. William Howard Hay recorded 101 cases of pernicious anemia and only eight of those cases failed to recover—and these people were dying when they arrived for his care. Although these cases were recorded fifty to seventy-five years ago, we cannot ignore them. This date points out to me that there are changing conditions in our environment. Instead of condemning and questioning the science of *Hygiene*, as so many people are doing today, we should be seeking the true cause of the increase in cases of pernicious anemia, if there be such an increase.

I've been warning people since 1953 that our environment is lethal and if we don't do something we won't have a race left. Cleaning up our environment is almost more important, at this stage of the game, than *Hygiene*. The world is analogous to the body when given a dose of medicine (poison). An emergency situation has arisen and all bodily processes must be stopped for the more immediate emergency of getting the poison out of the system. Likewise, our Earth is rapidly becoming so poisoned that emergency measures must be taken before we are all killed. The race is deteriorating so fast that it is frightening. We've got to spread *Hygiene* on every front before much more deterioration takes place or it may be irreversible.

It is well known that the past few generations have abused their stomachs terribly. Each generation has been sicker than the last. When people become sick they begin the *Hygienic* diet without first fasting or permitting the body to heal itself. Consequently if they develop a deficiency because of impaired digestion the deficiency is attributed to the vegetarian diet. Actually the deficiency is due to the abuse given the body before becoming a *Hygienist*. We know that sick people who have been on vitamin B12 injections for years, without much benefit, can take a fast and get well. This recovery would indicate that they still had the power to secrete the intrinsic factor. It also indicates that possibly these people were suffering with a simple gastritis and that after fasting, their inflammatory condition healed, leaving them better able to secrete the necessary enzymes for good digestion, absorption and utilization. It is a fact the anemic get well while fasting and stay well if they continue to live properly. Why they get well is due to a number of factors. The blood picture improves while fasting, though no extraneous vitamin B12 is available. Let those screaming "deficiency" explain that.

The elimination of the toxic factor while fasting is extremely important for recovery of health. Removing toxemia, which is a great inhibiting influence on both digestion and the blood-forming organs is the prime factor in recovery. Toxemia causes lowered functioning power, not only of the secreting glands of the stomach but of every organ in the body, including the blood-forming organs. Lowered functioning power of the entire gastrointestinal system hinders digestion, and causes much fermentation and putrefaction. This in turn interferes with digestion and absorption of nutriments necessary for the production of blood, and also causes the absorption of toxic products of indigestion, producing more toxemia which in turn causes even less functioning and blood-forming power. Good digestion is necessary to remove the protein with which it is combined away from vitamin B12 so it can be combined with intrinsic factor for normal absorption.

Vitamin B12 is necessary in miniscule amounts. It is needed in such small amounts it is spoken of in micrograms, not even in milligrams. Regardless of what authorities say, this much we can secure through the *Hygienic* diet of fruits, nuts and vegetables. When people like Adele Davis, in *Let's Get Well*, say that strict vegetarians who eat no animal foods should take 50 micrograms of vitamin B12 each week "while their stomach secretions are still normal," they are unduly scaring some vegetarians.

Experiments reported in *Gastroenterology* in 1962 lead to the belief that laboratory rats on a diet deficient in iron soon "lost their ability to absorb vitamin B12." This points out the totality of diet. Deficiencies seldom come single. There are many people with gastrointestinal problems who simply don't absorb any of their food properly. These may be lacking in vitamin B12. Again, we see that it is not the *System* that is wrong, but the person. Correction must be aimed at the cause of the problem, not at the modifying *Hygiene*. If we modified *Hygiene* every-time someone got sick, there would soon be no *Hygiene* left and we would all be back in the treating business. We don't change the *Hygienic system* or tell everyone who is eating *Hygienically* to take vitamin B12 just because there is someone who is sick and can't absorb vitamin B12 temporarily. Just because there are a few individuals, not even **Hygienists**, who can't absorb vitamin B12 it does not follow that everyone has to resort to taking vitamin B12 tablets or to eating yeast, or animal foods. Just because some vegetarians develop gastroenteritis from wrong ways of living, does not mean that they all do. We don't change the entire *Hygienic* system and diet any other time just because some people are temporarily unable to digest certain foods. We permit them to recover their health and then they are able to take all the foods that are *Hygienic*. In short, we aim at restoring the sick person to health so he or she can function properly in the future.

Most sources state that vegetable products show no "measurable activity" when speaking of vitamin B12 or cobalamin. "No measurable activity" does not mean that there is no vitamin B12 at all in vegetables. Best and Taylor state that: "The extrinsic factor (vitamin B12) is present in liver, beef, rice polishings, yeast and other substances rich in the vitamin B complex." They continue that: "It is also found in the intestinal contents of normal persons, as well as in the feces of patients with pernicious anemia. There is, therefore, no reason to believe that a dietary deficiency of this factor is the cause of disease." Other authorities say the same. Many scientists condemn vegetable foods as lacking in vitamin B12, but they never state that there is absolutely *no* vitamin B12 in vegetable foods. Indeed, they wish us to believe that it is totally lacking and this is simply not true. The *Heinz Handbook of Nutrition* (page 111) gives the following inadequate table but even if we ate the small amount of 100 grams of green beans, beets, carrots, and peas, even leaving out the cereal products, we would have half of our so-called minimum daily requirement of vitamin B12, providing our digestion and absorption are normal.

Vitamin B12 In Foods

Micrograms per 100-gr edible Portion

Green Beans	0-0.2
Beets	0-0.1
Bread, Wholewheat	0.2-0.4
Carrots	0-0.1
Oats	0.3
Peas	0.0-1.0
Soybean Meal	0.2

The Heinz Handbook of Nutrtion states that, "A dosage corresponding to one microgram of the crystalline vitamin per day is sufficient for maintenance of a patient with pernicious anemia. This indicates the absorption of one microgram per day meets the normal requirement for adults."

The *Nutrition Almanac* states that, "In nature, we find the B-complex vitamins in yeast, green vegetables, etc., *but nowhere do we find a single B vitamin isolated from the rest*. Natural forms of the B vitamins are preferable to the synthetic forms since the natural forms have all of the B factors, even those not yet known, plus valuable enzymes." This is just another indication that people are mistaken when they state that vegetables do not have vitamin B12 in them. Simply because it exists in such miniscule amounts that it may escape detection by present day methods, does not mean it is absent.

Best and Taylor say that all the B vitamins are grouped together because they are found together in Nature. They couldn't be separated one from the other for a long time, so they were thought to be one vitamin. He intimates that where other B vitamins are found there also will be cobalamin. "Twelve substances are grouped together because of their close association in tissues and because for a long time their separation proved most difficult: thiamine, riboflavin, nicotinic acid, pyridoxine, pantothenic acid, biotin, para-aminobenzoic acid, folk acid, folinic acid, cyanocobalamin, choline, and inositol. All have been isolated in pure form, and most of them have been synthesized in the laboratory."

Another indication that vitamin B12 is in fruits, nuts, seeds and vegetables containing the other B vitamins is in Rodale's book entitled *The Complete Book of Vitamins* (page 236). "As you know, the B complex of vitamins is called a 'complex' because, instead of being one vitamin, it has turned out to be a large number of related vitamins, which appear generally in the *same* foods." We need such a microscopic amount of vitamin B12, it is not understandable why he urges people to eat so much liver and other foods containing vitamin B12, when excess is not necessary for health, in fact, an excess of anything has only proved to be detrimental to health. I suppose he is assuming everyone eats refined products, drinks coffee, smokes, and takes antibiotics; these practices do produce deficiencies, as some cause the excessive utilization of the B vitamins.

Recently researchers have been coming to the conclusion that Dr. Shelton came to many years ago regarding the "Intrinsic Factor." Dr. Shelton surmised that it was poor digestion that prevented the people from absorbing vitamin B12 and that there was nothing mysterious about it and that the intrinsic factor was simply a normal supply of digestive enzymes. In other words, Castle, who discovered the

Intrinsic Factor, which has never been isolated from gastric juice, was wrong in thinking that there was a particular substance in gastric juice necessary for the absorption of vitamin B12.

This "particular substance" is simply good digestion. Vitamin B12 comes combined with protein. In order for the vitamin to be absorbed the protein must be split off so that the vitamin can be combined with the necessary substances, thought also to be protein. Dr. J.G. Heathcote and Dr. F.E. Mooney of St. Helena's Hospital, London, stated that, in spite of an enormous amount of work, there is very little agreement among researchers even on limited properties of the supposed intrinsic factor. They say that "it has never been isolated or identified." This is still true. They "believe, therefore, that intrinsic factor as currently understood, has no real existence per se, and that the fundamental process preceding absorption of vitamin B12 is simply one of normal degradation or digestion of animal protein." Rodale, *The Complete Book of Vitamins*, page 241.

There are many causes of impaired digestion but suffice it to say that *Hygienists* should realize if they abuse their stomachs and intestines by overeating they may eventually suffer malabsorption problems.

It is well known that almonds, asparagus, beans, cashew nuts, figs, lentils, peanuts, pecans, avocado, brussels sprouts, cauliflower, collards, fresh and dried peas of all kinds; plums, raisins, walnuts (black and English), contain vitamin B1. Since all the B vitamins are usually grouped together, in all likelihood there must be some vitamin B12 in these and other vegetable foods.

One of the problems with modern *Hygienists* is that they are afraid to eat nuts. They are so fearful of eating an excess of nuts that they eat far too few. We took Raven Rose Haag off all dairy products at the tender age of fourteen months and fed her nuts. She did not like nut milks and would not drink them so we blended her nuts and let her eat as much of them as she desired. She may have had an excess but her health never showed it. She grew perfectly. Those of you who saw her at the convention can vouch for the fact that her rosy cheeks, happy, smiling disposition and vitality certainly does not indicate anemia. She will be three years old in October.

There is no source that states that vegetables contain absolutely no vitamin B12. The *Cyclopedia of Medicine* says that vegetables contain practically no vitamin B12, in contrast to their high content of folic acid. Simply because animal foods are so very high in vitamin B12 causes all researchers to underestimate the fact that vegetables do contain vitamin B12. Although vegetables do not synthesize vitamin B, the soil bacteria do, and some sources state that the bacteria make the vitamin and actually hand it over to the higher plants. All the plant has to do is absorb it.

Not until we are furnished with a reliable source of information, and not until they have tested all fruits, vegetables and nuts, can we say that *Hygienic*-Vegans are unable to secure a sufficient amount of vitamin B12 from their diets.

According to most nutritionists and health authorities, strict vegetarians must take pills, or eat animal foods, or suffer with a B12 deficiency and die of neurological and blood disorders. This has not been proved by scientists and in another article I will definitely show this. Vegans are not suffering from pernicious anemia and they are healthy, in fact healthier than their meat eating friends.

Some animals secure their cobalamin (vitamin B12) by eating manure which is a very rich source, because it seems to be produced by bacteria in various parts of the guts of animals. Ruminants are furnished B12 or cobalamin by microorganisms which produce it in their digestive tracts. But in poor slighted humankind, the current thought is that the vitamin B12 produced by bacteria in his gut can't be absorbed. This has been shown to be false and there are experiments that lead us to believe that cobalamin manufactured by bacteria in the intestinal tracts of primates can be absorbed.

A few years ago I wrote an article about vitamin B12 and I said that if vitamin B12 is not in fresh fruits, vegetables and nuts, and bacteria do not manufacture it where humans can absorb it, then we do not need it. The diet to which man is constitutionally adapted should furnish all the requisites of good nutrition. If it isn't present in the diet and bacteria do not produce it where it is absorbable by man, then what can we think except that we don't need it or Nature must have made a great big mistake. She neglected to take care of her most perfect creature.

We know *Nature* did not neglect man. I hold that the vitamin is in our foods. I also have facts which give me reason to believe that bacteria in the stomach, and in the upper and lower small intestine, produce it for us. I also believe that it is absorbed from the small intestine in humans and I have articles which show that, in at least one primate that was studied, this must take place.

You must rest assured that we do not have to resort to pills, algae or animal parts, to secure our Vitamin B12. Nature did not forget humankind. All this scare about vitamin B12 is just a big hoax and it is done purposely by newspaper and nutrition propagandists to keep people from becoming vegetarians, and to sell meat, dairy products, vitamins and sea weeds.

Eat your nuts, fruits, vegetables, and seeds in good combinations for proper digestion and absorption, all in the uncooked state, and don't take antibiotics and you can be sure that you will secure a sufficient amount of all of the B vitamins and in the proper proportion, one to the other, so that the maximum amount can be absorbed and properly utilized. Don't let yourself be pushed about by every fly-by-night "health authority" who knows nothing about *Hygiene*. Learn your principles and stand up for them! They are as true today as yesterday. Truth does not change.

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Article #17: It's A Lie! Vegans Are Not Lacking In Vitamin B12 by V.V. Vetrano, B.S., D.C.

There has been so much controversy about Vegans having a vitamin B12 deficiency that I thought I would go to the sources of information myself and determine what was true and what was not true. I secured an article about Vegans at the University of Texas Medical School library, at San Antonio, and when I read "Haematological Studies on Vegans," the article most often quoted by so-called health "authorities" showing that Vegans are deficient in vitamin B12, I was flabergasted. *It does not say that Vegans are deficient in vitamin B12 at all. The tests did not show that these people were suffering from anemia.* "The blood counts and films were normal in all the Vegans and no subject had a haemoglobin concentration below the lower limit of normality."

Vegan Males Actually Had More Haemoglobin Than Conventional Men On An Omnivorous Diet

"Although within the normal range, male (but not female) Vegans had lower values for *erythrocyte* counts and higher values for mean corpuscular volume and mean corpuscular haemoglobin than their controls." This simply means that the red blood cell count was normal in male and female Vegans, but lower in Vegan males than in the control group. It also means that the haemoglobin in Vegan males was higher than in the meat eating controls, showing that their red blood cells could carry more oxygen than the omnivorous controls. Also their mean corpuscular volume was higher. The quote follows:

"Although the blood films were normal, a number of statistically significant differences were noted between the Vegans and their omnivore controls: in the male but not the female Vegans the mean values for erythrocyte count and packed cell volume were lower ($R<0.01$ and $R<0.05$) and the mean values for mean corpuscular haemoglobin and mean corpuscular volume were higher (both $P<0.01$) regardless of whether they were taking vitamin B12 supplements or not: the mean values for serum vitamin B12 concentration was lower in the Vegans not taking vitamin B12 supplements ($P<0.01$) and in those using foods supplemented with the vitamin (P<0.0l) but not in those taking vitamin B12 tablets; the mean value for serum folate was much higher in the Vegans (P<0.01); the mean erythrocyte folate concentration tended to be higher (P<0.05) in the Vegans not taking vitamin B12 supplements."

The Blood Count And Films Of The Vegan Subjects Were Essentially Normal

In their discussion of these facts the scientists state that "the blood counts and films of the Vegan subjects were essentially normal, in agreement with Hardinge and Stare (1954a) West and Ellis (1966) and Ellis and Montegriffo (1970). The findings that male but not female Vegans tended to have lower values for erythrocyte counts and higher values for mean corpuscular volume and mean corpuscular volume and mean corpuscular haemoglobin are novel." The researchers do not know what to think of this. They can't understand why a vegetarian can have more hemoglobin than a flesh eater.

Female Vegans Were Not Weak: Their Physical Activity Was Considered Normal

"Cotes, Dabbs, Hall, McDonald, Miller, Mumford & Saunders (1970) found no difference between the physiological response to exercise of female Caucasian Vegans and omnivores; no similar studies of male Caucasion Vegans appear to have been made and would be of interest."

None Of The Vegan Subjects Studied Had Vitamin B12 Deficiency

Actually the Vegans had normal erythrocyte folate concentration, which indicates no B12 deficiency. "The finding of lower serum vitamin B12 and higher serum folate values in Vegans is in agreement with previous reports (West & Ellis, 1966; Ellis & Montegriffo, 1970). Erythrocyte folate concentrations in Vegans do not appear to have been previously reported. The level of serum folate is often increased in patients with untreated pernicious anemia, while the erythrocyte folate concentration is abnormally low (Chanarin, 1969) apparently because vitamin B12 is necessary for the uptake of folate into the erythrocyte (*Nutrition Reviews*, 1975) *In this study none of the Vegan subjects had an abnormally low erythrocyte folate concentration; this would suggest: first, that none of the subjects was suffering from vitamin B12 deficiency and, second, that the high serum folate concentrations found in many of the Vegan subjects were due to high dietary intakes of folate. This might explain why megaloblastic anemia was not encountered in our Vegan subjects*."

No Vegan Subjects Had A Serum Vitamin B12 Concentration Indicative Of Deficiency (less than 80 ng/l WHO 1968)

Who says that the Vegans were lacking in vitamin B12? Even those Vegans who were not taking supplements or foods supplemented with vitamin B12 had what is considered normal serum levels of vitamin B12. All their blood cells were normally structured, not overly large or undersized. "*No subject had a haemoglobin value below the lower limit of normality* (13.0 ng/l for males, WHO 1968; 11.5 ng/l for females, Chanarin 1969). *No subject had a serum vitamin B12 concentration indicative of deficiency* (less than 80 ng/l WHO 1968) or a serum folate level less than 2.5 ug/l. There was no evidence of macrocytosis or, microcytosis, no polysegmented neutrophils were seen and all the blood films were normochromic when examined."

It is really pathetic and downright dishonest when newspaper reporters take half information and misinformation and spread actual lies to the public. These Vegans proved to be healthy in all ways despite not being strict *Hygienists*. It would be interesting to have a study of Vegan-Hygienists who live on all uncooked foods.

There appears to be some disagreement among the researchers. Rose (1976) claimed that megaloblastic anemia is a predictable consequence of the Vegan dietary habits adopted in Britain. But the findings failed to show it. "Vitamin B12 is a product of microbial synthesis and is not found in plant foods

(Lester Smith, 1965) and therefore should be absent from Vegan diets." If it was absent from Vegan diets, then why did they not develop anemia? Why did Hardinge and Stare (1945a), West & Ellis (1966), and Ellis & Montegriffo (1970) fail to find "any clinical or haematological evidence of vitamin B12 deficiency in their studies of Caucasian Vegans, although the serum concentrations of some of their subjects indicated deficiency." They were not sick. Perhaps absorption was not quite up to par in some of them. However, they were not anemic. Perhaps what is considered normal vitamin B12 serum levels is too high. Vegetarians not smoking and not drinking coffee don't require as much vitamin B12 as a conventional person who continually poisons himself or herself.

All The Vegans Were Healthy

"All the Vegan and omnivore subjects seemed healthy when studied. The Vegan subjects had been on the diet for an average of seven years (range: six months—30 years).

Six Healthy Subjects Were Breast-Fed By Vegan Mothers

The propaganda that every Vegan mother is lacking in vitamin B12 is sheer nonsense. Vegan mothers can nurse their babies as well as any omnivore and probably even better if they ate more raw foods and nuts. "Six subjects had been born of and breast-fed by Vegan mothers and weaned and reared on a Vegan diet. None of the Vegan subjects admitted eating meat, fish, eggs, milk products, or any other foods of animal origin."

Some of the Vegans were taking food supplements containing vitamin B12 and some were taking vitamin B12 tablets but the important fact is that those not doing so came out just as well in the tests as those using supplements, "...ten subjects were taking neither tablets nor foods supplemented with the vitamin. The mean serum vitamin B12 concentration was higher in those Vegans taking vitamin B12 tablets than those using foods supplemented with the vitamin (421+70 ng/l (mean ± SE) compared with 253 ± 19; $P<0.05$). Four of the ten subjects who were not taking vitamin B12 supplements had normal serum levels of the vitamin (greater than 180 ng/l): their vitamin B12 values were 200, 230, 220 and 235 ng/l, and they had been on the diet for 2, 6, 3 and 4 years respectively." If vitamin B12 is not in their diet then they are getting it from somewhere. It is probably in their diet and also being manufactured by their own microbial flora in their intestinal tracts. They are probably absorbing it very well.

Conclusion: The Present Study Finds No Lack Of Vitamin B12 In Vegans.

"Vitamin B12 is the vitamin most likely to be deficient in Vegan and occasionally vegetarian diets. The present study has provided no evidence of pathologically low values of vitamin B12 in the serum of Vegans. In twenty-four of the subjects this could be attributed to their taking vitamin supplements or foods supplemented with the vitamin. There were, however, ten subjects who did not take supplements and it was, therefore, surprising that these subjects did not show evidence of vitamin B12 deficiency. Some Vegans may obtain the vitamin through the accidental ingestion of insects or from micro-organisms, that produce the vitamin in their food or as a result of poor personal hygiene. Alternatively, some Vegans may be able to absorb vitamin B12 which has been synthesized by their own, micro flora." This is the usual way B12 is made. Recent evidence strongly points to the fact that primates absorb vitamin B12 manufactured by bacteria in their own intestines.

Researchers denigrate and insult people if people don't respond the way they should to their current theories and hypotheses. To state that Vegans are dirty and that they don't wash their vegetables well, and that their hygiene is poor is mudslinging. Vegans are among the thinking population. They are every bit as clean as omnivorous people, if not cleaner, because they probably realize that cleanliness is a part of a healthful program and many of them are thinking of health as well as of kindness to animals and people. I am sure that Vegans are absorbing some vitamin B12 that is synthesized by their intestinal flora.

Diagnosis Of Vitamin B12 Deficiency And Disease Found In Vegans Is Questioned Even By Authorities

I do not doubt the above subheading one bit. The conventional meat-eating scientists are so anxious to find something wrong with vegetarians that they blind themselves. The study I read intimates that the former diagnoses of blood and neurological disorders among Vegans were not very convincing. "A few cases of vitamin B12 deficiency, sometimes resulting in neurological symptoms, have been reported in Caucasian Vegans apparently due to dietary deficiency (Badenoch, 1952; Wokes et al. 1955; Smith, 1962; Hines, 1966; Verjaal & Timmermans-van den Bos, 1967; Winawer, Strieff & Zamcheck, 1967; Ledbetter & del Pozo, 1969; Misra & Fallofield, 1971. The results provided by Badenoch (1952), Wokes et al. (1955) and Smith (1962) are incomplete and their diagnoses of sub-acute combined degeneration of the spinal cord due to vitamin B12 deficiency are not convincing (Pallis & Lewis, 1974). However, this and other studies (Hardinge & Stare, 1954a; West & Ellis, 1966; Ellis & Montegriffo, 1970; Armstrong, Davies, Nichol, Van Merwyk & Larword, 1954) *failed to find symptoms attributable to a dietary deficiency of vitamin B12. This would suggest that dietary vitamin B12 deficiency is rare among Vegans*. "

So you see, it was all a hoax. The second group of scientists did not confirm the findings of the first group of scientists. Flesh eating people, on a diet of refined carbohydrates suffer with the most cases of pernicious anemia. I am sure that if statistics were made of all vegetarians, one would find more cases are found in flesh eating individuals than in the vegetarians. One would probably also find that the vegetarians were healthier on the whole than flesh eaters.

Never Believe The Final Conclusions Of A Flesh Eating Scientist

Always read the fine print. Never believe the conclusions of flesh eating scientists. This is exactly how and why ordinary news media all tell lies. Reporters take one sentence from a research paper and enlarge and elaborate on this and make a wild tale that would cause you to believe that all vegetarians, and especially Vegans, are deficient in vitamin B12. This simply has not been proved. After saying that the Vegans were normal, the scientists who presented the present study have the gall to say: "However, as there is a *possibility* of developing symptoms of vitamin B12 deficiency, Vegans should supplement their diets with the vitamin."

It Was Actually Found That The Vegans Were Healthier Than The Omnivore Controls And Less Prone To Cancer

The researchers won't actually come out and say it but they state that the Vegans would *probably* be less prone to ischaemic heart disease. The researchers do condescend to say that the Vegan diet will only probably promote normal blood formation, after showing that it definitely DOES in their study. They are so afraid to actually admit anything that it is shameful. They prove that the diet is good but they can't accept it. It is too foreign to their flesh eating minds, or they don't want their backers to think they are swayed by their findings less the subsidies be withdrawn and they lose their jobs. Consequently they keep playing down their actual findings. The last paragraph of their conclusions follows.

"The health of Caucasian Vegans appears to differ little from that of omnivores (Hardinge & Stare, 1954a; Ellis & Montegriffo, 1970; Ellis, West & Saunders, 1976; Sanders, 1977). Pregnancy in Caucasian Vegans and the health of children reared on Vegan diets appear to be essentially normal (Thomas, Ellis & Diggory, 1977; Mumford & Ellis, unpublished observations; Sanders, 1977). Caucasian Vegans tend to have lower concentrations of serum cholesterol and triglicerides and less body fat than omnivores (Hardinge & Stare, 1954b; Sanders, 1977) which suggest that they may be less prone to ischaemic heart disease than omnivores, and according to Aries, Crowther, Drasar, Hill & Ellis, (1971), Caucasian Vegans are probably less susceptible to cancer of the colon than omnivores. The Vegan diet appears to be adequate provided it comprises a mixture of unrefined cereals, pulses, nuts, fruits and vegetables and is supplemented with vitamin B12 and D; such a diet will generally promote normal blood formation."

I can't believe it. After proving that the diets of Vegans not taking vitamin B12 supplements were normal, they still advise that Vegans take supplements. I guess they can't believe their own facts and figures. What a pity! They might learn something if they could open their minds.

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Article #18: A Normal Source of Vitamin B12 by V.V. Vetrano, B.S., D.C.

It has long been difficult to produce a vitamin B12 deficiency in animals (Stokstad 1968). Yet, this is exactly what scientists tried to do to baboons in a study done by Uphill, Jacob and Lall, at the Wellcome Trust Research Laboratories, P.O. Box 43640, Nairobi, Kenya.

In the manuscript written by Uphill, Jacob and Lall there are several contradictions. At one time it is stated that, "The production of vitamin B12 deficiency in animals is known to be difficult (Stokstad 1968) and in this laboratory the feeding of a vitamin B12-deficient diet to baboons over a two-year period resulted in the development of a *subclinical* deficiency of the vitamin (Siddons 1974)." Then they tell us how they produced the "subclinical" deficiency. "It was shown however, that the vitamin B12 deficiency was more severe in baboons fed a diet containing ampicillin, suggesting that the intestinal flora may play a part in the vitamin B12 nutrition of the baboon." They never really found a deficiency in all the animals. Some animals actually had a high serum vitamin B12 level. Some writers taking the foregoing statement out of context will convince people that a vitamin B12 deficiency can indeed be produced in baboons, when it can't. The so-called deficiency was subclinical and never caused disease in the animals. It was merely a low serum vitamin B12 level. Even if they had produced a real deficiency it would not have meant anything because the experimental diet was so inadequate in every known nutrient, containing only synthetic vitamins and minerals, that for all purposes the animals were just subsisting, and probably living largely on stored nutrients.

They continue: "In addition, a group of young baboons fed a vitamin B12-deficient diet were found to have high serum and liver vitamin B12 levels after 18 months, in comparison with older animals fed the same diet. The intestinal flora of young animals has been shown for many species to be different from that of adult animals (Smith & Crab 1961). This study was undertaken to determine whether there were any detectable differences in vitamin B12 production by the intestinal flora of the baboons which could explain these findings."

They also state that, "Samples of gastric and small intestinal contents, obtained at laparotomy from two young vitamin B12-deprived baboons, contained varying quantities of vitamin B12. Many of the organisms isolated from these aspirates produced vitamin B12 in vitro. The highest levels of vitamin B12 were produced by anaerobic organisms."

The experimental animals were fed a diet completely free of all nutrients except synthetic ones. It is a wonder that any of the baboons remained healthy. The basal synthetic diet consisted of vitamin free casein, sucrose, corn oil and a mineral salts mixture, together with a vitamin mixture. Some were given a diet deficient in vitamin B12 and some were supplemented with vitamin B12. If you are interested in the exact diets of all the animals, I suggest that you secure a reprint of the article. The feeding of the animals and separation into control groups were extremely varied and would take up too much valuable space to reprint it all here. Some had the basal diet supplemented with vitamin B12; others had a vitamin B12 deficient basal diet; and some had the basal diet but low in fat and containing sodium propionate; and some had ampicillin added to the vitamin B12 deficient diet. Both sodium propionate (a preservative used in baking goods) and ampicillin probably had detrimental effects on the microbial flora of the baboons' intestinal tracts.

"Many intestinal microorganisms are known to produce vitamin B12, often in an amount in excess of the host's requirements (Mickelsen 1956). However, the site of vitamin B12 production in the intestine is important when considering the potential availability of the vitamin to the host, since vitamin B12 absorption is reported to occur in the upper part of the alimentary tract (Matthews 1967). Ruminants, although feeding on a diet of plant material totally devoid of vitamin B12, have been shown to have high levels of the vitamin in their rumen contents (Hungate 1966). Due to the anterior position of the rumen, its content must pass through the remainder of the alimentary tract, so allowing maximal opportunity for vitamin absorption. In other mammalian species and in birds the densest intestinal microbial populations normally occur in the caecum and colon. Vitamin til2 produced by microbial action in these areas is considered to be excreted, unutilized, in the faeces. Coprophagous species are an exception in that they obtain a considerable part of their vitamin requirements by ingestion of their faeces."

In the article quoted above, the authors skirt all around the truth, never quite willing to admit that baboons also have bacteria in the upper intestines that form vitamin B12. In the aforementioned experiment it was clearly demonstrated that baboons have the microbial flora in their stomachs and small intestines that produce vitamin B12. Even though they demonstrated that the baboons fed on a diet deficient in vitamin B12 nevertheless have vitamin B12 in their serum, they seem reluctant to admit that this can happen. They succeed in producing a near deficiency of B12 by feeding some of the animals 50 mg/kg of ampicillin a day (an antibiotic). Naturally this will destroy some of the bacteria and prevent vitamin B12 from being formed. Since all the B vitamins are interrelated, and since some are necessary for the absorption of others it is understandable how some older animals may be deficient, being on such a synthetic diet.

It was clearly shown that microorganisms capable of producing vitamin B12 were isolated from the gastrointestinal tracts of the animals who were deprived of vitamin B12. "A greater variety of organisms was isolated from baboon A. However, baboon B had eaten very little of the food offered to it 6 h prior to laparotomy."

An interesting point observed was that yeasts were not the organisms that formed the most vitamin B12 in the baboons. "The levels of vitamin B12 produced by organisms isolated from baboon faeces are compared. A total of 126 strains of yeasts and aerobic organisms were isolated of which only 9.5% produced up to 1.0 ng/ml, vitamin B12. In contrast, of 123 strains of anaerobic organisms isolated, 48% of cultures contained > 1.0 ng/ml vitamin B12, and 23.6% of cultures, mainly Gram negative rods, contained >10 ng/ml. There were no noticeable differences in the types of faecal organisms isolated from controls or baboons fed any of the vitamin B12 deficient diets, with the exception of the group fed ampicillin. The faeces of these animals contained very few aerobic or anaerobic Gram positive organisms, the flora consisting mainly of aerobic and anaerobic Gram negative rods and yeasts. The patterns of vitamin B12 production by the faecal organisms were similar both within the vitamin B12-deficient groups, and between the vitamin-deficient and control groups."

Vitamin-Deprived Baboons Had More Bacteria Working For Them

The group of baboons fed a vitamin B12 deficient diet showed that more bacteria capable of forming vitamin B12 were in their gastric juice samples. "Table 4 compares the vitamin B12 produced in cultures of organisms isolated from gastric juice samples aspirated 6 h after feeding, from vitamin B12-deprived and control baboons. The number of isolates obtained from the gastric juice samples from the control group was low in comparison with the vitamin deprived group. There were also fewer isolates producing the higher levels of vitamin B12 obtained from the control baboon gastric samples. No organisms producing > 10 ng/ml vitamin B12 were isolated from the gastric juice samples." This definitely proves that bacteria capable of producing at least 10 ng/ml of vitamin B12 are in the babcon's stomach and, therefore, there is. definitely a chance for absorption of vitamin B12 as the stomach contents move to the small intestine.

Humans Have Anaerobic Organisms Producing Vitamins In The Colon

It is very possible that the bacterial flora of humans also produces vitamins for us in the stomach and small intestine where they can be absorbed, and not only in the colon. For several years now, I have held to this view, because it is well known that the ileum, that part of the small intestine nearest the colon, has a purpose. It begins to take on the anatomy of the colon. Less digestion and absorption of other nutrients occurs here. Recently it has been shown by experiments that this area is the greatest area of absorption of vitamin B12. Bacteria that produce the most vitamin B12 are those which grow in the absence of air, anaerobes, and these are present in the stomach and small intestine.

It is well known that anaerobic bacteria exists in the human digestive tract just as they exist in the baboon digestive tract. Vegans not taking supplements, who were part of an experiment, had no deficiency of vitamin B12. If it was not in their food as some scientists claim, then it had to be formed by the host's microbial flora. "The highest levels of vitamin B12 were produced by the anaerobic isolates, in particular by Cl perfringens and some of the anaerobic Gram negative rods."

There Is No Way Getting Around It—Vitamin B12 Is Produced In The Stomach And Upper Intestine Of Primates

Baboons have bacteria in their stomachs and intestines which produce vitamin B12. They are primates. So is humankind a primate.

This implies that people also have the bacterial flora to produce vitamin B12 and that this can be absorbed in the ileum.

There are anaerobic bacteria in human gingiva. Were they to make more studies on these bacteria, I'm sure they would find that they also produce vitamin B12. It is essential that we understand that the vitamin levels that the bacteria produced differed when the food they were fed was different. If these bacteria are fed properly in our own intestines I am sure that the levels of B12 would increase. If we humans live on the diet to which we are constitutionally adapted, not only will we be properly nourished, so will our bacterial flora, and they in turn will produce for us the necessary elements for a proper nutrition in levels far more than we actually need.

Vitamin B12 Is Reused Like Iron

Vitamin B12 circulates. It is excreted with bile and reabsorbed like bile from the intestines. It can be used over and over again. It is stored in the liver. Our body is intelligent. It knows what it is doing.

The ileum has its purpose, even if we mortals can't figure it out. Probably other even unknown nutrients are also formed for us in the intestines by bacteria. If we would quit feeding ourselves poisons, and eat a diet for which we are anatomically, physiologically and biochemically designed we would see a health unparalleled in modern times. Our health could equal that or surpass that of the animals in the wild if we would cultivate it half as much as we cultivate enervating habits.

"It has been shown that vitamin B12 was present in the stomach and upper intestine of two of the young vitamin B12 deprived baboons. In addition some of the microorganisms isolated from the gastrointestinal contents of these baboons were capable of producing in vitro large quantities of vitamin B12. However, gastric juice samples from all the vitamin deprived and control baboons contained organisms capable of producing vitamin B12 *in vitro*. No differences were detected due to different diets or age of animal, with the exception of the baboons receiving ampicillin. Therefore, the unusually high serum and liver vitamin B12 levels found in the young animals, but not in older baboons, remains unexplainable."

I guess the researchers must be very careful about not assuming anything, this is why they are very careful in not stating that vitamin B12 is actually produced *in vivo* in the animals deprived of vitamin B12. But, organisms don't cease functioning when they find themselves in the intestinal tracts of animals. To cease functioning would be to die and they were found alive very capable of producing vitamin B12.

The Study Provides Presumptive Evidence That The Vitamin B12 Found In The Baboon Stomach And Upper Intestine Could Have Been Produced By Microbial Action

After beating about the bushes for about a half hour, they finally come up with the above presumption.

"Vitamin B12 found in the gastrointestinal contents of vitamin B12 deprived baboons could be derived from ingested food, desquamated epithelial cells, digestive secretions or from the bodies and/or the secretions of the gastrointestinal microflora. Siddons (1974) reported that the vitamin-free casein used in these studies contained 0.004 ug/gr L. leichmanni growth-promoting ability, which, if it was due to vitamin B12 could result in each baboon receiving 0.01 ug vitamin B12 a day. The three baboons fed the soya protein diet did not receive even this minimal supplementation however, but the mean 18 H and 6 h fasting gastric samples also contained high levels of the vitamin. The vitamin B12 content of desquamated epithelial cells or digestive secretions is unlikely to account for all of the vitamin B12 found in the stomach contents of baboons deprived of the vitamin. These animals were showing evidence of vitamin B12 deprivation in their low serum and liver levels (Siddons 1974) but the mean vitamin B12 levels in their stomach contents 18 H after feeding were not significantly lower than those of control baboons. It would be impossible to state conclusively that the intestinal flora were largely responsible for the vitamin B12 found in the baboons stomach and intestine, since production of the vitamin by an organism in vitro does not necessarily mean that comparable levels would be produced *in vivo*. However, this study does provide presumptive evidence that the vitamin B12 found in the baboon stomach and upper intestine could have been produced by microbial action."

Vegans also had lower serum levels of vitamin B12 but their high folate count made up for this and their blood cells were normal. Normal values for serum vitamin B12 for vegetarians and frugivores have not yet been established. If no disease develops and the animals and people remain healthy then evidently their supply of vitamin B12 is adequate.

They finally get around to making a few conclusions. "Assuming that the vitamin B12 produced by these organims *in vitro* was also being produced *in vivo* in the baboon stomach and upper intestine, it is possible that the vitamin was being absorbed and utilized to meet part of the animal's nutritional requirements. Vitamin B12 produced by the Gram positive flora was unavailable to the baboons fed ampicillin and their vitamin B12 deficiency was increased."

They Can't Really Produce A Deficiency Of B12

That they can't really produce a vitamin B12 deficiency in baboons is clearly intimated in the following sentence. "This study suggests that the chances of producing a vitamin B12 deficiency in the baboon might be improved by a change in its feeding habits." By operating on animals and cutting out normal body parts they can achieve their goal. "Smith (1956), showed that in fowls with ablated crops, the bacterial content of the alimentary tract was lower than in ordinary fowls." Surgeons do the same in people. By cutting out over half of some of their patient's stomachs, it's very easy to produce a vitamin B-12 deficiency. There's very little glandular tissue left to secrete digestive juices. To produce a deficiency of vitamin B-12 in baboons, the following is proposed: "Closure of the baboon facial pouches might also lead to a reduced intestinal bacterial population. In addition, the baboons used in this study were fed their daily ration in two meals with an interval of 5 hours between. The results show that vitamin B-12-producing organisms would therefore be present in the upper intestine for at least 12 out of every 24th. The feeding of only one large meal/day and a change of diet to a type less likely to cause an increase in the putrefactive and potentially vitamin B-12 producing flora could speed the development of vitamin B-12 deficiency in the baboon. Alternatively the gram positive vitamin B-12 producing flora can be eliminated by the daily feeding of small quantities of ampicillin."

There is just no way to completely rid the digestive tract of animals and people of all its bacterial flora except by drugging the animal or person so much that you kill it, him or her. There were a total of 126 strains of yeasts and aerobic organisms that produced even more vitamin B-12. These were not only found in the colon. These were found in the stomach and small intestine of all the animals, those deprived of vitamin B-12 as well as the controls. Organisms producing vitamin B-12 found in the gastrointestinal aspirates of two young vitamin B-12 deprived baboons were yeasts, aerobic gram positive cocci, anaerobic gram negative cocci, micro-aerophilic gram positive rods, clostridium perfringens, other anaerobic gram positive rods (unidentified), aerobic gram negative rods, and anaerobic gram negative rods.

I hold the view that if these organisms produce in vitro vitamin B-12, they will do so even more readily in vivo because that is where they live and grow. It is their natural habitat and it is one of their metabolic functions to produce vitamin B-12.

Humans being primates, also have these same bacteria. They do the same things for us as for the baboons. Are we going to let ourselves be hoodwinked into eating practices that are not ideal just because of unproven propaganda? I venture to say that if a percentage of those with pernicious anemia were studied, that there would be more cases found among omnivorous people than vegetarians and on the whole the vegetarians would be the healthiest specimens.

Article #19: Well! You Wanted to Know! by V.V. Vetrano, B.S., D.C

What is vitamin B-12?

Vitamin B-12 is known as the anti-pernicious anemia factor. It is also called the *extrinsic factor* of Castle. It was first isolated in 1948 from liver as a red crystalline compound which contains cobalt and phosphorus. It is a water soluble vitamin and functions as a coenzyme in metabolism.

It is called cobalamin because it contains cobalt. The central structure, which contains cobalt, is referred to as a "corrin" ring system. One type of cobalamin contains cyanide, but in the latest edition of *The Review of Physiological Chemistry*, (p. 180) by Harper, Rodwell, Mayes and Lange, they say that the "cyanide group as a component of vitamin B-12 is an artifact introduced in the procedure used to isolate the crystalline compound from natural sources. It (cyanide) does not occur in the vitamin molecule as it exists in natural materials."

Cyanide is very toxic and the addition of cyanide to a vitamin does not seem to me to be desirable. It is known that this particular form of the vitamin is eliminated more rapidly than other forms and is not as effective as the other cobalamins, such as hydroxocobalamin. Some scientists think cyanocobalamin should be withdrawn from the market because it is not as effective as other cobalamins. ("Why Has Cobalamin Not Been Withdrawn," Freeman, A. G., *et al*, Lancet 1 (8067) p. 777-8, Apr. 1978). This simply stresses the view that Dr. Shelton and I have held for many years. We have always said that the mere extraction of vitamins from natural foods changes their character and renders them unfit for use, in as much as they are no longer combined with natural substances as they were in the natural food and are therefore digested and metabolized differently. The extraction of cobalamin from natural sources actually adds a toxic substance, cyanide, to the structure.

By reacting cyanocobalamin with other substances, it can be made into other derivatives of cobalamin. "Substitution of the cyanide group with a hydroxy group forms 'hydroxocobalamin'; with a nitro group, 'nitrocobalamin'; and with a methyl group, 'methylcobalamin'. The biologic action of these derivatives appears to be similar to that of cobalamin, although hydroxocobalamin (B-12A) is more active in enzyme systems requiring B-12 in experimental studies in vitro. Furthermore, although hydroxocobalamin given orally in large doses is absorbed as well as cyanocobalamin in similar doses, hydroxocobalamin is retained longer in the body; this suggests that hydroxocobalamin may be more useful for therapeutic administration of vitamin B-12 by mouth." The fact that it is eliminated more slowly than cyanocobalamin from the body could mean two things; either that it is hard to eliminate or that cyanocobalamin is more toxic. Synthetic substances do not function in metabolism exactly like the natural substance. Synthetic vitamins may be used as substitutions and fool people temporarily by masking symptoms, but they never metabolize or function exactly like the natural substance and *taking the so-called "natural" vitamins never produces health*.

The B-12 coenzymes, called cobamides, have been isolated not only from "several bacterial cultures but also from the liver of various animals (mainly dimethylbenzimidazole cobamide). The best source is a culture of Propionibacterium shermanii (ATCC 9614). The coenzymes are inactivated and converted to the vitamin form by visible light or by cyanide ion, the adenine nucleoside being removed or replaced by the cyano group. The methods originally used to extract the vitamin included heating in weak acid, addition of cyanide ion, and exposure to light. As a result it is likely that the coenzymes were converted to the vitamin and thus overlooked." (page 181, *Review of Physiological Chemistry.*) This brings to my minds a question. Perhaps they are not finding vitamin B12 in fruits and *vegetables* because it is in the coenzyme form or in another form or perhaps they are destroying it by their methods of finding it. The following quote brings out the fact that all the B vitamins are found together in nature.

The Nutrition Almanac, on page 18, warns that, "The most important thing to remember is that all the B vitamins should be taken together. They are so interrelated in function that large doses of any of them may be therapeutically valueless or may cause a deficiency of others. For example, if extra B6 is taken in 50-milligram potencies, it is important that a complete B complex accompany it. In nature, we find the B-complex vitamins in yeast, green vegetables, etc., but nowhere do we find a single B vitamin isolated from the rest. Natural forms of the B vitamins are preferable to the synthetic forms since the natural forms have all of the B factors, even those not yet known, plus valuable enzymes. Most preparations of single B vitamins are synthetic or, at least, no longer in their natural form. These synthetic B vitamins are used primarily to overcome severe deficiencies or serious physical conditions in which rapid results are needed. When taking supplements, it is very important to remember that the B vitamins exert many different effects upon each other; therefore, *excesses and insufficiencies may be harmful*."

We heartily agree with *The Nutrition Almanac*. All our nutrients should be secured through natural sources as they all function together and have a relation one to the other, and only by eating natural foods can we get our nutrients in the proper proportions one to the other.

How Stable is Vitamin B12?

Vitamin B12 can be heated at 100 degrees centigrade for long periods under certain conditions. If vitamin B12 is placed in an acid solution in a pH ranging from 4 to 7, that is, in a solution acid up to neutral, it can be autoclaved (steam heat under pressure) with very little destruction of the vitamin. "However, destruction is rapid when the vitamin is heated at pH 9.0 or above." A pH of 9 is very alkaline. Since vegetables are alkaline, this may mean that what little vitamin B12 is contained in vegetables is rapidly destroyed while cooking. This may be why researchers are unable to find this elusive vitamin in vegetables because they destroy it with heat in trying to extract it.

What does vitamin B12 do in the body?

Vitamin B12 acts as a coenzyme in metabolism. Only three cobalamins have been isolated from mammalian tissues; and of these only two forms of vitamin B12 are known to act as specific coenzymes in mammalian systems. "The two reactions in mammalian systems that are shown to be vitamin B12 dependent are (1) the conversion of methyl-malonyl-Co A to succinyl-Co A; and (2) the methylation of homocysteine to methioninc, which also involves folate coenzymes." A disease involving these conversions in metabolism is becoming more prevalent in modern times.

We must remember that vitamin B12 is an essential nutrient for all the cells of the body. It is necessary for the growth of all cells. Vitamin B12 with folic acid derivatives, are also necessary for DNA synthesis, and there are few who have not read of the importance of DNA to the body. When there is a complete lack of vitamin B12, cells can no longer divide, because their nucleus cannot mature. Without vitamin B12 the red blood cells cannot proliferate normally. They are malformed and they die more rapidly than normal cells.

Vitamins B12 is necessary for catalyzing the conversion of methylmalonyl-Co A to succinyl-Co A. Without these chemical transformations many serious symptoms develop.

A deficiency of vitamin B12 in humans causes the development of macrocytic anemia, and/or lesions of the nervous system. Sometimes both occur together. Sometimes the neurologic symptoms supervene without the development of anemia. Structural changes of the red blood cells are very reliable indicators of vitamin B12 deficiency. In this case blood tests may be valuable to determine whether or not you are properly absorbing vitamin B12. "In general, it may be concluded that when the intake of vitamin B12 is low, the demand for this vitamin in hemopoiesis exceeds that for any other clinically recognizable physiologic function. Macrocytosis is, therefore, a sensitive indicator of vitamin B12 deficiency." (page 183, *Review of Physiologic Chemistry*)

How do we absorb vitamin B12?

It has been well established that vitamin B12 is absorbed from the ileum. But its absorption is dependent on a factor called the Intrinsic Factor (IF), first named by Castle. It is present in normal gastric juice. It is secreted by the parietal cells of the gastric glands and is found in the cardia and fundus of the stomach but not in the pylorus: that is, it is found in the upper part of the stomach.

The free vitamin (cobalamin) becomes bound to the intrinsic factor, which is thought to be a glycoprotein. The combination of vitamin B12 with the intrinsic factor results in the formation of a complex substance that resists intestinal digestion.

In foods, vitamin B12 comes combined with proteins, or the protein break-down byproducts, such as peptides. These must be split off by the processes of digestion before absorption can take place. The members of the vitamin B12 group are very large molecules and this is considered the reason it is necessary for them to be combined with intrinsic factor for absorption. The body must actively absorb the vitamin and the cobamides with the consequent expense of energy. They cannot be absorbed by mere diffusion across the intestinal mucous membrane, unless administered in huge doses.

"They are not lipid-soluble and, according to Wilson (1964), the molecules are too large to enter the hypothetical water-filled pores in the lipid membranes of the absorptive cells, so that any absorption by simple diffusion would appear to be precluded."

Experiments conclude that, under physiological conditions, humans can absorb only about 2 ug/day of vitamin B12. Only after the vitamin is combined with intrinsic factor, can it cross the intestinal barrier. If high doses of the pure vitamin are given, however, some can diffuse through the intestinal mucous membrane because of discontinuities. A discontinuity is a sign of a damaged mucous membrane. In health all the membranes of the intestinal tract will be intact.

The intrinsic factor is a glycoprotein secreted by the parietal cells of the gastric mucosa and is necessary for the absorption of vitamin B12. The first stage of absorption is good digestion. The vitamin must be separated from the materials to which it is bound before it can be combined with the intrinsic factor. In food, B12 compounds are largely protein or peptide-bound and these must be separated from the vitamin by digestive juices before B12 can be combined with the intrinsic factor. Only after separation from the protein, to which it is bound, can the B12 compounds combine with the intrinsic factor. The third stage of absorption is to transport the vitamin B12 into the cells of gastrointestinal mucous membrane.

After vitamin B12 has combined with intrinsic factor it is in a complex form that fortunately resists further intestinal digestion. For normal absorption the pH must be neutral and calcium ions must be present. The vitamin has two receptor sites for absorption and one of them combines with intrinsic factor and the other with the ileal intestinal microvilli. The microvilli readily become saturated and this limits the absorption of vitamin B12 to about 1.5 ug after any one dose of the vitamin. The current thought is that the intrinsic factor is released by a "releasing enzyme" within the intestine, so that the vitamin can pass into the mucosal cell.

Absorption is limited and the maximal absorptive capacity in humans under normal conditions, is about 2.ug/day. Most sources state that humans require only 1 ug/day.

The vitamin, when given in large concentrations is thought to get into the body by passive absorption, but researchers attribute this to discontinuities of the lining of the intestines. About one percent of very large doses of vitamin B12, such as 3000 ug is absorbed passively. The intrinsic factor appears to be necessary for absorption of very small amounts, such as are found in food.

Where is vitamin B12 absorbed; Can it be absorbed from the stomach or colon?

Vitamin B12 is absorbed mainly through the ileum, although there is only evidence that some absorption might also occur in the upper small intestine. Even though research physiologists transpose ileal tissue to other areas of the intestine, it still maintains its superior capacity to absorb vitamin B12. This supports my view held all along before reading this material; i.e. that the ileum had a function and since the colon couldn't absorb vitamin B12, it was probably done in the ileum. It has long been known that bacteria produce vitamin B12 in the colon. If bacteria can do this in the colon why should they not also do so in the ileum, where the absorptive mechanisms are still in operation?

Why are some people deficient in vitamin B12?

There are many reasons why vitamin B12 may be lacking. Most of them center around failure of absorption and not because the vitamins are lacking in the diet. Articles dealing with the pathology of absorption of vitamin B12 classify defects of vitamin B12 absorption into two main groups: (1) "those due to defective gastric secretion (i.e. lack of IF) and (2) those due to defective intestinal absorption."

Naturally if most of the stomach has been excised by surgery there will be little intrinsic factor secreted and consequently little vitamin B12 absorption. "After partial gastrectomy, some IF-secreting mucosa usually remains, and severe impairment of vitamin B12 absorption does not usually occur unless the mucosa of the gastric remnant undergoes atrophy."

Gastric atrophy accounts for malabsorption of many vitamins. Atrophy occurs after many years of irritation to the stomach mucosa by wrong ways of living and especially from wrong ways of eating. The stomach is the most abused organ of the entire body. When each year we pour in chocolate, coffee, tea, alcohol, hot peppers, chemicals, mustard, salt, aspirin, garlic, onions, drugs and other irritants by the tons how can we expect our digestive tracts to remain normal? When we eat all sorts of poor food combinations, so that instead of digestion we get indigestion, how can we expect any nutrients to be left for us? Bacteria use them. The stomach and intestines naturally become irritated and inflamed from all the decomposition products of bacterial decay.

Put some salt or any one of the above condiments into an open wound and you will readily understand the word irritant. Then when on top of all the above irritants we combine our foods so poorly that instead of digestion we get indigestion and its concommitant poisonous and irritating end products, we have double trouble. Gastric irritation goes from irritation, to greater irritation and finally inflammation, (gastritis or duodenitis, or gastroenteritis, or ileitis, or colitis or all at once.) When these conditions are severe, atrophy is only one consequence. Cancer is another. Ulcers are still another. After many long years of irritation and chronic inflammation, normal functioning cells of the digestive glands die, then digestion is naturally impaired. Not only will the stomach not secrete the intrinsic factor, if it indeed exists, but it will not digest the protein off the vitamin B12 to permit it to be combined with IF for absorption.

Juvenile pernicious anemia is a rare condition. The secretion of intrinsic factor is congenitally absent, but the other secretory functions of the stomach are usually normal. This is just another example of the fact that as a race, we are deteriorating. Recently I've read articles intimating that formerly humans were able to manufacture their own vitamin C. If this is true, then you can see how far the deterioration has gone. A missing enzyme here and there can make a world of difference when it comes to health and life. However, most of the pernicious anemia of childhood is acquired. In these cases it is noted that there is gastric mucosal damage. This again points to the fact that enervation, by wrong living habits, and especially poor care and feeding of children, causes toxemia with the development of diseases that impair the function of the gastrointestinal tract.

There are many reasons why vitamin B12 is not absorbed from the intestines; there are as many reasons as there are enzymes and catalytic reactions. Such diseases as idiopathic steatorrhea, coeliac disease, tropical sprue, and lesions of the small-intestinal wall, such as regional enteritis and intestinal tuberculosis, and intestinal resections—particularly when the ileum is involved, are reason enough for mal-absorption of all nutrients, not just vitamin B12. Other anatomical abnormalities such as small-intestinal diverticula, enteroanastomoses and blind loops of small intestine (blind-loop syndrome) also cause failure of absorption of vitamin B12. Experimental evidence leads researchers to believe that in some cases, especially when surgical blind loops are left in the abdomen and in cases of diverticulosis, where there are stagnating feces, that more bacteria thrive and these use up the vitamin B12 of the host. They also produce toxic factors, which interfere with the absorption of vitamin B12. Bacteria also deconjugate bile salts and impair mucosal function through the toxic effects of free bile acids. Recently cases have been reported of transport defects of vitamin B12 in children and young people. It is familial and associated with proteinuria. "It is quite distinct from juvenile pernicious anemia." People who are infested with fish tapeworm also develop anemia. One reason is that the worm takes up vitamin B12 itself and produces a factor which splits vitamin B12 from intrinsic factor and then finally gastric atrophy develops from the lack of vitamin B12 itself.

Vitamin B12 and folic acid are very important to rapidly dividing cells such as those of the bone marrow and even those cells lining the gastrointestinal tract. They need vitamin B12 for multiplying rapidly, as they are supposed to. Vitamin B12 is also necessary for the absorption of other nutrients from the intestines. A lack of B12 depresses the function of the gastric mucosa. Some cases are attributed "to the production of a *defective intrinsic factor* or *intrinsic factor: B12 complex* as well as to a defective ileal receptor for *intrinsic factor: B12 complex*. "

In short, most cases of pernicious anemia or a low level of vitamin B12 arise out of impaired function somewhere along the gastrointestinal tract and not because there is a lack of vitamin B12 in the diet, even in Vegans:

This brings us back to basic *Hygiene*. Remove the causes of disease and the body will heal itself. In these cases of impaired function, fasting, rest, exercise, and sunshine will restore the body's ability to absorb vitamin B12 in all except those who have had their stomachs and intestines surgically excised or impaired by surgical blind loops, and those who were born not secreting the intrinsic factor or with a defect in metabolism of B12, such as those born with Methylmalonic Aciduria. Even in those cases where gastric or intestinal atrophy plays a part, the improved digestive capacity after fasting, with proper combinations of food, so that there won't be so much decomposition of foods in the intestinal tract will improve absorption. Better food combinations means fewer of the types of bacteria that use vitamin B12 can exist so that the bacteria that do produce vitamin B12 can do their job properly. Less decomposition in the intestinal tract will promote the proper bacterial flora that make vitamin B12 instead of using it.

There are so many intricacies of digestion and absorption that are still unknown, that can go wrong when we are in ill health, that the only way to insure proper digestion and absorption is to maintain good health. No matter which way you look at it, it comes back td the same basic principles of right living. If you live *Hygienically*, eat uncooked natural foods—fruits, vegetables, nuts, and seeds—and secure all the other requisites of physiology then your body will function normally for you and it will absorb all the vitamin B12 necessary for health. *Hygiene* does not need to be changed. We've got to realize where the real fault lies and eliminate it. Dosing our people with vitamin B12 instead of removing causes is the same as giving drugs. If we start this, it won't be long before we are among the poisoning profession. All it takes is that first blind compromise.

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Case History: How We Suddenly Became Vegetarians by Arthur S. Harris, Jr.

(A didactic word on vegetarianism)

For forty-nine years I ate meat the way most Americans do—without questioning the practice from any point of view—health, aesthetics, ecology. You might say I had been indoctrinated into meat-eating by society. But four years ago at the age of fifty I gave up meat completely; my wife followed the next month and one of our sons a year later.

A six month's trip to Mexico changed everything. On a tight budget, we drove down to Oaxaca and then to Puerto Angel living as inexpensively as we could. In Puerto Angel, we rented an adobe house for $16 a month and lived surrounded by Mexicans who slaughtered animals in the early dawn. Agonizing cries of animals in their last moments of life would pierce the predawn darkness. Then, not thirty yards from our hammocks, meat would be cut up. Suddenly we were confronted with the fact that meat comes from a corpse. In our naivete we had allowed ourselves to think meat came attractively wrapped from the A&P meat counter. Going to the nearby dusty town of Pochutla didn't help. Here chunks of meat hung on hooks in open air stores with flies buzzing around.

We had been jolted out of our innocence. We stopped eating meat and made do with fantastically inexpensive vegetables and fruits, supplemented by dairy products.

Back in more civilized Oaxaca, we ate one or two American-style hamburgers but found them hard to get down. Visions of an animal being killed with a machete to the throat kept interfering.

Now, into Oaxaca flow a steady stream of young, knap-sacked Americans who sip capuccino on the zocolo and talk of cosmic consciousness, Mexican police, Vedic studies, and the Allman brothers. We picked up with a young couple into nutrition and spent days learning from them. They were, of course, vegetarians, but they expanded our awareness beyond health to point out that meat-eating consumed vast amounts of protein in a world with a protein shortage. They made us realize that an animal is a protein factory in reverse, consuming tons of protein-rich grains and soybeans to produce mere pounds of chemically-injected animal protein. By the time we left Mexico to return to New York, we were no longer meat eaters. Within a year we gave up fish and chicken, then Phyllis gave up eggs. Technically, I suppose we can be catalogued as lacto-vegetarians.

We are astonished when people ask us if we don't feel weaker. They ask how we possibly get enough protein without good, red meat. When we tell our questioners that we feel better, cleaner, healthier and stronger than ever, we get those glazed-eye looks which say, "Veggies are brainwashed nuts!" But we know better and we know who the brainwashed really are—American meat-eaters who've never once questioned the practice of eating animal flesh as the mainstay of their diet.

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Dark Humor: Rigor Mortis on the Dinner Plate by Coleman McCarthy Washington Post

WASHINGTON—Thanksgiving, America's day of tribute to carnivorism, isn't likely to have the same turkey-chomping merriment of years past. Marian Burros, the journalist-cook-dashing spirit who favors simplicity in her kitchen and factualness in her prose, has seen to that. She talked turkey the other day in the New York Times.

Birds served by Grandma, said Burros, are all but a vanished species. Most of today's turkeys "have been frozen and filled with ingredients no self-respecting turkey should contain...Much of the flavor has been bred out of turkeys, so whether they are fresh makes little difference."

For the fresh-is-better dreamers, Burros, whose current best-selling cookbook is *Keep It Simple*, salted her story with a Final complication: "If the turkey is freshly killed do not try to serve it the same day, for you will end up with one stiff bird, rigor mortis having set in; give a freshly killed bird two days to relax."

When food writers begin sounding like morticians, a major advance for vegetarianism has been made. A circle is being closed. Marian Burros discussing the rigor mortis of Thanksgiving turkeys is not much different from George Bernard Shaw's discourse on "animal corpses" as he beheld the meat-filled plates of his dinner companions.

It isn't known whether this style of Shavian frankness helped cure England's cadaver consumers of their ghastly habit. It may even have had the opposite effect: the harder Shaw was to swallow, the more his dinner mates sprinkled meat tenderizer on their steaks.

But this is different from the frankness currently found in the food pages of U.S. newspapers. The skepticism of a Marian Burros is likely to turn citizens into nutritional vegetarians, as against the creation of ethical vegetarians, which was the goal of Shaw. To skip the turkey and go straight to the yams and peas is an attempt to dechemicalize one's body.

That turkeys and other meats have become so tasteless indicates that effectiveness of food technologists. In an earlier time, the birds, pigs and cattle that ended up on America's tables were tasty because they were vegetarians themselves. But now the animals are forced to ingest chemicals: to grow fatter faster.

To become a nutritional vegetarian is to seek an escape from the food technologists who attack the animals. The attacks, it is discovered, are really on us. A turn to healthy food is a turn away from death food.

The ethical and nutritional vegetarian is now being joined at the table by the economic vegetarian. Ewen Wilson, director of economics at the American Meat Institute, talks about "income elasticity": the more money a person makes, the more likely he'll eat meat. The less money, the less meat. "The demand for meat has been slow this year," Wilson says, "because of the economy. With a lot of people out of work, families cut back on meat."

This is another circle making a full turn. Historically, man was a grain and berry eater. He moved against certain animals out of necessity. Plutarch writes in *The Eating of Meat*: "For my part I wonder what was the disposition, idea, or motive of the first man who put to his mouth a thing slaughtered and touched with his lips the flesh of a dead animal...Actually, the reasons those primitive people first started the eating of flesh was probably their utter poverty."

Today, with economic vegetarians increasing in number, the challenge for these involuntary abstainers is to resist the feeling of deprivation. We have been conditioned by the false message that vegetarians are weaklings and flakos, while the eaters of red meat—and, on Thanksgiving, white meat—are the real articles. Real, perhaps, but not so healthy.

The conditioning is wearing thin, especially since the meat industry has few defenders once the propagandists are removed. As Mark Braunstein, in *Radical Vegetarianism*, a new and remarkably intelligent book, asks: "What philosopher has written a convincing text for the cause of carnivorism? What poet has lamented the misunderstood lives of the butcher and executioner?"

None. Which is why the food writers are feeling less and less restrained in discussing rigor mortis on the dinner plate.

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Lesson 33 - Why We Should Not Eat Animal Products In Any Form

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1. Animal Products

A. Any part of the body of a once-living creature.
B. Any substance or product produced by or within a living creature.
C. Any product produced from or containing any part of, the body or products of a living, or once-living, creature.
    A. 1. Muscle Meats
        2. Organ Meats
        3. Other Body Parts
        4. Mixtures Containing Any of Above
    B. 1. Honey and Royal Jelly
        2. Eggs
        3. Milk, Cream
    C. 1. Butter
        2. Buttermilk
        3. Sour Cream
        4. Clabber
        5. Kefir

6. Cheese
7. Rennet
8. Yogurt
9. Whey
10. Ice Cream
11. Gelatin
12. Fish Liver Oil
13. Dessicated Liver
14. Bone Meal
15. Bone Marrow
16. Other Supplements Produced from Animal Sources
17. Lard

1.1 Animal Products Are Neither Safe Nor Desirable

"The unfitness of certain substances for assimilative purposes is manifested by the anaphylactic symptoms that so frequently follow their use. Alimentary anaphylactic phenomena are confined almost exclusively to substances of animal origin. The more closely these animal substances resemble the human body in composition, the more frequently do they give rise to these phenomena. Thus flesh is the worst offender, eggs come second and milk is last." (Herbert M. Shelton, *The Hygienic System, Volume II*, p. 168)

The above eloquent indictment of animal products lays the groundwork for this lesson. Flesh foods have been dealt with in Lesson 32. Honey, eggs, dairy products, and various animal-food byproducts will be considered in this lesson.

Hereward Carrington (*The Natural Food of Man*, p. 167) says that such animal products are open to all those objections which might be urged against the use of flesh foods, only in a lesser degree. He says, however, that the objections to these products are less serious and that they are certainly to be preferred to meat—but he still concludes that there are weighty objections to their use.

We shall examine these objections in depth, so that the student may judge for himself whether, in truth, animal products in any form should be considered a safe or desirable part of the food program. I believe you cannot help but agree with Dr. Shelton that "Little can be said in defense of the use of animal foods except in instances of dire necessity."

1.2 Animal Products and Cancer

Viktoras Kulvinskas (*Survival Into The 21st Century*, p. 228) says that though the high protein requirement for cancer growth comes, as a rule, from the dietary intake of animal carcass, it is also caused by eggs and dairy products.

He says that Dr. Szepsenwal showed in experiments with laboratory animals that the incidence of lymphatic cancer and lung adenocarcinoma is as high in the mice receiving egg yolk as those receiving egg white. "In the animals of both groups the lymphoid system of the abdominal cavity is the first to be affected ... the adenocarcinomas of the lungs, whether caused by egg white or egg yolk, are very extensive, frequently destroying the whole lungs." (Szepsenwal, J.; J. Proc. Exp. Biol. and Med., 1957, V96, 332 and P.S.E.B.M. Feb. 20, 1963, V112, P1073)

Dr. White found, through experiments with laboratory animals, that high dietary intake of cystine (a non-essential amino acid found in high concentration in animal protein) produced incidences of almost 100% of mammary tumors. (White, F.R. and White, J.; J. Nat. Cancer lnst., 4:413 (1944)

Dr. Babson observed that on a diet high in casein protein (the major source being the dairy products), some forms of cancer grew five times as fast as other forms. (Babson, A.L., Cancer Res., 14:89, 1954)

2. Honey And Royal Jelly

The honeybee's greatest usefulness is the pollination of endless numbers of crops. This occurs while the worker bee is engaged in its natural function of gathering nectar from flowers for the production of honey.

The nectar of the flowers is ingested by the worker bees and converted, by the addition of their own secretions, in special sacs in their esophagi, to the sweet, sticky substance we call honey.

This is regurgitated into the cells of the combs in the hives (built of beeswax by specialized worker bees), where it is aged and stored for future use—to feed the larvae and for subsistence in winter.

Bee honey is a complex substance, containing at least 181 known components. (*Honey, A Comprehensive Survey*, Edited by Eva Crane, MSc. PhD., p. 206)

Bee honey is composed chiefly of the simple sugars fructose (levulose), glucose (dextrose) and water; it also contains some more complex sugars (such as oligosaccharides and polysaccharides), some essential oils, several enzymes, various animal ferments (especially oxydase—oxydizing ferment) and acids. Honey also contains insignificant amounts of protein (amino acids and other protein constituents), vitamins and minerals.

Glucose crystallizes out of honey on standing at room temperature, leaving an uncrystallized layer of dissolved fructose. The fructose layer in crystallized honey ferments readily at temperatures of sixty degrees Fahrenheit or higher. Fermented honey is used in the production of honey wine or mead.

Honey to be marketed is usually heated by special processes to about 150 degrees Fahrenheit to dissolve the crystals, and is then poured into containers sealed against crystallization.

Bee honey is highly concentrated and stimulating, and is needed by the bees as fuel for their highly stressful and brief lives. Honey is an excellent natural normal substance for bees. Those who rob the bees to divert its use to humans are supplying an unnecessary and harmful substance. The popular belief that honey is a perfectly safe sweet for general and habitual use is a delusion.

Honey contains many acids which are injurious to humans. The sugar in honey is no less dangerous than any other sugars, refined or otherwise. The manite acid in honey renders its combinations with other foods even more injurious than ordinary cane sugar. (Dr. Shelton, *The Hygienic System, Volume II*, p. 168)

Honey is harmful to the digestion, the teeth and the nervous system. Honey, which is intended as a stimulant for bees, is also highly stimulating (and damaging) to humans.

The use of honey also causes an excess secretion of mucus. People with gastric or intestinal ulcers, or catarrhal conditions, should never use honey—neither should nervous and sensitive people succumb to its gustatory appeal—but they may have to learn the hard way.

The Hartbargers (*Eating for the Eighties*, p. 164) say that honey should not be fed to children. They say, "Many babies have trouble digesting honey and it has been shown to be a cause of botulism in infants. The Center for Disease Control in Atlanta recommends that honey not be given to infants one year old or younger."

Extravagant claims have been made for honey as a miracle cure. Various experiments have indicated antibiotic properties, which would, of course, also destroy friendly bacteria (such as those which aid in the digestion of food, as well as those which aid in the synthesization of Vitamin B-12).

These experiments and others for the treatment of burns and wounds, respiratory infections, digestive diseases, and malfunctions of the heart, are recounted in *Honey, A Comprehensive Survey*, pp. 260-263, concluding, "In general, the use of honey is less likely to harm a patient than most other preparations, and on many occasions it has proved beneficial." This might be termed "damning it with faint praise," and is from the chapter on "The Biological Properties of Honey," written by a group of authors.

The actual nutritional value of honey is minimal, especially when compared to its potential for harm. Honey is poor in mineral elements and in vitamins. It has, about the same composition of minerals as white sugar, and is almost as devitalizing.

The clarifying process to make honey less cloudy removes thirty-five to fifty percent of the original vitamin content. More vitamins and minerals are lost by evaporation when the honey comes in contact with oxygen. Honey contains only insignificant (trace) amounts of iron, and not enough B vitamins for its own metabolism, and, when consumed by humans, robs the body of B vitamins and alkaline minerals.

At one point in *Honey, A Comprehensive Survey*, it is said that "all the knowledge and scientific research in this book endorses the 'goodness' of honey as a food for man." The book contains 608 pages and sells for $52.50. Yet all that is really said in favor of honey as a food for humans has to do with its palatability, and the opinion that it is more "easily digested" and more natural than carbohydrates like, for example, sucrose. While stating that honey has valuable nutrients, it is admitted, perforce, that the amounts are so minute as to be insignificant, and concludes, "This need not surprise us, for honey is primarily a food for bees, not man."

These quotations are from the discussion of the "Nutritive Value of Honey," in the chapter on the "Biological Properties of Honey," written by a group of authors (pp. 265-266).

Dr. Jonathan M. White, Jr., on page 199 of the chapter on the "Composition of Honey," also says that "the levels of various vitamins are so low that they have no real nutritional significance."

2.1 Identity of the Acids in Honey

Much of the knowledge of honey acids has been obtained since the early 1950s. Formic acid was once thought to be *the* acid of honey, and it was thought that the last action of the bees in ripening honey was to add formic acid to preserve the honey.

It is now known that gluconic acid is present in honey in much greater amounts than all other acids; it is produced by the action of an enzyme in honey upon the dextrose in it. Except for gluconic acid, the sources of the various honey acids are not known. Many of them may already be present in the nectar.

Analysts seeking to measure the total amounts of the various acids in honey have encountered difficulties, leading to uncertainties or errors in the measurements. Consequently, information as to these proportions is not available.

Since I heard Dr. Alec Burton refer to some twenty or so acids in honey, many of which are harmful to humans, I have wondered which ones they are, and decided to research the subject and pass the information on to others who may desire it.

The following acids have been positively identified in honey:

acetic	gluconic	oxalic
butyric	lactic	pyroglutamic
citric	maleic	succinic
formic	malic	

The following acids have been identified in honey without rigorous proof of their identity, and it is considered that they are probably present:

- glycollic
- a-ketoglutaric
- pyruvic
- tartaric
- 2- or 3-phosphoglyceric
- a- or B-glycerophosphate
- glucose-6-phosphate

(from *Honey, A Comprehensive Survey*, Chapter Five; "Composition of Honey," by Dr. Jonathan M. White, Jr., pp. 169-170)

Dr. Shelton also refers to manite acid in honey. (*The Hygienic System, Volume II*, p. 168)

"Honey is not tested for pesticide residue levels, and no tolerance level has been established for pesticides in honey. Neither has there been a tolerance set for the many residual antibiotics which remain in honey, after bees are drugged, to enable them to function after they've been fed waste candy products (which incorporate dyes, colorings and other chemicals) to compensate for man's plundering of their hives." (Ida Honoroff, *Dr. Shelton's Hygienic Review*, March 1980)

Ida Honoroff also recounts an interview with Colonel Clair, president of Hawaii Bee Keepers Association, on radio station KPFP-FM in Southern California. Colonel Clair stated that all honey contains pesticide residues— "There'd be no way to avoid that from nectar collected from plants which have been sprayed by pesticides."

Of course, as explained in Lesson 32 ("Why We Should Not Eat Meat"), the pesticides are more concentrated in the honey than in the plants.

Colonel Clair feels that genetic failure among bees is the most dangerous threat of the modern practice of feeding them sugar and drugs, and various other practices, such as artificial insemination. The result is diseased bees, diseased honeycomb and diseased honey.

We don't need honey, but we do need the honeybees for pollination of our crops. Another impending disaster?

Most people should avoid concentrated sweets altogether, but dates, figs, raisins, dried bananas, etc., are much better adapted to human nutrition than a product manufactured by bees for their own use.

Dr. Alec Burton emphasizes the inadvisability of the use of honey. He related an experience he had with a terminal cancer patient, whom he had kept alive for a lengthy period by the use of a program of all-raw foods. The man was doing very well and was able to function and do some work. However, his weight was on the low side. His well-meaning relatives and friends, noting his too-slender appearance, urged him to take some high-calories honey, to increase his weight. He ate the honey—and died.

"Now," Dr. Burton said, "I am not saying that honey causes cancer." He explained that this is simply an illustration of the fact that cancer patients can frequently be kept alive for long periods on a totally raw-food plant diet, and that *no deviations can be tolerated*. Honey, especially, with its many harmful acids, can be disastrous to such a patient.

Honey is not recommended for anyone's use. Its value is delusion, and its potential for harm is indisputable. Dr. Shelton does not recommend its use, but says that its vast potential for harm would be among those who are engaged in active outdoor work. Even for such people, it is almost impossible to find a food with which it can be favorably combined. If taken with fruits or grains, honey will cause fermentation. Honey also causes decomposition of protein foods, and the honey itself ferments from being held in the stomach long enough for the digestion of the protein. The least harmful combination, according to Dr. Shelton, is toasted bread. But he reiterates his warning against its use with any food.

Your best course would be to eliminate honey from your food program altogether—you don't need it as a sweetener if you are eating simple Hygienic foods. If you occasionally prepare a recipe that does require a sweetener, dates would serve a better purpose.

Dr. Vetrano says that the *occasional* use of honey will not do great harm—but it should not be used as part of the regular diet.

2.2 Royal Jelly

Royal Jelly is a highly nutritious (for bees) secretion of the pharyngeal glands of the honeybee, which is fed to the very young larvae in a colony, and to all queen larvae.

Obviously, this substance is subject to the same objections as those against honey. Royal Jelly is sold at high prices in health food stores as a "miraculous" and "nutritious" food for humans. Don't use it!

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3. Eggs

Eggs are in the same category as flesh foods, since they are, of course, fowl in embryo. A fertilized egg is a fowl before it is born; an unfertilized egg is the product of a bird's sexual cycle.

Eggs from barnyard fowl (fertile eggs) are sometimes available in health food stores, and have some advantages over production-line eggs—but are hardly to be recommended as a food of optimal quality for humans. Even when the hens are allowed plenty of clean territory for running, adequate fresh, pure water, pure air and good grain—and cohabitation with the rooster—the resultant product (the egg) is apt to be less than optimal, even for non-vegetarians. The habits of the fowl are not clean— they will eat almost anything—eggs will sometimes taste of wild garlic which the hen has eaten.

On the other hand, production-line methods produce a particularly poor product, from the standpoint of nutrition and toxicity. Hens are fed arsenic to kill parasites and stimulate egg production.

About 95% of egg-laying hens are maintained in production plants. The routine conditions in egg production plants are certainly not conducive to producing eggs of high quality. Five fully grown hens in a twenty inch by twenty-four inch cage is routine in some hen batteries; some squeeze four hens into twelve inch by twelve inch cages. The hens cannot spread their wings or even turn around. Wire flooring often injures their feet, and hens have even "grown fast to their cages." (Victoria Moran, Ahimsa, April/June 1982, quoting from *Poultry Tribune*, February 1974)

Hens are de-beaked at one week and again at three to five months, to prevent featherpecking and cannibalism, brought on by the overcrowded conditions. Food and water are provided mechanically; conveyors remove eggs and waste. Fluorescent bulbs provide seventeen hours of artificial daylight to stimulate laying. The millions of eggs sold in supermarkets are the products of these "hen farms."

All eggs contain an excess of sulphur. Hereward Carrington (*The Natural Food of Man*, p. 173) says, "Persons who are subject to torpor of the liver would do well to refrain from the use of either eggs or butter; and those who have sound livers—and desire to keep them so—can take a hint."

Dr. Shelton, also, says that eggs should certainly never be eaten by one whose liver and kidneys are not in perfect condition. He says that children, invalids, inactive people and those inclined to constipation should especially avoid egg whites.

The raw albumen contains a toxic protein substance, avidin (a biotin antagonist). Biotin is one of the B-complex vitamins. Avidin is inactivated by one minute of cooking.

Dr. Shelton says that raw egg whites produce in some stomachs almost deadly acids. He says that Vernon, Hetin and others have shown that raw egg white hinders the digestion of other substances.

"Bayliss, Professor of Physiology, University of London (*The Physiology of Food and Economy in Diet*) says that raw egg white contains some substance which, even in small amounts, hinders the action of the digestive fluids. Lemoine, a French authority, after careful study, says raw egg white contains a poison which damages the kidneys." (Dr. Shelton, *Volume II*, page 170)

Boxers, marathon runners and other athletes sometimes use whole raw eggs (blended with fruit juices) as "high-protein training food," and may give the impression that whole raw egg is an optimal food. You now know better!

Raw egg yolks are sometimes prescribed by Hygienic professionals as a temporary source of protein for people who are having digestive or other problems with the use of nuts as a protein source. Even though raw egg yolks are relatively innocuous and easily digested, their use should be confined to temporary emergency use, for many reasons (some already discussed and some additional factors still to be considered).

Dr. Virginia Vetrano (Dr. Shelton's Hygienic Review, February 1977, p. 136) says: "Taking a raw egg yolk in orange juice is not the best way to take eggs, if one is going to eat them. Eggs, being an animal food, decompose very rapidly if not digested soon. Taking them with an acid fruit such as oranges or orange juice, inhibits the secretion of gastric juice, necessary for normal digestion, and predisposes to putrefaction."

With further reference to the preoccupation of athletes with "extra protein," the following interesting comment appeared in a 1978 issue of the Journal of the American Medical Association. The Association's Department of Foods and Nutrition commented: "The ingestion of protein supplements by athletes who eat an otherwise well-balanced diet is of no use in body-building programs. Athletes need the same amount of protein foods as nonathletes. Protein does not increase strength. Indeed, it often takes greater energy to digest and metabolize the excess of protein. In addition, excess protein in the athlete can induce dehydration, loss of appetite, and diarrhea. Athletes DO have an increased requirement for *calories*."

In Lesson 32, in the discussion of salmonellosis, I mentioned that, if you open and eat a raw egg, there is the risk of bacteria from the outside of the shell contaminating the egg. (*Meat on the Menu*, Who Needs It? Raymond H. Woolsey)

Since some Hygienic professionals sometimes prescribe raw egg yolks as a temporary protein source for some debilitated individuals who have problems with nut proteins, I once experimented with their use (three yolks per week), but abruptly discontinued the experiment when they produced a goodly crop of hives—some on my face. I mentioned this experience in a previous lesson.

In view of this evidence, it would seem that it would be best to avoid the use of eggs altogether, if at all possible.

If, for any reason, it is desired to use eggs sparingly or temporarily, the following precautions should be borne in mind:

1. Egg yolks may be taken uncooked, preferably not in orange juice. If prescribed by a Hygienic professional, get his advice as to how to use them. In general, I believe it is recommended that they be taken alone.
2. Never use whole eggs uncooked, since the albumen is toxic.
3. If cooked eggs are ever used, they should be lightly cooked over low heat, preferably poached or coddled. A coddled egg is one that has been placed, in a covered pan, in water just below the boiling point (away from the heat source) for five minutes or so—long enough to slightly "set" the albumen.

4. If eggs are ever used, fertile eggs from a farmer or health food store are preferable to production line eggs. In addition to the use of arsenicals and the unspeakable conditions in the egg factories, which result in an unnatural and inferior product, production line eggs have also been considered objectionable on the grounds that they may have been kept in cold storage for long periods of time before they are sold. However, the executive vice president of the American Egg Board says that cold storage eggs are a thing of the past, that they go from hen to market rapidly, under well-controlled conditions, and that they are sprayed with oil to protect freshness. (*Better Nutrition*, June 1982, p. 65)

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4. Dairy Products

4.1 Milk

All mammals take their mother's milk during infancy. After they are weaned, they are sustained by other foods—most humans, however, have been convinced that cow's milk is an ideal food for humans and should be used all through adult life. Recently, some medical men have been swinging away from this view, and blaming milk for a growing number of problems in children and adults.

There should be a transition period, during which a child eats other foods as well as nursing, but the time comes when milk is no longer needed. The use of dairy products by human adults is unique in the animal kingdom—man is the only animal that is never weaned—except, of course, for domesticated animals, who lap up saucers of milk.

The milk of each species is well adapted for the young of that species. Unpasteurized raw cow's milk is an ideal food for calves; it contains a growth factor intended for the maturing of a calf, but which causes excessive height in young humans, and complicated problems in adult humans, such as excess secretion of mucus, excess secretion of urine, constipation, diarrhea, bowel impaction, nausea, gas and discomfort, m increased blood pressure, edema, and numerous digestive and respiratory problems.

4.2 Milk for the Human Infant

Human milk is far superior to any other milk as food for the human infant. The chemical composition of cow's milk is different from that of human milk in many other important respects. Cow's milk is specifically adapted to the blood and chemical composition of the calf's body.

The rapid body growth and small brain of a calf require different nutritional elements than the human, whose body grows and matures slowly, who lives several times as long, and whose brain is the most rapidly growing and best-developed of all species.

Human milk contains lecithin, and an abundance of the amino acid taurine, both important to brain development. Cow's milk is deficient in both of these elements.

The milk of the nursing mother changes with the changing needs of the growing infant. Human milk is much lower in total protein than is cow's milk, and is sweeter and higher in carbohydrates. The types and amounts of fats, vitamins and minerals also are radically different.

In the preparation of the infant's formula, the cow's milk is usually diluted with water and sweetened to lower the excessive protein and provide supplementary carbohydrates.

The protein content of human milk is about one-third as much as in cow's milk, and is mostly albumin—

while the protein in cow's milk is mostly casein, which forms large, tough, dense, difficult-to-digest curds which are adapted to the four-stomach bovine digestive apparatus. Mother's milk forms very small, soft curds which are easily digested by the infant.

The following comparisons are listed in Composition of Foods, Agriculture Handbook No. 8:

	Human Milk U.S. Sample (100 grams)	Fluid Whole Cow's Milk (Pasteurized and Raw—3.7 per cent Fat) (100 grams)
Protein	1.1 grams	9.5 grams
Carbohydrate	3.5 grams	4.9 grams

Human milk contains much more (than any other milk) of the two amino acids, cystine and tryptophan, characteristics which render it superior for the human infant. Cow's milk is deficient in iodine, iron, phosphorus and manganese. The minerals in mother's milk are adequate for infants, but inadequate for adults.

Milk is splendid as the sole food for mammals during the period of their most rapid growth. A baby will ordinarily double his or her birth weight in 180 days with no other food.

Of course, mother's milk can be impaired by the diet of the mother. Many cases of colic (gas and constipation) in babies are "miraculously" cured when the mother stops eating eggs, meat and other animal foods.

If a mother does not have enough breast milk, she should give the child what she has and supplement it. The question is—with what? This question is of even greater importance, if it is not possible to nurse the infant at all.

It cannot be too strongly emphasized that the infant should, even at very great cost, be nursed during the initial period, for as long as possible. Breast milk contains hormones needed by the infant, and contains white blood cells which protect against infections, intestinal disorders and respiratory diseases; and this protection extends into later life. The yellowish, watery fluid (colostrum) secreted from the breast during the first few days of nursing has an especially vital protective role.

Bottle-fed babies are much more susceptible to allergies. They contract the so-called "contagious" diseases more than twice as often, and enlarged tonsils and adenoids are much more common among them.

Repeated evidence from Europe during the wars in 1871, 1914 and 1917, revealed that when no cow's milk was available, and the infants had to be breast-fed, the infant death rate dropped.

The nursing period of mammals varies according to the rate of their growth and maturity. Human growth is slowest and the nursing period should be longest. A baby should be nursed for at least nine months, and, if possible, up to two years, or even longer. Of course, the mother must eat correctly, exercise, and rest adequately. Green salads are of prime importance for the production of a good milk supply, and the nursing mother will need more protein. She should also slightly increase her consumption of distilled water to maintain her liquid requirement. Fresh, juicy, uncooked fruits will also provide additional liquid.

When the mother does not have sufficient milk, or when it becomes impossible for the mother to continue nursing, what is the best substitute? The old-fashioned "wet nurse" idea was the best—a substitute nursing mother.

Many vegans and Hygienists maintain that adequate infant nutrition can be maintained on vegetable milks, such as soya, sesame, and nut or seed milks. These vegetable milks are also sometimes used when a baby is "allergic" to, or unable to digest or utilize animal milk.

However, it may be necessary to use animal milk for some babies. Dr. Alec Burton says that, if human milk is not obtainable, infants should have the milk of another animal, because they must have galactose, which is found in combination with glucose in milk sugar, and just does not exist in the plant kingdom. In this case, goat's milk is sometimes used, since it forms a smaller curd than cow's milk, and is therefore easier to digest, and does not have the excess growth factor. Also, it is somewhat easier to obtain goat's milk that is not pasteurized, from a goat that has not been fed drugs and antibiotics. Goat's milk is, of course, subject to some of the same objections as cow's milk.

It has been pointed out that practically no breast-fed infants die of "sudden infant death syndrome." Authors Geoffrey Marks and William K. Beatty note that telling evidence has been accumulated implicating a deficiency of selenium or Vitamin E in this syndrome. Human milk contains up to *six times* as much selenium and twice as much Vitamin E as does cow's milk, which contains even less when diluted for infant feeding. Marks and Beatty caution that this cannot be remedied by supplementation, because the tiny tract amounts of selenium required (or safe) leave no room for experimentation. (*The Precious Metals of Medicine*, Charles Scribner's Sons, New York, 1975)

In 1979, the nutrition committees of the American Academy of Pediatrics and the Canadian Pediatric Society issued a joint report, strongly favoring breastfeeding. They said that there are some things in Nature that simply cannot be duplicated, and gave the following reasons:

1. The fats obtained from human milk are more easily absorbed by the human infant than those found in cow's milk.
2. The cholesterol in mother's milk serves a valuable purpose in the development of the infant.
3. The protein in mother's milk is a near-perfect source for infants—much better than cow's milk.
4. Infants are able to absorb about 50% more iron from mother's milk than from cow's milk. Infants on cow's milk for extended periods are at risk for iron deficiency, whereas full-term breast-fed infants receive sufficient iron from mother's milk until their birth weight has tripled.
5. Mother's milk also provides important protective factors not available from any formula. Two substances, lactoferrin and transferrin, prevent potentially harmful bacteria from growing in the intestinal tract. In addition, the infant is provided with important immunities by a fluid (colostrom) secreted by the breast during the first few days following birth. Finally, breast milk contains lysozymes, enzymes that attack and break down harmful bacteria, as well as a substance known as the "bifidus factor," which promotes the growth of protective bacteria in the infant's body.

Pertinent to the subject of errors and abuses in the feeding of infants is an article by Rep. Morgan F. Murphy (D-III.) "Formulas Harm Third World Infants," (*Clearwater Sun*, p. 9A, 10/2/79): "About two million babies in the world's developing nations are suffering from what pediatricians call 'bottle baby disease.' It's largely the result of an aggressive marketing campaign waged by infant formula manufacturers who want to increase sales in Third World countries.

"As a result, many mothers have needlessly given up breastfeeding to feed their babies an infant formula that is often diluted or contaminated, causing malnutrition, intestinal infection, pneumonia, dehydration —and sometimes death."

The article explains that, since birth rates in the Western World have been declining, the manufacturers decided to expand into new markets. Drug companies, eager to increase profits through diversification, have acquired infant-formula companies. The companies found they could take advantage of increases in population in developing nations.

They promote their product through radio, newspapers, magazine and billboard advertisements, distribution of free samples, and offering gifts or money to health professionals to induce them to promote infant formula. These Third World countries now spend more than six hundred million dollars a year on infant formula, about twice what the U.S. spends.

This has produced serious problems. The formula is very costly for those with low incomes, causing mothers to dilute the formula to make it last longer. Result: malnutrition. Because of lack of refrigeration and other conveniences and knowledge, the formula often becomes contaminated and the child gets sick or dies.

The aggressive and misleading promotion of the product causes many women to believe that breastfeeding is less than adequate. "Cruelly, in the time it takes to use up the free samples, a woman's secretion of milk may have become difficult or stopped altogether."

The article concludes: "The promotion of infant formula raises doubts in nursing mothers, whose anxiety then inhibits the flow of their milk. In point of fact, as noted by the organization Clergy and Laity Concerned, a mother's milk is free, always available, sterile, the right temperature and contains all the nutrition a child needs in the first four to six months of life."

4.3 Modern Methods of Milk Production

Present-day methods of producing milk involve the threat of milk from unhealthy animals, poor sanitation, poor methods of pasteurizing and handling bulk supplies, and drugs, including hormones and antibiotics, in practically all dairy products.

A cow normally would secrete enough milk to nurse her calf, about two hundred pounds of milk a year. Today she is allowed to nurse her calf for only three days, and has been developed into a milk machine, becoming pregnant often enough (a calf every year) to continue the secretion of milk, and fed and maintained for maximum milk production—up to 15,000 pounds of milk per year.

An Associated Press Report (printed in A.C. Press January 1, 1978) cites an article in the farm magazine, *Wallace's Farmer*, to the effect that dairy cows are now becoming "flabby, heart-disease prone" due to the unnatural living conditions on dairy farms; "confined to inactive lives of eating, drinking, resting, being milked, and producing one calf a year."

Researchers of the United States Dairy Association have come up with a "jogging program" consisting of a mechanical exerciser that keeps the animals walking at a controlled pace, while moving tailgates push the cows around a fenced ring. Some of the cows cooperate, some don't. (Ahimsa, Oct/Dec. 1977)

I am not sure whether the predominating factor in the preceding paragraph is its "humor," its pathos, or its asininity. Would it be too simple to just turn the cows out to pasture, letting them walk back and forth from the barn to the pasture, and letting them walk, run, jog, play, or just be— and relieve them of at least part of their confinement and *slavery*—and improve their health, in the process?

Overfeeding of cows on rich fare to constantly produce unnaturally large quantities of milk, forced long periods of milking, and the other circumstances of their slavery, are a drain on the organism. The cows become weakened and diseased, and they are then given massive doses of antibiotics, some of which can be found in the milk.

Dr. Alec Burton (Dr. Shelton's Hygienic Review, July 1974, p. 253) says that milk has become more of an excretion of the cow than a secretion, that many drugs, including antibiotics, are present in the milk, and that practically all milk today contains traces of penicillin.

Milk also contains concentrations of pollutants from the environment, such as DDT and radioactive Strontium 90.

"University of Wisconsin researchers Philip Bushnell and Hector De Luca have found that the lactose in milk facilitates the absorption of lead, which is, of course, toxic. Increased lactose consumption led to increased lead absorption and more lead in tissues studied." (*Vegetarian Living*, published by The Vegetarian Association of America)

Vegetarian Living also notes, "Researchers at the Wellcome Research Laboratories in Research Triangle

Park, North Carolina, have found two to five hundred nanograms of morphine in milk they tested. Pedro Cuatrecasas and Eli Hazum made the findings, based on immunological, pharmacological, biological and chemical test series."

4.4 Pasteurized Milk

Whatever virtues raw milk may possess are seriously damaged by pasteurization. Heating the milk makes it even more difficult to digest and causes chemical and physical changes that destroy much of whatever nutritional value would have been available in the raw milk. The casein is coagulated and toughened, the vitamin and mineral components are spoiled and made unavailable to the body, and the lactic acid bacilli (beneficial intestinal flora) are destroyed.

In addition to pasteurization, milk is subjected to other processes, all of which impair its value; It is homogenized (so that the cream cannot be separated from the milk), sterilized and otherwise treated to render it "safe." Even though it is illegal, milk is regularly adulterated, and the adulteration is never put on the label. This is a violation of the Pure Food and Drug Act, but the dairy industry remains free of persecution. (Dr. Shelton, *Volume II, The Hygienic System*, p. 174)

Dr. Shelton says, "One of the most common adulterations put into milk are the so-called 'alkalinizers.' These are used most during the summer months to mask the taste of the milk produced by the growth of the bacilli in it. This enables the milk industry to sell old milk as 'fresh milk'."

4.5 Raw Milk From Healthy Cows (?)

Unpasteurized milk is illegal in most states. Certified raw milk is available in some states. Dr. Shelton says (*Volume II*, p. 174), "Certified milk, produced by cows kept in sunless barns and fed on dry goods, is an especially inadequate food."

Raw milk from Farmer Brown's cow, Betsy, who grazes on an unsprayed pasture, and where immaculate standards of cleanliness are maintained, is probably the best obtainable.

But many people (children and adults) experience quick reactions when *any* milk is consumed. Excess secretion of mucus is quickly initiated, causing frequent colds, tonsillitis, bronchitis and asthma. Milk has also been a factor in the development of coronary artery disease. These and other problems (such as constipation, diarrhea, tetany) are inherent in the liberal use of the milk itself (even raw milk) and many people who use only small amounts of milk still suffer respiratory and other problems, which often, miraculously disappear when milk is eliminate in the diet.

Many people lack the enzymes lactase and rennin, necessary for the digestion of milk. Some adults who have used milk regularly all their lives may still be able to secrete these enzymes to some extent, and demonstrate no overt reactions when they drink milk (which does not, per se, prove that the milk is an optimal food for that person).

Lactose (milk sugar) comprises about 40% of the calories in breast milk, and about 30% in cow's milk. Lactase catalyzes the conversion of lactose, a complex carbohydrate, into the simple sugars, glucose and galactose, which can then be utilized by the body. Humans who are deficient in this enzyme have difficulty in utilizing dairy products, especially milk. They may suffer pain, nausea, vomiting, diarrhea and other problems.

This deficiency is very common in Japanese and Chinese people, and also exists in many blacks. Many children of all races have this deficiency, and handle milk poorly.

E.L. Cole, Jr., M.D. (*St. Petersburg Independent*, May 20, 1974) said, "Since so many children are allergic to milk, and because of the fact that 10% of the white population and 40% of the black population have a lactase deficiency, this raises the question of whether or not it should be eliminated from the school lunch program."

Neil Solomon, M.D., in a more recent article (*Clearwater Sun*, June 25, 1981) said that "from 60% to 90% of black adults and members of other ethnic groups are lactose intolerant, compared with 5% to 15% of white adults." He said that there are relative degrees of lactase deficiency, and the majority of persons are able to tolerate some small amounts of milk without becoming ill.

Rennin is a milk-coagulating (curding) enzyme which is secreted by glands in the stomach, and it is important in the digestive processes of infants because it prevents the too-rapid passage of milk from the stomach.

Rennin tends to diminish at about two years of age, when the baby has a mouth full of teeth, and when the salivary glands of the mouth begin the secretion of the enzyme ptyalin (alpha amylase) which is necessary for starch digestion. Intestinal starch-digesting enzymes also begin secretion at this time. These phenomena appear to signal the time for weaning and feeding solid foods. Rennin usually continues to be secreted in decreasing amounts for the next three or four years, for a transition period from the milk of infancy to solid food.

Dr. Shelton (Dr. Shelton's Hygienic Review, August 1969, p. 275) says, "Even in early childhood, when there is still a supply of rennin in the stomach, taking flesh, eggs or other protein at the same meal with milk will tend to result in the secretion of a highly acid gastric juice that will destroy or inactivate the rennin and interfere with or retard milk digestion; hence the wisdom of our rule: *Take milk alone or let it alone*."

People who lack rennin or lactase may be able to tolerate dairy products which have already been clabbered or coagulated—such as clabber, yogurt, buttermilk or cheese— but have problems when they try to drink milk. Dr. Shelton says that Berg and others have noted that adult organisms handle sour milk more efficiently, the characteristics of the milk having been greatly altered by the ferment of the bacteria. (Dr. Shelton's *Hygienic Review*, August 1969, p. 276)

The thymus gland, which also has a function involved in the digestion of dairy products, reaches its maximum development during early childhood, and usually degenerates and becomes vestigial in adults.

The protein and fat of cow's milk is so constituted that the enzymes of the human digestive tract fail to digest it completely, so that some of the elements are absorbed intact and cause trouble. (Dr. Burton, Dr. Shelton's *Hygienic Review*, July 1974, p. 253)

Sylvester Graham, early pioneer in Natural Hygiene, found that physical workers of various kinds— farmers, mechanics, etc., were more vigorous and active and had more endurance if they ate only plant foods and used no milk.

"In the earlier editions of his 'The Newer Knowledge of Nutrition,' before he became a highly paid consultant on nutrition to the National Dairy Products Co., Professor E. V. McCollum stressed the fact that milk is not an essential in the diet of man. He pointed out that the inhabitants of southern Asia have no herds and do not drink milk. Their diet is made up of rice, soy beans, sweet potatoes, bamboo sprouts, and other vegetables. According to Professor McCollum, these people are exceptional for the development of their physique and endurance, while their capacity for work is also exceptional. They escape skeletal defects in childhood and have the finest teeth of any people in the world. This is a sharp and favorable contrast with milk-drinking peoples. The professor found it expedient to delete these facts from all editions of his work published subsequent to his becoming consultant to National Dairy." (Dr. Shelton, *Volume II*, p. 172)

The claim that milk is a protective food and that it will help bone development and prevent tooth decay has been demonstrated to be a fallacy. We are told that milk is a major source of calcium and if we don't drink milk, our teeth will fall out and our bones collapse, and most people buy these ideas, hook, line and sinker.

4.6 The Truth About Calcium

"The calcium in cow's milk is of too crude a nature to be easily assimilated by the more delicate, subtle human organism. Frequently, the coarser calcium attracts and absorbs the finer calcium in the human cells, robbing them of what little they had." (Ian Rose, *Faith, Love and Seaweed*, quoted in "Feeding Vegan Babies," Freya Dinshah, Ahimsa, Nov.-Dec. 1974)

This may be one explanation for the fact that tetany (muscle cramps) frequently follows the ingestion of milk. Some years ago, I drank three glasses of "good, raw milk" in one day, and experienced horrible muscle cramps in my hands, feet and legs.

My sister was a milk drinker, drinking several glasses a day all through her life, yet she lost all her teeth when she was in her early fifties. Although she drank pasteurized milk, this result was inherent in the milk itself (even raw), since the coarser calcium of the cow's milk robs body calcium.

Calcium is abundant in plant foods and a good Hygienic diet provides many times the required amount of calcium, in better form, and more readily utilized by the human organism.

The late Henry C. Sherman, Ph.D., Sc.D., formerly professor of Chemistry, Columbia University (*Essentials of Nutrition*), said that the dark green leaves are a prime source of calcium, *well utilized in nutrition*.

"Calcium is not Cowcium," says Vegetarian Living (published by the Vegetarian Association of America). There are many nonanimal foods in common use among Hygienists, each of which is as rich in calcium as cow's milk, if not richer. Some of these are sunflower seeds, dried figs, pistachio nuts, Brazil nuts, filberts, almonds, kale and other greens; and the calcium in these plant foods is readily available to the human organism, without stress and threat.

Natural sunlight (Vitamin D) is vital to calcium absorption. Foods high in oxalic acid (such as spinach, chard, beet greens, chocolate, coffee) interfere with the absorption of calcium. Wheat bran (a fragmented food) inhibits the absorption of calcium. Such unnaturally large amounts of fiber can impair the body's ability to absorb calcium and other important minerals. Natural sources of fiber (with few exceptions, some of which have already been mentioned in earlier lessons) don't interfere with the assimilation of calcium and other nutrients. (Harland, Barbara and Hecht, Annabel, "Grandma Called It' Roughage"—FDA Consumers Publication 78-2087, U.S. Department of Health, Education and Welfare, July/August 1977)

Be sure to note and differentiate among the various dark green leaves. Dark, leafy green vegetables contain considerable amounts of calcium, but they also contain varying amounts of oxalic acid. During food digestion, oxalic acid combines with calcium and forms an insoluble compound, calcium oxalate, so that the calcium *passes out of the body without being absorbed*. Those greens which contain large amounts of oxalic acid are therefore poor sources of calcium, since most or all of their calcium is lost to the body. They may even rob the body stores of calcium obtained from other foods. The "good guys" are romaine, buttercrunch and leaf lettuce; kale, broccoli, Brussels sprouts, cabbage and collard. These vegetables contain significant amounts of calcium and negligible amounts of oxalic acid. In kale, broccoli and collard, calcium exceeds oxalic acid by a ratio of forty-two to one. Beet greens, spinach and Swiss chard have up to eight times as much oxalic acid as calcium. (*Prevention*, June 1980, p. 40)

It is worthwhile to take the time and effort to understand the importance of calcium, and its sources. Calcium is needed for proper bone and cartilage formation, for proper blood clotting, for muscle functioning, for hormone activation, for tissue formation. Calcium influences capillary permeability.

Calcium deficiency can cause headaches, heart palpitation, listlessness, sleeplessness, and affects nerve function and thought processes. Adequate calcium supplies can help to keep cholesterol levels in the normal range. Calcium activates numerous enzyme systems and normalizes the contraction and relaxation of the heart. It is essential in the maintenance of the delicate acid-alkaline balance.

During the years of growth, 99% of the available calcium is utilized in the formation of bones and teeth.

Subsequently, extra supplies of calcium and other minerals are stored in the bones and drawn upon in emergencies for balancing the body chemistry. A small percentage of the body's calcium is found in body fluids and tissues.

June M. Wiles, whose research on this subject is summarized in her excellent article, "Good Nutrition," (*Independent Press*, September 10, 1975) says, "It is unfortunate that a majority of our medical practitioners, when seeing "too much" calcium in blood studies will take the patient off calcium instead of seeking to find why an excess is present. There is hardly such a thing as "too much," especially the way we Americans eat."

She says that it is probable that a *deficiency* of calcium may exist, because the body is incapable of retaining it. We must understand that other nutrients influence the absorption, utilization and stability of calcium. Calcium will be rejected by the body if Vitamins A, D, C, magnesium, phosphorus and dietary protein are absent or deficient.

Ms. Wiles says, "If more physicians would check first for these deficiencies before withdrawing calcium, I dare say the rate of individual recovery would increase 100%."

A January 1981 Prevention article (p. 65) gives an interesting table of the nutritional value of four types of lettuce:

(100 grams or one serving)	Vit. A. (IU)	Vit.C (mg.)	Calcium (mg.)	Iron (mg.)
Butterhead lettuce (Boston, Bibb)	970	8	35	2.0
Romaine lettuce	1,900	18	68	1.4
Crisphead lettuce (Iceberg head lettuce)	330	6	20	0.5
Loose-leaf lettuce	1,900	68	18	1.4

They are nearly equal in other vitamins, minerals, protein and carbohydrates.

"Peas and mung beans contain calmodulin, a protein which works with calcium in such vital processes as activating enzymes in the red blood cells, skeletal muscles and the brain, as well as controlling muscle and nerve action, blood clotting, cell mortifying and cell membrane functions." (*Vegetarian Living*)

As we have so often emphasized, those who utilize an intelligently planned Hygienic diet, consisting mostly of whole, raw foods, need have no concern about deficiencies of any nutritional elements.

4.7 Don't Drink Milk

Carrington says, (*The Natural Food of Man*, p. 170), "Even if an animal is perfectly healthy, the milk partakes of the nature and general character and composition of the animal's body," and while this may not be actually diseased, it is doubtless in a more or less depraved condition—as are practically all domesticated animals, particularly the cow—during the confined period of winter. And the milk, being a secretion, naturally takes on the conditions of the body of the animal—as would any other secretion.

Carrington says, "Indeed, Professor L.B. Arnold, an excellent authority on all dairy matters, says, 'Milk is the scavenger of the cow's body.'"

Cow's milk is usually used by adults as a beverage—it is not a beverage, but a food. In its raw state, unpolluted and unprocessed, it is an excellent food for calves.

It is emphatically not recommended for human consumption, especially adult humans.

4.8 A New Use For Milk

David Reuben, M.D. (*Everything You Always Wanted To Know About Nutrition*, pp. 161-162) says: "Someone in Washington, D.C., once got the bright idea that black African tribesmen would eat better if we sent them some of our powdered skim milk. The Africans gratefully accepted the wonderful powdered skim milk from their American benefactors—they accepted tons of it, in fact. They mixed it with water and tried to drink it. They got sick. They tried to drink it again. They got sicker. They stopped drinking it.

"But they were poor people, accustomed to making the best of a hard existence. The powdered skim milk....did not go to waste....That particular tribe has the whitest mud huts of any tribe anywhere. Each day little black boys dip their brushes in fabulously expensive high-protein skim milk and carefully whitewash the brown mud walls of the family dwelling."

Vegetarian Living says, "Humans who have not had milk as part of their hereditary diets do not have this inherited ability to deal with such an unnatural diet, and are lactose-intolerant. Most blacks, Jews, Southern Europeans and Orientals, as well as many Latin-Americans, are lactose-intolerant. Powdered milk sent as food aid to Latin America ended up being used to whitewash the houses there."

4.9 Cream and Butter

Cream is essentially an animal fat, containing very little of the protein and other elements of milk. If consumed in large quantities, it would, in some respects, be even more injurious than milk. But, taken in very limited quantities, as it usually is, it is probably much less harmful than fats from the bodies of slaughtered animals. It is, of course, subject to most of the same objections as milk.

Butter is also an animal fat which is to be preferred to fats from the bodies of animals. Consumed in limited quantities, it is generally not extremely harmful. Again, it is subject to many of the same objections as milk.

Some Hygienists who are not on totally raw food diets use limited amounts of unsalted butter—and a few may also use some cream. Both cream and butter are burdensome to the digestion, and cause an excess secretion of mucus. Use should be sparing—*or nil*.

4.10 Clabber, Kefir, Buttermilk, Sour Cream, Cheese

These are subject to many of the objections given for milk. As previously indicated, some adults are better able to tolerate "sour milk" which has been coagulated or acted upon by the ferment of bacteria. The question is: Should these fermented foods be used, or should they be considered "spoiled" or "rotten" milk? And is there a difference between naturally soured milk and milk soured by the introduction of a culture?

Raw milk contains natural lactic acid bacteria which, if left alone at room temperature, will grow and sour the milk. It is not always successful, however, since fluctuating temperatures may prevent proper clabbering (resulting in an odoriferous, unpleasant product). Most homemade clabber is made by introducing a culture, and commercial products such as sour cream, buttermilk and cheese are, of course, cultured.

Kefir is a slightly effervescent acidulous beverage of low alcoholic content made chiefly in southern Russia of cow's milk that is fermented by means of kefir grains. A kefir grain is a small mass resembling a tiny cauliflower, occurring in kefir, containing casein and other milk solids, I together with the yeasts and lactobacilli that cause the characteristic kefir fermentation, and serving as a starter to induce this fermentation when introduced into fresh milk.

Kefir may be said to resemble clabber or yogurt. It is a dairy product, and subject to the same objections as all dairy products, except that it, like other clabbered products, may be better tolerated by adults than milk. It is also subject to the same objections as all fermented products.

Years ago, a friend gave me a kefir starter, and I made it a number of times. I found it somewhat unsatisfactory, since the grains must be lifted from the sour milk and saved for the next batch. The process of removing the grains broke up the custardy consistency into a messy, unappetizing product.

We also did not care much for the taste. I was rather relieved when the starter was lost when we moved to Florida.

When we ate some meals at Dr. Esser's fasting retreat in 1967, he served clabber, sour cream, butter and cheese (sparingly). The clabber was homemade, using commercial sour cream as a starter; the butter was unsalted; and the cheese was an excellent-tasting ricotta. I don't know what their practice is now. I have heard Dr. Esser say, at American Natural Hygiene Society Conventions, that he considers cheese to be a useful supplementary source of protein.

Some Hygienists are convinced that limited amounts of cheese should not be ruled out as a supplementary source of protein (where needed or desired); cheese and butter are usually included in the food items available at the American Natural Hygiene Society Conventions, for those who desire these foods.

It is usually recommended that cheese (if used) should be one of the following:

First Choice: Homemade cottage cheese, unsalted, made from unpasteurized milk.

Second Choice: Unsalted cheese, available in health food stores, made from unpasteurized milk, using vegetable rennet.

Third Choice: Ricotta cheese or cottage cheese marked 100% natural and containing no preservatives (we hope it's true), available in many supermarkets.

Fourth Choice: Unprocessed cheddar or other mild cheeses marked 100% natural, or with labels which do not list any additives (although that does not always guarantee it is free of additives). Read the labels.

The last two groups would presumably all be made of pasteurized milk, and would also contain some salt. Occasionally, unsalted cheeses are available in supermarkets.

4.11 Rennet

This substance, from the stomach of a newborn calf, is used in the processing of most commercial cheese. Sometimes rennet is obtained from the stomach of other newborn animals (e.g. hogs).

Some companies produce rennet less cheeses, which are made with vegetable coagulants. These cheeses are usually available in health food stores. Not all varieties of cheese can be produced with the vegetable coagulants. It is my understanding that it is not possible to produce the large holes in Swiss cheese unless the animal rennet is used.

4.12 Yogurt

I did not include yogurt with the other fermented dairy products because of some special comments that are pertinent to it alone. It is, obviously, also subject to the same objections given for other dairy products (unfermented and fermented), with the same stipulation that adults are better able to tolerate products which have already been coagulated.

Lactobacillus acidophilus bacteria, lactobacillus bifidus bacteria, and coli bacteria are normally present in the digestive tract of humans. They are sometimes called "friendly" or "beneficial" intestinal flora, and are necessary for human symbiosis and the proper absorption and utilization of foods. These natural intestinal flora can be adversely affected (or destroyed) by taking antibiotics.

There has been some evidence that using yogurt cultures for prolonged periods can also adversely affect the natural intestinal flora, or impair the body's own ability to foster the development of such natural friendly bacteria. One research team at Johns Hopkins Hospital even discovered a relationship to cataracts.

Nutrition researcher Gordon F. Fraser, B.Sc. ("The Yogurt Scare Is For Real," *Let's Live Magazine*, August 1970) says, "Most commercial yogurts contain harmful bacteria, of other than human origin, called bulgaricus bacillus; these die out in the human intestinal tract, and do a great deal of harm to the system before dying."

He says that this culture dominates and destroys the beneficial, necessary intestinal flora which help to utilize food particles, keep down pathogenic germs, stimulate peristalsis, detoxify and create a soft, smooth stool. Their main function is to aid in the nourishment of the cells and speed up the utilization of food.

Fraser maintains that negative reactions do not occur if the correct culture is used, provided it is not perverted in some way—by mixing with other cultures, or by the use of artificial additives, flavors, chemicals, etc. He says, "There is available in health food stores the correct and helpful bulgaricus culture which has not been altered by such conditions." It is a liquid containing a natural live culture of lactobacillus acidophilus, the correct lactobacillus bulgaricus, lactobacillus caucasius, lactic acid and yeast in milk whey, all of which help to maintain a healthy intestinal flora. He says that California's Aha Dena Certified Dairy and Walker-Gordon Certified Dairy in the Eastern United States use this product.

Does all this sound confusing to you? It certainly should make one uneasy about the regular use of any yogurt. Why risk inhibiting or impairing your natural intestinal flora? Why not, instead, stick to the Hygienic diet of all raw, or mostly raw, foods and have faith in your body's own ability to develop and foster its own beneficial intestinal flora?

4.13 Whey

Whey is the serum, or watery part, of milk (containing lactose, minerals and lactalbumin) which is separated from the thicker, or more coagulable, part (curd), especially in the process of making cheese.

The late J.I. Rodale (*Prevention* Magazine) repeatedly maintained that, while dairy products were harmful and "allergenic," the whey has none of the harmful properties, while retaining the "beneficial" characteristics of contributing to the body's beneficial intestinal flora. He therefore promoted and endorsed the use of whey tablets as a food supplement.

I tasted the whey which drips out of the clabber in making homemade cottage cheese, and did not find it to my liking. Whey is still subject to many of the objections against other dairy products. In addition, it is fragmented, and used to supply the body the beneficial intestinal flora which a healthy body should synthesize from a normal diet predominating in raw foods.

The regular use of whey as a food supplement may thus serve to inhibit the body's natural ability to provide these flora by making it unnecessary for the organism to function in this manner. Whey supplements are no more necessary than other supplements.

4.14 Ice Cream

This is the difficult one for many people. Should one take the Alcoholics Anonymous pledge of "not even once" or cater to our human frailty by occasionally indulging in homemade or so-called "natural" products? The best choice, obviously, is to divorce yourself completely from this temptress.

Regular commercial ice cream, with its twenty to thirty additives, is a particularly pernicious product. Some of the so-called "natural" ice creams may not be quite as bad, but, upon reading the labels, I found only one supermarket brand that contains no additives (except sugar and sometimes salt). At least the law now requires listing these additives on the ice cream package—until recently it was not required.

Since the new law was passed, Farm Stores has discontinued advertising "natural" icecream.

Breyer's is the only supermarket ice cream I have found that actually contains no "additives" for most flavors (except sugar and salt). Their Buttered Almond Ice Cream actually contains only milk, cream, sugar, almonds, butter and salt. I believe I have seen some of their flavors that do not even contain butter or salt—just milk, cream, sugar and natural vanilla, fruit or nuts.

However, from the Hygienic point of view, the sugar is about as bad (or perhaps almost as bad) as the chemical emulsifiers and preservatives. And the milk and cream are subject to the same objections as for all dairy products.

Homemade ice cream may be a little better, because you can choose your own ingredients, such as unpasteurized cream or milk, and dates for sweetening, or even "ice cream" made without dairy products. But it is still a concoction to be avoided. There are some recipes for ice cream in Lesson 27—some using dairy products—and some without the use of dairy products.

Banana "ice cream"—made by freezing bananas and putting them through a Champion juicer (using the homogenizing blank)—is the best "substitute" for ice cream—not as good as eating bananas in their natural state, but not really harmful. It is as thick and "creamy" as ice cream.

If banana "ice cream" (other fruits may also be used) temporarily satisfies your nostalgia or craving for ice cream, it serves a good purpose. Hopefully you will eventually progress to the total elimination of such compromises from your food program.

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5. Gelatin

Gelatin is made from the skin, tendons, ligaments and bones of animals. It is considered an animal protein food, except that it is deficient in one essential amino acid, tryptophane. It has sometimes been recommended to people with problem finger nails, who eventually find that it not only doesn't help their nails, it also causes other problems, due to an excess of an unnatural protein which is unbalanced and incomplete in an important and destructive way.

This product should never be used. If it is ever desired to produce a gelatinized dessert for a party, etc., vegetable gelatin (agar) may be used. Better yet, serve something other than a gelatin dessert.

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6. Fish Liver Oil And Other Animal Food Supplements

(e.g. Dessicated Liver, Bone Meal, Bone Marrow, etc.)

The lesson on food supplements should eloquently refute the case for these substances. The items referred to above should be rejected both as animal products and as "pills" that promise much benefit, but deliver much harm.

I am including in this lesson Dr. Shelton's grave warning against the use of cod liver oil. Most modern food supplements include halibut liver oil instead (which is no better). Dale Alexander (*Arthritis and Common Sense*) touts cod liver oil as a universal panacea. I well remember forcing this repulsive grease on my own child, in the firm belief that it was beneficial and necessary (long before I knew about Natural Hygiene).

Dr. Shelton (Volume II, p. 175) says that Agduhr and Malmberg both came to the conclusion that cod liver oil is harmful to the heart, and is often responsible for death in children. Agduhr tested the oil on rabbits and Malmberg used children for his tests.

"Agduhr, working with Dr. N. Stenstron, proved definitely by animal experimentation that cod liver oil produces pathological changes in the heart muscle. F. Hendricksen concludes, from his tests, that large doses may produce general cell degeneration throughout the body.

C.W. Herlitz, I. Jundell and F. Wahlgre, after conducting an extensive and elaborate series of experiments, showed that doses quite comparable with those given to children in ordinary practice, can produce considerable degeneration in the heart muscles. These men feel that the public should be warned of these dangers as well as of the dangers from radiated milk."

I am also including the following information relative to bone meal. "C.S.P.I., the Center for Science in the Public Interest, in their news letter, 'Environment and Behavior,' has warned consumers, especially children and pregnant women, to avoid bone meal supplements because of lead contamination. Lead ingestion by humans has been connected to kidney failure, anemia and nervous system disorders. Unborn and young children could suffer from mental and behavioral problems from even low lead absorption levels; higher levels would be worse." (*Vegetarian Living*)

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7. Lard

Lard is obtained by rendering the fatty tissue of the hog. It is difficult for me to discuss lard in a restrained manner, because I find it so disgusting. It is a product of the worst of the meat animals, and it is the worst of the cholesterol-abundant, saturated fats. Since it is an animal product, it is included in this discussion, though I can't believe any students of Natural Hygiene would ever consider its use. (Vegetarians who eat bean dishes in Mexican restaurants should be sure they weren't cooked in lard, since this is often the case).

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8. None Is Best

I hope that, as a result of this lesson, you will decide never to use animal foods in any form. If you should elect to occasionally use certain animal products which are somewhat less pernicious than flesh foods, be aware that less is better and none is best.

9. Substitutes For Substitutes

In the transition to a Hygienic diet, some people become concerned and disturbed about finding "substitutes" for animal foods—not realizing that the animal foods are the "substitutes"—a perversion of man's natural diet. It is not necessary to search for substitutes that look, smell or taste like the animal-source foods. In fact, you can get into worse trouble by preoccupation with such substitutes.

If you eat lettuce, tomatoes, celery, cucumbers—if you eat bananas, grapes, oranges, melons—if you eat sunflower seeds, pecans, almonds, walnuts—you know exactly what you're getting. These foods might not be organically grown, they might be sprayed, but they are in their natural form, they have not been adulterated, or robbed of their enzymes or nutritive value.

But if you eat manufactured foods, you really don't know what you're getting. All kinds of imitation foods are offered to the public—imitation cheese, non-dairy whipped topping, imitation eggs, imitation butter. If you don't want to be "ripped off," read the labels. Of course, much of the time the labels don't tell the whole story. Better yet, use foods that have not been changed, and therefore *need no labels*.

Beatrice Trum Hunter reports that meat substitutes labeled "textured vegetable protein" are manufactured through a textile-like process, spinning soy bean fibers that can be shaped into meatlike products. The drastic alkali treatment to which they are subjected reduces the protein value, and an amino acid derivative is formed which is toxic. Levels of sodium are very high, calcium and zinc are less available, and the iron is bound up in a form of low availability to the body. *The resultant product is much worse than meat*. (Beatrice Trum Hunter, "The Great Nutrition Robbery," National Health Federation Bulletin, August 1979)

If you want to use soy beans, use sprouted soy beans or Mung beans, or soak dried soy beans overnight and cook them. If you want to eat something that looks and tastes like meat, you'd almost be better off just eating meat itself, bad as it is, because the synthetic product is much worse. But the best plan would be to avoid the meat and the imitation meat products.

9.1 A "Synthetic"Calf

In 1965 the United States Department of Agriculture proudly announced a milestone: the birth of a calf from a cow reared on a totally synthetic diet—urea, corn starch, corn sugar, wood pulp, minerals and vitamins. The calf appeared normal at birth, and during the first fifteen days of its life it gained twenty-nine pounds. On the sixteenth day, it was found lying dead in its pen. An extensive postmortem examination failed to show the cause of death.

10. Reject Animal Products For Optimal Health

No animal products are necessary for optimal health. No imitations of animal products are necessary for optimal health. No deficiencies will be experienced on a Hygienic diet. There is a great danger of deficiencies in a diet predominating in animal foods and deficient in fresh fruits and vegetables. A horror story appeared in *Better Nutrition*, September 1977, about a woman who had six operations before it was discovered that all that was wrong was subclinical scurvy, due to a diet deficient in fresh fruits and vegetables.

Experience the delights of a plethora of varieties of fruits, and the delights of good health. The green leaves of Nature and the little sunflower seed kernels are treasure chests of nutrition.

A diet predominating in animal foods is admittedly poor in calcium unless milk and cheese are used. Yet the calcium of milk and cheese has been shown to be the frequent cause of *calcium depletion* instead of a source of supplying needed calcium to the body. (See previous quotation from Ian Rose, *Faith, Love and Seaweed*.) We have also learned from Professor of Chemistry Henry C. Sherman that the dark green leaves are an excellent source of calcium, *well utilized in nutrition*.

Dark green leaves, such as romaine, kale, etc. are almost incredibly rich in vitamins, minerals, enzymes and hormones, and they contain small amounts of easily-assimilated protein of high biological value. They are also rich in chlorophyll, which has a close molecular resemblance to hemoglobin, and is thus Nature's blood-building element for all plant-eaters, including humans.

And the sunflower seed! No food is complete in itself, but the sunflower seed comes very close. Refer to Lesson 24 for details about the bonanza of nutritional elements sunflower seeds provide, including calcium and quality protein.

Previous lessons have shown the tremendous variety of plant foods to choose from and enjoy. So why in the world do we need to eat animals or animal products, when Nature has provided so adequately for our needs?

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11. Some Plants Also Should Be Rejected

It must not be forgotten that not all products or derivations of the plant kingdom are recommended for use as food: (cranberries, chard, beet greens, spinach - see Lessons on oxalic acid); coffee, tea, chocolate, etc. hail from the plant kingdom too; as do oleomargarine and other hard vegetable fats, all of which are *emphatically* not recommended.

It should also be remembered that foods or plant products should not be used as medicines. Your health food store's shelves abound with such "Miraculous cures" as apricot kernels, ginseng, etc. See the article "Plant Products and Effects" in this lesson.

When you abandon animal products, also bear in mind that you must judiciously select your foods from the plant kingdom, rejecting those which contain toxic substances in nutritionally significant amounts, and rejecting the use of foods or plants for medicinal or "curative" purposes. As you have learned, there are no "cures."

The only source of healing is your own body, and the only way you can help is by providing ideal conditions for the implementation of its own self-healing power. Such conditions are optimum during a fast, and the healing effect is consolidated and multiplied when the fast is followed by Hygienic eating and living.

12. Be The Best You Can Be

As health improves, the desire for animal foods, or imitations of (or substitutes for) animal foods will fade. The more knowledge one acquires, the less difficult the transition, and the more certain the attainment of the ultimate goal—to be the best you can be—the healthiest, the happiest, a fine example of Hygienic living.

13. Questions & Answers

Why do some Hygienic professionals continue to utilize egg yolks and cheese?

> It is a question of accepting a compromise solution to a difficult problem. Dr. Vetrano says (Dr. Shelton's *Hygienic Review*, January 1975, p. 116), "Most individuals have a difficult time adjusting to eating only nuts for protein and take an insufficient amount of protein at first." She is, of course, referring to people who are endeavoring to adjust to the Hygienic food program. She suggests adding green vegetables to the diet, since they contain small amounts of protein of high biological value.
>
> Dr. Vetrano also says (Dr. Shelton's *Hygienic Review*, November 1974, p. 55), "The strict vegetarian diet is best for most people. There are occasional sick people with gastrointestinal problems who must temporarily be placed on milk (milk products—clabber or cheese), if they cannot take a fast of sufficient length for complete healing."
>
> When Hygienic professionals suggest the use of egg yolks or cheese, it is usually with the hope and intention of providing supplementary protein to those individuals who are not yet able to accept, digest or assimilate an adequate supply of protein from the plant kingdom.

Did the American Indians have a source of animal milk?

> No. Indian children were usually weaned at about four years of age, and never again had milk. Cows were introduced into New England in 1624, but were seldom used for their milk at that time. "Cows were seldom milked at this time, being raised principally for their hides, secondarily for meat, and only incidentally for milk." (*Social Forces in American History*, A.M. Simons), (quoted by Dr. Shelton, *Volume II*, p. 172)

What is the difference between Natural Hygiene and veganism?

> A strictly Natural Hygiene food program is a vegan diet—that is, foods from the plant kingdom only. However, in actual practice, it is my impression that those who are known as vegans usually use grains (including whole grain bread) to a greater extent than do Natural Hygienists, and use more cooked food.

Is there any Hygienic objection to the use of prepared soya milk fortified with Vitamin B-12?

> Prepared soya milk is a manufactured product, quite far removed from the soy bean as it grows. The Vitamin B-12 used in this product is "synthetic" and non-animal, though it is made by the same bacterial process as occurs in the bodies of humans and other total-vegetarian animals. If you have misgivings about having enough Vitamin B-12, the product mentioned would be less objectionable than the Vitamin B-12 from animal sources (liver extract).
>
> However, Dr. Vetrano firmly believes that it is not necessary to use such artificial methods. She has repeatedly seen Vitamin B-12 problems disappear due to fasting and a Hygienic program of living and eating.

What is the purpose of emulsifiers in foods? Food additives worry me, and I don't really understand most of them.

> To emulsify is to convert unmiscible substances into intimate mixtures (as oil and water). Emulsifiers, stabilizers and thickeners are the substances that make cream seem thick, keep the oil and vinegar in salad dressings from separating, and generally give a smooth, uniform texture to bread, bakery products, ice cream, puddings, shortenings. As Dr. Michael F. Jacobson points out in his book, *Eater's Digest*, some manufacturers use a recipe that automatically produces a food with satisfying texture and consistency. Other manufacturers of the same products rely on the above group of additives to cover up the fact that inferior ingredients or poor manufacturing practices make their product watery, lumpy or crystalline."
>
> Hygienists need not be concerned about additives if they use whole plant foods, mostly raw, and avoid packaged foods.
>
> *Eating May Be Dangerous to Your Health*, by Dr. Jacqueline Verrett and Jean Carper, gives details about various other additives in foods, and says that "there is overwhelming evidence that chemicals in foods can cause readily noticeable structural defects in the newborn, such twisted spines, shortened limbs, incomplete skulls, absence of eyes, cleft palates, web feet."

Article #1: Milk by Dr. Alec Burton

Hygienists have always adopted the position that milk is for infants, *mother's milk* that is, and that this is the normal practice among all mammals. During the initial phase of life it is the invariable practice of all mammalian species to take the milk of their mothers following which they are weaned, and spend the remainder of their life sustained by other foods. Man, on the contrary, teaches that milk is an ideal food, essentially cow's milk, and that after mother has performed her nursing, the cow should take over. In his feeding of infants, man has produced all types of formulae and means to usurp the natural habit of breast feeding. Even in his feeding of other mammals as pets man is wont to include milk in their diet.

Many women regard breast feeding as culturally regressive and primitive, something one should abandon as quickly as possible. They say it ruins their figure, that their breasts become atonic and pendulous. Such remarks are unfounded and other factors are responsible yet seldom are considered.

It is normal in nature for the mammal to breast feed into the post dentition period, that is well past the time the infant obtains a mouth full of teeth. Not just a few teeth but all teeth. Species of apes nurse for six or seven months although their first teeth have appeared at the end of three months. With mammals, there is a wide variation in the transition period, weaning taking place in many over a long period of time.

However, should milk constitute an integral part of the diet after weaning? Is milk a normal food for adults? The answer to both these questions is an unequivocal no!

Milk and milk products such as cheese and yogurt are viewed with suspicion by hygienists. Yogurt has possibly more to commend it than the other milk products and undoubtedly the changes wrought in the milk by the bacterial activity in producing the yogurt mitigate several of the unsatisfactory features of milk.

What are the unfavourable attributes of milk? Today milk is very much a processed product. It is pasteurized, homogenized, sterilized and otherwise treated to render it 'safe.' All these processes impair its value.

Historically it is revealed that the primitive animal of some time ago used to produce some 200 pounds of milk a year. The 'modern' cow may produce up to 15,000 pounds of milk a year, seventy five times as much. How has this influenced the quality? Milk has become more of an excretion of the cow than a secretion, and many drugs, including antibiotics are present; practically all milk today contains traces of penicillin.

There is also strong evidence to indicate that the adult gastric juice does not contain rennin, an enzyme which initiates the digestion of milk and which is abundant in the infant stomach. The protein and fat of milk is constituted in such a way that the enzymes of the human digestive tract fail to digest it adequately; some of the elements are absorbed intact and cause trouble. Milk also contains a high content of the chemical cholesterol and has been a factor in the development of coronary artery disease. Many people observe the quick action taken by the body when milk is consumed; much mucus is secreted or diseases associated with mucous membranes, asthma, sinusitis, bronchitis, etc. are aggravated. Milk is said to be a 'mucus forming' food and whilst I don't favour this description, I do suggest that its presence in the body may be the occasion for greater mucosal activity.

Milk is often considered a major source of the vital element Calcium: if we don't drink milk, our teeth will fall out and our bones collapse, or some such nonsense. Calcium is abundant in nature. Most of the foods, fruits, vegetables and nuts we recommend are excellent sources of calcium. It would have to be a very poor diet indeed that did not supply half a gram of calcium daily. A good hygienic diet would provide in excess of one gram.

Milk forms no part of the normal diet of man after the period of infancy and therefore our advice is—don't drink milk.

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Article #2: The Digestion Of Milk

The first step in the digestion of milk is that of coagulating or curding. Milk may be made to curdle by adding an acid to it, such as lemon juice or some other acid fruit juice or by the hydrochloric acid of the stomach. Normally, the coagulation of milk in the stomach of a young mammal is done by an enzyme secreted by glands in the stomach and known as *rennin*. This enzyme is especially abundant in the mucous lining of the stomach of young mammals and is extracted to be used in the manufacture of cheese.

The fifth edition of Harper's *Review of Physiological Chemistry* (p. 177, 1955) says of rennin: "This enzyme causes coagulation of milk, and is important in the digestive processes of infants because it prevents the rapid passage of milk from the stomach. In the presence of calcium rennin changes irreversibly the casein of milk to a paracasein which is then acted upon by pepsin. This enzyme is said to be absent from the stomach of adults."

Although, heretofore, it has been thought that the sole function of rennin is to coaugulate milk, it seems from Harper's statement that it may be a true digestive enzyme. It changes casein to paracasein so that pepsin can act upon it. Enzymes are specific in their action. Each enzyme acts upon a particular type of food and certain of these can act upon a starch or a protein only after other enzymes have first acted upon them and changed them from their original composition. Harper's statement seems to imply that pepsin acts upon paracasein rather than upon casein.

If this is the true relation of pepsin to the digestion of casein it means that rennin is essential to the efficient digestion of this protein. Rennin becomes of far greater importance in the digestion of milk than has heretofore been thought.

Rennin has been the subject of much controversy among physiologists. There was, first, the question: does rennin exist or does pepsin do the work ascribed to this enzyme? French and German investigators finally succeeded in establishing, to the satisfaction of everyone concerned, the existence of rennin as separate from pepsin. This did not end the controversy. While investigators now admit that rennin does, indeed, exist, many of them assert that it never exists in the human stomach, contending that it is found only in the fourth stomach of the calf.

In his *Advances in Enzymology* (London, 1954) Berridge defends the view that rennin is never found in the human stomach. He says that "Experiment tends to confirm the absence of rennin from human gastric juice." On the other hand, Eusterman and Balfour, in *The Stomach and the Duodenum* (1936) state that, "according to a number of investigators, rennin tends to disappear from the adult stomach." This statement implies that somebody, somewhere, found rennin in the human stomach, while its disappearance from the adult stomach has led to the suggestion that Berridge, who makes no distinction between infants and adults, made all of his experiments on adults.

In the second edition of his *Textbook of Medical Physiology* "1961" Arthur C. Guyton, M.D., says "rennin is found in the gastric juice of babies in large quantities, but it is present only to a very slight extent if at all in the gastric juice of adults. Also casein seems to be digested by babies much more easily than it is by adults, presumably because of rennin activity in the baby's stomach."

In the 1950 edition of *The Physiological Basis of Medical Practice,* Best and Taylor say that the rennin content of adults is "low" and provide us with the following data: "Rennin is especially abundant in the gastric mucosa of young animals, while pepsin is present in minimal amounts...The optimum pH for the action of rennin is between 5 and 6.5, and it is quite inactive at the pH of the gastric contents of the normal adult. In the infant, however, the pH of the gastric contents (5-6.5) is around the optimum for the action of this enzyme.

This indicates that the digestive processes required for the digestion of milk are somewhat different from those required for other foods and especially for other proteins. It is essential that the milk be coagulated and that the casein be converted into paracasein. I have seen two patients on a milk diet in which the milk did not coagulate, but was rushed along the digestive track into the colon and expelled in an unchanged fluid state. A glass of milk would be taken and in less than five minutes it would pass from the colon. Perhaps, in the absence of coagulation, milk would never be digested, but would pass through the digestive track too rapidly for the digestive enzymes to do their work.

In large numbers of other cases I have seen very large stools pass that were composed of large, hard milk curds that were white, apparently having undergone no digestion. Coagulation alone is not sufficient to assure the digestion of milk. In a few of these cases, the curds have been so large and there have been so many of them that bowel impaction resulted. We frequently see white curds in the stools of infants, indicating that, although the milk coagulated, apparently in a normal manner, the curds were not digested. We assume in these cases that milk has been taken in excess of enzymic capacity.

As rennin is active in low acid medium and is inactivated by the normal gastric juice of the adult, and as it is concerned solely with the digestion of milk, it should come as no surprise to us to learn that it is not secreted by the adult stomach. In this connection it should be stressed that the acidity of the juice poured into the stomach is determined by the food eaten. Milk taken alone will occasion the flow of gastric juice that is low in acidity. Even in early childhood, when there is still a supply of rennin in the stomach, taking flesh, eggs or other protein at the same meal with milk will tend to result in the secretion of a highly acid gastric juice that will destroy or inactivate the rennin and interfere with or retard milk digestion, hence the wisdom of our rule: *take milk alone or let it alone*.

Rennin is apparently involved exclusively in the digestion of milk and tends to disappear from the gastric juice (is no longer secreted by the stomach) when the normal time to wean the child approaches. Some physiologists say that the concentration of rennin in the adult gastric juice is low; others say it isn't detectable. A two year old baby normally has a mouth full of teeth and can begin eating solid foods. At this age, also, the salivary glands begin the secretion of the enzyme ptyalin, which is necessary to starch digestion! Intestinal enzymes essential to starch digestion begin to be secreted at this time, also.

Thus, both the presence of adequate chewing apparatus and the secretion of digestive enzymes indicate that now is the time to begin the feeding of solid foods. In an article by a dentist, which appeared a few years ago, the author makes the statement that the baby should be weaned when the first two teeth are cut, as this signifies that solid foods are now to be taken. Of all persons a dentist should know that two teeth do not enable a baby to chew foods adequately. As these first two teeth are in the front (are biters and not chewers), the baby is certainly not physiologically or anatomically equipped for such chewing.

When the first teeth are through and the starch-splitting enzymes are being secreted, there starts a decline in the production of rennin; this is to say, its secretion begins to decline at the age of two. It continues to be secreted in decreasing amounts during the next three to four years, that is, during what I have called the *transition period* (see *Hygienic Care of Children*), in which the child is normally making the transition from the exclusive milk diet of infancy to the solid food diet of later life. During this *transition period* milk is normally taken. Should it surprise us to learn that when the child reaches the age at which it should normally be fully weaned its digestive glands cease to secrete the enzymes that are specially related to milk digestion?

One question comes to mind that I can find no data for an answer. It is this: Does the individual who continues to take milk regularly, from infancy into adulthood, continue to secrete rennin for a longer period of time than does the individual who is weaned at the normal weaning time of three to five years? This is to ask: Does the stomach continue to secrete rennin for an abnormally long period of time if the infant diet is persisted into late childhood and thereafter? Does the persistence of the need for rennin cause the body to continue to secrete it? If it does continue to secrete this digestive enzyme longer than normal, at what time of life does it disappear from the digestive juice of the stomach? If it continues to secrete rennin but in much decreased amounts, in those who continue to take milk, does this account for the fact that some physiologists find no trace of rennin in the subjects they use in their tests?

While the answer to this question (I have cut it up into several subordinate questions) may prove to be of no great practical value, it would prove interesting as well as instructive concerning the power of the body to adjust itself to varying circumstances of life, especially its power of the body to adapt its digestive juices and enzymes to the food eaten. Every such advance in knowledge of the chemistry of digestion provides us with added data to assist us in determining, not only the normal diet of man, but, also, and of equal importance, the normal mode of feeding.

Today's *nutritionists* wholly neglect all natural indications of the normal feeding of man. One food is as good as another and any food is equally as good at any time of life as at another, providing the commercial manipulators of our foodstuffs can prepare it in a manner that it is acceptable to all ages. For example, although we know that during the first period of life after birth, even the lion cub does not eat flesh, our *nutritionists* do not hesitate to advocate flesh food for the human infant at a period of its development when the young carnivores of all kinds are still drawing their nutriment from the maternal font. Arrogance and egotism cause them to assume that they can improve the normal order of feeding. The results of their efforts are not encouraging.

While considerable confusion exists about rennin, there is one thing about which there is general agreement: namely, *the adult human stomach has no rennin*. Berg and others have shown that the adult organism does not use milk as efficiently as the rapidly growing organism and that, milk is base-forming in the infant and acid-forming in the adult. Berg attributed this to the more rapidly growing organism. May it not be, in light of the foregoing that the greater efficiency of the young animal in assimilating milk rests upon the fact that the infant and young child digest milk better? This suggestion derives support from the fact noted by Berg and others, that, adult organisms handle *sour* milk more efficiently, the characteristics of the milk having been greatly altered by the ferment action of bacteria.

Every indication of nature is contrary to the present dogma of the dairy industry and the medical profession that we must take our quart of milk every day so long as we live; that, even at the age of a hundred, we are not to be weaned. *Nature indicates that we are to be weaned at an early age*. In medical circles the tendency of the pendulum, just at present, is to swing violently and far in the opposite direction. In increasing numbers, medical men are blaming milk for a growing number of illnesses in children and adults. From being the all-good milk is rapidly becoming the all-bad. Certainly the assumption that invalids and convalescents, who have weak digestive powers, should be fed milk like an infant, because in their enfeebled condition they can handle milk better than other foods, is no longer tenable.

The *Hygienist* will see in all these facts a justification of Graham's condemnation of the use of milk and milk products by the adult and his observation that the use of milk by the adult makes him logy and lazy. Trall also pointed out that milk is not a normal part of the adult diet. Those of us who have had an extensive experience with the milk diet, formerly so strenuously advocated as a near-panacea, will discover in the foregoing facts at least partial explanation of the many troubles that the milk diet produced. Polyuria, constipation, diarrhea, bowel impaction, nausea, much gas and discomfort, increased blood pressure, a water-logged state of the tissues (edema), catarrh, indigestion and other troubles arising out of "the harmless practice of overfeeding on milk," necessitated all manners of manipulations to make it acceptable to patients.

From Dr. Shelton 's Hygienic Review, pages 274-276, Aug. 1969.

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Article #3: Well, You Wanted To Know! by V.V. Vetrano, B.S., D.C.

I have noticed that honey is stimulating. After giving just a teaspoon to my baby, I noticed that she would not sleep the rest of the day.

> Your observations were correct. Honey is a stimulant. The excess of pure sugar and the formic acid it contains give honey its stimulating qualities.
>
> It is often used by athletes exactly for this purpose, although it is thought of as "quick energy," because the stimulating effect is not often understood.

Actually most people overeat for stimulating purposes, although they don't realize it. Any eating which is done in the absence of genuine hunger causes bodily activity which is not compensated for by an addition of nutriment, as most of it decomposes and poisons the body. There is a net energy loss which results in enervation.

Could you explain the value of honey mixed with lemon juice when fasting?

Those who fast with honey, lemon and water are not fasting. They are on a restricted diet and not a good one. If they abstain from all food except minute quantities of honey, lemon and water, thus lightening the burden of digestion, undoubtedly the body will benefit from the absence of heavy and indigestible foods. Most of the time the honey is taken in huge quantities, and these types of "fasts" are decidedly harmful. The persons on this diet are enabled to continue working, and therefore secure no rest. Very few benefits, if any, are the outcome.

The closer one comes to a genuine fast, with water only, the greater the results. Beneficial results are more frequent and more quickly achieved when truly fasting. There are no means known as excellent as the genuine fast for recovery of health.

One may hate the thought of fasting completely and try all sorts of trick diets or juice diets rather than enjoying a real fast. People lose a lot of weight with these eliminating diets, wasting their reserves, and actually putting themselves into conditions where they are unable to fast. Consequently, it may take them years to recover, whereas if they had not played around and if they had fasted immediately, they would have recovered in a short time.

Why is raw honey not good for you?

Honey has about the same composition of minerals as white sugar. It is almost as devitalizing as is white sugar. This is why the honey bee can live on white sugar but not on brown sugar. Brown sugar has more minerals and will clog up the delicate digestive system of the bee. Honey does not combine well with any food. If taken with fruits, which do not need it, it will cause fermentation. If taken with cereals, it does the same thing. Honey also causes decomposition of protein foods and ferments itself from having been held in the stomach as long as necessary for the completion of protein digestion. Honey also contains a preservative besides being an animal product. The bees add some of their own secretions to their honey, and in the process, they add a preservative which is toxic to man. Honey is an evaporated product and as such is not as nutritious as foods which have not been evaporated. Evaporated foods lose many minerals and vitamins during evaporation because these come in contact with the oxygen of the air and are rendered inorganic and non-usable to man. An occasional indulgence in honey will not be extremely detrimental to a person but to make a habit of eating honey daily will definitely rob the body of alkaline minerals and cause an excess of mucous.

Most people purchase light honeys and the mineral and vitamin content of these is extremely low. The darker honeys are more nutritious but less tasty. Another evil is that many honeys sold in the ordinary supermarket have been adulterated with corn syrup and white sugar. The clarifying process to make honey less cloudy removes up to 35 to 50 percent of the original vitamin content so the only "good" honey is the unclarified type sold in the hive. If you rely solely upon fresh fruits for your sugar, you are much better off.

Article #4: I Choose Survival

Viktoras Kulvinskas Own Case History From His Book "Survival Into The 21st Century" Pages 231, 234 and 235

While in college, I pushed myself to experience as much as possible. Born under the Piscean sky, of delicate constitution, this often proved disastrous. My living and eating habits were deadly.

By 1965, I knew all the nurses and doctors at the infirmary. They were very generous with tranquilizers, sleeping pills and pain relievers. These I added to fifteen cups of coffee and two packs of cigarettes per day, plenty of alcohol, chronic over-eating (by age 26 I was a chubby 190 pounds). In spite of many ailments, I always felt that one day I would be healthy.

A frightening experience shook me from this complacency. I was running up the stairs to a class on the fourth floor. Pain constricted my chest, but I made it to the office, poured a cup of black coffee and started to lecture.

My hands were shaking, perspiration poured from my face and armpits. I could not focus my thoughts. The pain in my heart was sharp. I did not think I would leave the room alive. By sheer force of will I managed to, finish the lecture.

Suddenly I knew what I must do without delay. I purchased some mild tea, fruits and vegetables. Then I drove to my log cabin, stopping to see my landlord. I told him that I was not well; that if I needed help, he would hear a continuous blast from a car horn which I would rig so it could be triggered from my bed. In that event, he should do whatever he thought necessary for me.

Walking up the two hundred foot incline to my cabin, I had to rest several times because of the sharp pain in my chest. My legs felt like lead. My varicose veins were screaming as if ready to burst.

I went to bed, but could not sleep. Since I was giving up coffee, cigarettes, alcohol, meat, milk and sleeping pills; I vaguely anticipated withdrawal symptoms. I lay clutching the car horn alarm for long distance companionship.

By 3 A.M., my nerves were on edge. I felt paralyzed inside my exhausted body. Headache, cramps and sweat came in waves. The palpitation of my heart increased. It started racing. I clocked it fearfully at 1:30, at which point I passed out.

I woke at 7 A.M., surprised and happy to be alive. I felt well enough to go back to school, but this was illusory; soon I felt exhausted. I went for a five-minute walk. All day, I wondered, what will the night be like? Will I survive it? Outside of knowing that drug withdrawal usually takes about three days, I had no knowledge of fasting, nor had I known anyone who had fasted.

For four days I experienced only minor discomfort, but the nights were sheer torture. However, as the days progressed, I began to feel more certain about my future. I increased the length of my daily walks and by the fifth day fell asleep at 11 p.m. from tiredness. By the seventh day I was running a few minutes and preparing the soil in the garden. I prayed, thankful to be alive to experience the simple delights of living.

During ensuing experimentation with diet, I discovered that my favorite food, milk (supposedly the perfect food) is a major source of colds and a factor in most respiratory disorders.

Pasteurized milk had been the staple in my diet in early childhood. For the first years of my life, doctors predicted my death as a matter of course. The milk diet (I know now) contributed to disorders of the respiratory and lymph system: tonsillitis, flu, pneumonia, diphtheria, colds, measles, mumps, bronchitis. On several occasions, I developed a high fever accompanied by large, running sores and boils (my body's attempt to cleanse itself). For two months I was semiconscious during a bout of typhoid fever.

Family love and strong will to live enabled me to survive.

Doctors continued to predict that I would never be healthy. They said my heart was permanently damaged by a triple dose of diphtheria toxoid given me by mistake. It would have killed a normal child, they said.

The poverty in post-war Germany made it difficult to obtain eggs, milk and meat. I spent much time barefoot in the woods gathering berries, mushrooms, nuts and wild fruit to contribute to our largely vegetarian diet. These simple foods restored my health.

During this detoxification period I had frequent colds and difficulty in eating. Once, within a 24 hour period, I developed a fever of 106 deg. F.; my skin became covered with sores. Because I fasted on liquids and rested, the condition disappeared within 3 days. *Much of the past dairy-induced mucus was eliminated though the skin in the form of boils which grew into the size of plums taking about 3 to 4 weeks, followed by opening and discharge of pus*. Within a period of a year I had 5 such events. This finished my basic body cleansing process.

Arriving in America at the age of ten, I embraced its luxuries: ice cream, milk, soda, white bread, hot dogs, candy, canned foods and processed bakery products. Within a year my skin became pimply, and I visited the dentist for the first time and developed severe colds. By the age of 16, I had varicose veins. At 19 I had a duodenal ulcer and tumors on my hand. I suffered migraine headache at least once a week. One of the outstanding characteristics of my diet was an excessive use of dairy products in the form of milk (up to three quarts a day), ice cream (on occasion I have eaten half a gallon), condensed milk, swiss cheese. I constantly spit sticky mucus.

Even after the healing crisis in my cabin, I continued this habit. Indigestion was sometimes so bad that I had to substitute lemonade for milk. In a few days my digestion would improve; then the desire to return to milk would become so strong I would repeat the pattern.

In the morning, after a few yoga postures, I would eat a breakfast of milk and cereal. Within minutes the great sense of well-being would vanish, replaced by a fuzzy head, runny nose and long congestion. Initially I supposed that I had not felt so well as I had thought. However, constant repetition convinced me that the culprit was *milk*.

I decided to resolve the problem. After three days of lemonade, I tried, on successive days, milk, yogurt, cottage cheese, dried milk, condensed milk. Every one of them induced the same reaction.

Though I was working very hard at this time as a computer programmer, my body was sick. I suffered from insomnia, migraine, stomach ulcer, varicose veins, indigestion.

It seemed time to retire (very appropriately, for at the age of 29 I showed all the signs of old age—my hair was graying and I was losing it quite rapidly).

The books of Ehret and Drs. Walker and Warmbrand gave me hope. I wrote to the authors and met some of them personally. Dr. Warmbrand put me on a vegetarian diet and made chiropractic adjustments. Immediately my digestion improved.

One doctor introduced me to Ann Wigmore. At the Mansion I became acquainted with grass juice and sprouts. The meal, served in famine proportions, looked wriggly; but it satisfied my appetite and agreed with my body. I read "Why Suffer." It opened visions of peace in the natural world and the power of the healing strength of grasses. I moved into the Mansion about one month later in May, 1968.

During the early stages of transition into vegetarianism, I had periodic bouts of cleansing reaction. Sweating was so profuse that I had to change my socks four times a day. On two occasions open sores discharged toxins stored for years. At times very irritable, I, found the best solution to be silence. Cramps were relieved by massage. Pain and headache responded to zone therapy.

With a cleansing diet my weight dropped, in a period of six months, from 160 to ninety-.five pounds. As my body started rebuilding I gained weight and now weigh 135 pounds.

Over the years, I have learned much about health and the needs of the body, but, like many busy people, I have neglected to pay enough attention to my bodily requirements.

One of the most important ingredients of health is adequate rest, which I have never obtained. Under city conditions, sunshine and pure air are not available. There never seems enough time for yoga, fasting, relaxation or meditation. My body has regenerated a good deal on the live food diet, in spite of these handicaps.

Now I have reached a time in life when the longing to be in the countryside is strong. Survival in the city is impossible. Next year, if the country is still intact, I plan to pursue the development of communities away from the city, in the north, the tropics and on islands, for surviving the crisis of this planet. We have little time left to prepare ourselves and our shelters.

However, survival into the 21st century is possible if we center our energies and apply the New Age teachings. This is the only task that has any meaning in our time.

Victor Kulvinskas

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Article #5: Excerpts from "Compassion: The Ultimate Ethic" by Victoria Moran

"The new ways are solidly established. About 95% of egg-laying hens, virtually all...turkeys and half or more of beef cattle, dairy cows and pigs are maintained in some type of factory system."

Although factory farming has increased animal suffering tremendously and therefore adds fuel to the ethical vegetarian cause, it must be remembered that vegetarianism existed prior to mass-meat innovations, and its adherents eschew not just "farmed" flesh foods but also those obtained by hunting or fishing.

Up to this point, ethical vegetarians and vegans are of one mind. The difference comes in the vegan's seeing the entire animal-food and products network as a single entity:

"True, cowhide is only a byproduct of hamburger, but if cows were killed for their skins, would their flesh be any more morally edible so long as you did not wear leather?

"And what about the veal floating invisibly inside every glass of milk...There can be no quart of milk where there is not cutlet of veal. If your lips are white with milk, it is because someone's else's are red with blood."

The vegan is acutely aware that when most people stop eating meat, they increase their egg and cheese consumption markedly, "which means that any relief of suffering for the animals exists more in hope than in fact." I am personally a prime example of this: it was after becoming a vegetarian, not as a meat-eater, that I could go into ecstasy over a cheddar omelet. I probably know every eatery in Chicago's western suburbs that serves fluffy omelets. I even devised a system for protecting myself from the flat variety: a restaurant with linen napkins is sure to make fluffy omelets; with paper napkins, you take your chances! In any case, I presumed, as do most of the city-bred, that the cheese for my omelet came indirectly from a creature endowed by Nature with extraordinary abilities for milk manufacturing. It never occurred to me that the cow, like any mammalian female, produces milk for her young and must therefore periodically give birth to keep in lactation.

I shared with other urbanites the naive notion that only "surplus" milk is taken, after calves have nursed; but today almost no dairy cow is permitted to suckle her calf more than THREE DAYS, if that long.

According to the 1965 report of the Brambell Committee, a British governmental commission which conducted extensive research into food-animal treatment in the British Isles, "Separating the calf from the mother shortly after birth undoubtedly inflicts anguish on both. Cattle are highly intelligent, and attachment between the call and the mother is particularly strong."

A calf may go almost immediately for slaughter as veal; and the rennet from the stomach of a newborn calf is used in the processing of most commercial cheeses, rendering the product unsuitable for even lacto-vegetarian use in the strictest sense. (Some companies do now produce rennet-less cheeses which are made with vegetable coagulants; they usually must be purchased at health food stores and are more expensive than the mass-marketed brands.)

Early slaughter may be considered a more fortunate fate than that of the calves who go to white-veal units, where their 14-week lives are spent confined in wooden crates or stalls 22 inches wide by 4-1/2 feet long.

They are fed a liquid diet deliberately deficient in iron and certain vitamins, to promote the desired (anemic) paleness of flesh. Lack of roughage induces them to nibble at their crates and hair; and no bedding is provided, lest they eat it. (In deference to non-vegetarians concerned about this situation, we may state that many have boycotted veal; vegans applaud their efforts as far as they go, but urge them to go further.)

A few males may be reared for breeding, and those females deemed suitable for raising for dairying are fed milk substitutes to encourage their precocious development so that at 18 to 24 months the continuous cycle of pregnancies may begin.

These animals also will, of course, eventually be destined for the slaughterer's; and it is curious to note that life in a beef herd is (comparatively speaking) usually much more enjoyable than that endured by dairy cows and their offspring. The calves of beef cattle are "allowed to suckle...and graze in the fields until the time comes for the fattening pens and the slaughterhouse, but the surplus calves from the DAIRY herds are often sent to market when a week old (or less) and bought for rearing in intensive beef units...encouraged to overeat and...kept closely confined so that the minimum proportion of the food is used up for their bodily functions."

The vegan does not see this state of affairs as inconsequential or even as simply "unfortunate but necessary in a les than perfect world." He regards egg production similarly. Probably no creature outside the vivisection laboratories is subject to a more pitiable life at the hands of modern man, than is the chicken. Those idyllic barnyard scenes with hens pecking outside a chicken coop and the rooster serving as a colorful alarm clock for anyone within earshot still exist in very limited number, but the eggs from those family farms don't put a dent in the number of eggs consumers demand. To meet this, severely intensive systems have been devised since cage laying and indoor confinement began their rapid spread.

Originally, one-bird per cage was the rule. When production increased slightly with two birds and no decline was noted with three, four were tried; and now five fully grown hens in a 20x24-inch cage is routine in a mid-sized hen battery like the one I visited near Yorkville, Illinois. The 300,000 leghorns of "White Hen Farms" produce an average of 100,000 dozen eggs each week for a supermarket chain. (1,200,000 eggs, or four per week per hen. -ed.)

The "house" I was allowed to tour is an older 2-deck system (that is, 2 cages high), although White Hen's more modern units are triple-tier, and some large batteries—boasting up to one million hens, sometimes packed as tightly as NINE to a standard cage—have hen tenements (henements?) 4 or 5 rows high.

White Hen manager Walt Schultz, a personable businessman, explained that "Higher densities are being researched—more layers per square foot of building...It's the only way to be competitive. We have to increase capacity to be more efficient." And efficient it is: that particular operation runs with 26 full-time and 18 part-time employees, only 8 of whom are actually involved in maintaining the (three hundred thousand) birds.

Chickens for such plants are obtained from primary breeders who cage-rear pullets to laying age. The males are spotted by "sexers" at hatching. "Usually they go into the discard box, where they are left to die. Sometimes they are returned to the incubator; the heavy door is closed, the fan is shut off, and they suffocate."

At twenty weeks, birds ready to lay are transported to the egg farm where they will spend nine months in production. Feed and water are mechanically conveyed in, and eggs and wastes are similarly carried out. "Stimulighting" from fluorescent bulbs overhead provides 17 hours of artificial daylight believed to stimulate laying.

Overcrowded conditions—with a squeeze of 4 hens into cages of 1 square foot, reported at the Hainsworth Farm in Mt. Morris, New York—mean that the birds can not spread their wings (even one at a time!) and can scarcely turn around. Wire flooring often injures their feet, and hens have even "grown fast to their cages."

Under such stresses, the instinctive social structure and "pecking order" cannot develop; the conditions instead lead to what the industry calls "vices," notably feather-pecking and cannibalism. The British found the aforementioned "stimulighting" to aggravate this, so there dimming of lights—"twilighting"—is preferred.

On both sides of the Atlantic, birds are de-beaked at one week and again at 3 to 5 months when the beak grows back. This, according to the zoologist, F.W. Rogers Bram-bell in the previously quoted Brambell Report, "deprives the bird of...its most versatile member...between the horn and the bone is a thin layer of highly sensitive soft tissue, resembling the 'quick' of the human nail. The hot knife used in debeaking cut's through this complex of horn; bone and sensitive tissue, causing severe pain."

Every instinct—walking about, scratching the earth, dust-bathing, nest-building, mating, being part of a flock, experiencing the outdoors—is thwarted, and it all ends with the slaughterhouse and the soup can. ("Broilers" are not as yet raised this intensively on a large scale because the resultant sores and abscesses would diminish their market value.) Ironically, there are laws in both the United States and Great Britain stating that caged birds and animals be given adequate space for basic functions; in both nations' statutes, however, the loophole exists excluding those kept for FOOD from "equal rights under the law." (In other words, it is for songbirds, pets, those creatures who may normally be expected to elicit some feeling of kindness and sentiment in their owners anyway; it specifically excludes the very ones most in need of succor and most likely to be mistreated for profit. - ed.)

If "free-range" eggs were widely available (and reliably identifiable) at realistic prices, would those who are currently vegan use them? Some might (although they would then no longer be vegans) but most would still avoid them for the reasons early vegans did. To eat a fertilized egg is in effect to consume a chicken before it is born ("The ethics are borderline," I was told); and unfertilized eggs, the products of a bird's sexual cycle, can hardly be regarded as natural food for man.

Furthermore, vegans choose not to rear food animals themselves, and do not ask others to do this for them. Besides, there then must arise the insoluble dilemma of lacto-ovo vegetarianism: Given the demise of the meat industry, who is going to support hens past their prime, cows who can no longer produce milk, or the male chicks and calves who are now routinely killed at an early age? This is the question that vegan thought puts squarely before the vegetarians who, understandably, do not care for the question.

Reprinted from AHIMSA, April-June 1982

Article #6: What Happens To The Calf?

Few people realize that cows have to be subjected to yearly pregnancies so that the milk, cheese and cream that form a substantial part of the diet of the lacto-vegetarians and meat eaters may be produced. Many imagine that the cow is only relieved of her surplus milk after her calf has been satisfied, but hardly any cows in the dairy herds are allowed to suckle their calves for more than three days if at all. "Dairy calves are now nearly always reared by hand so that the milk which the cow provides can be sold." "Separating the calf from the mother shortly after birth undoubtedly inflicts anguish on both. Cattle are highly intelligent, and attachment between the calf and the mother is particularly strong." The calves, the inevitable byproduct of these continuous pregnancies, have five possible fates:—

1. They may go to the slaughter almost immediately—probably to provide the veal for veal and ham pies. The rennet used to make most commercial cheeses has to be taken from the stomach of a newly born calf.
2. They may be much more unfortunate for they may go to a white veal unit to spend the whole of their lives shut up in narrow Wooden crates. After the first few weeks they have no room even to turn around. They are fed on a special liquid diet designed to promote maximum growth in the minimum time and to keep their flesh "fashionably white." They are denied the roughage that their special digestive systems as ruminants require so they are often reduced to eating their own hair and nibbling their crates. They are given no bedding because their craving for solid food would make them eat it. The old practice of "bleeding" to whiten the flesh is now illegal but their iron take is kept to the minimum necessary for survival lest the meat should be tinged with red. Many emerge from their crates at the end of their fourteen weeks of existence suffering from stomach ulcers and abscesses, and with legs too shaky to support them as they are driven into the slaughter-house lorry. The Brambell Report says, "Calves at large are normally active and playful animals."
3. The home production of beef has gone up 50% since the war and "a recent survey has shown that 80% of the beef produced is a byproduct of the dairy industry." Calves from *beef* herds often have a comparatively tolerable fate, being allowed to suckle, run with their dams and graze in the fields until the time comes for the fattening pens and the slaughter-house, but the surplus calves from the *dairy* herbs are often sent to market when a week old (or less) and bought for rearing in intensive beef units. "Friesian calves are ideal for extremely intensive systems." Fed for twelve weeks on a largely cereal diet, they are encouraged to overeat and are kept closely confined so that the minimum proportion of the food is used up for their bodily functions. "There is a danger of poisoning due to overeating."
4. In these days of artificial insemination few calves are reared as bulls. A calf selected for such a fate may be allowed to suckle for a period. He will be carefully reared to produce the physique of a good sire with maximum fertility. Not that his physical powers, superb though they may be, will have much significance in the life designed for him. From ten to twelve months of age he may serve cows weekly, spending the rest of his time in solitary confinement. More likely these days he will be required to serve canvas "cows" and rubber tubes. The Ministry of Agriculture pamphlet on the care of bulls advocates an exercising yard attached to his shed with walls of a type he can see through for "boredom can produce viciousness" an admission this that animals have a mental and emotion life! Aged bulls are often castrated before they are shut up to fatten for the butcher.
5. If female the calves may be deemed suitable to rear as dairy cows. Dairy calves are removed as soon after birth as possible so that "the cow may settle down again in the herd," i.e. she is granted the minimum time to get over the strain of her frustrated pregnancy so that her milk as soon as possible can go to produce the all important profit. Fed on milk substitutes the calves

> development is encouraged so that at eighteen to twenty-four months they can begin the cycle of continuous pregnancies. To quote from the "New Scientist," January 13th, 1972, "The modern dairy cow leads a hell of life. Each year she hopefully produces a calf which means that for nine months of the year she is pregnant. And for nine months of each year she is milked twice a day. For six months she is both pregnant and lactating."

Details of the ailments she can succumb to while meeting these demands make horrifying reading and so do the descriptions of the remedies used (see the various farming journals). Giving birth is often a prolonged and painful business for the cow to be rewarded only by separation from her baby. Cows often cry out and search for their calves for days after they are taken away. When after years of exploitation her milk yield drops then she is sent to the slaughter-house immediately. Worn out cow's meat is not popular in this country so they are commonly sent abroad for slaughter.

Comparatively lucky are the cows and calves that can live out their lives and suffer their butchering near to the place of their birth. For most there are long wearisome journeys, rough handling and standing in market places before being taken to slaughter-houses or new farms. The modern slaughter-houses are often miles from the farms on which the animals are reared, and it is not deemed "economic" to feed animals that are going to be slaughtered. The "humane" killers lessen the pain of the death blows but not the terror of the waiting and the violence of the handling that must precede their use.

And all this to produce food for humans that is not necessary! Human babies should have their mother's milk, and children and adults the solid food appropriate to their dentition and digestive systems. These can easily be selected from richly varied plant sources. For babies and children where necessary or desired, for invalids and those who still like to take milk, the Plantmilk Society, formed and served by men who were deeply moved by compassion for exploited animals, has promoted "Plamil" the milk of human kindness. Other nutritious plantmilks are also available. But the dairy industry is inseparable from the cruel exploitation and degradation of helpless, highly intelligent animals.

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Article #7: 'No veal' campaign protests treatment of milk-fed calves by Michael J. Conlon

United Press International

WASHINGTON—The Humane Society of the United States is trying to discourage Americans from eating milk-fed veal because, it says, the animals are cruelly treated.

In a nationwide "no veal this meal" campaign, the society charges that most vealer calves raised for slaughter are isolated in narrow stalls and fed liquid diets low in iron "so the flesh stays 'fashionably white.' "

The campaign features ads in The New York Times and New York magazine as well as business-type cards that are being distributed to consumers to leave in restaurants where milk-fed veal is served.

"Dear Restaurateur," reads the card. "I enjoyed my meal here, but did not choose a veal entree because I believe milk-fed veal is inhumanely raised. I would prefer it if you did not offer this veal on your menu."

The group says most white veal that winds up on the nation's dinner tables "comes from calves raised in total confinement. Isolated in narrow stalls for their whole lives. Unable to turn around. Denied roughage."

The society said that need not be the case.

Veal raised in Britain, it said, are "housed in group pens, provided straw bedding, permitted to feed at will and to ruminate. Whether American veal producers will decide to adopt this system is uncertain."

It said one major domestic veal producer, Provimi Inc., had announced it will begin testing the British system as an alternative.

The society said it is urging support for legislation introduced by Rep. Ron Mottl, D-Ohio. His bill would establish a Farm Animal Husbandry Committee "to investigate how all farm animals—including veal calves—are raised under conditions of intensive confinement."

It said this is the first piece of legislation introduced in Congress to address directly the welfare of farm animals.

(Reprinted from the St. Petersburg Times, Jan. 7, 1982)

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Article #8: Milk Surplus Continues To Grow As Price Climbs Ever Higher By Dan Carmichael

United Press International

Milk is the most political food in America, the product of an industry that enjoys legalized price fixing and a system financed by tax dollars to the tune of more than $2 billion a year.

Dairy executives wince every time the facts are repeated. Demand for dairy products is declining dramatically, production is skyrocketing and it costs U.S. taxpayers $250,000 each hour for their government to buy the surplus.

National milk supplies are 10 percent above demand and it costs $5,319 more every hour to store the surplus—or more than $127,000 a day.

The system has been called "a national scandal" by numerous critics, including President Reagan's budget director, David Stockman.

Even the critics, however, concede the odds are overwhelmingly against a major change. The dairy lobby has 1 heavy clout and last year alone contributed more than $2 million to congressional campaigns.

At the core of the system is a national network of milk cooperatives. The largest co-op—Associated Milk Producers Inc. (AMPI) of San Antonio, Texas—got caught in the Watergate scandal and its bagman carried $100,000 cash in an overnight case destined for Richard Nixon's illegal "dirty tricks" fund.

After AMPI made "campaign contributions" to Nixon, the president allowed milk price supports to rise by 37 cents per hundredweight, which gave the industry an additional $105 million to $500 million.

The system works extremely well—for everyone except consumers. It is difficult to reform because its complexity is beyond the economic understanding of many voters.

American taxpayers are buying about $2 billion of dairy products this year that no one wants. But the government is committed by law under an entitlement program to buy the surplus—no matter how much is overproduced deliberately.

The figures are mind-boggling.

Current stocks of dairy products—cheese, butter and dry milk—would fill a train stretching from New York to Washington.

As of April 30, 1982, the Commodity Credit Corporation had 411.7 million pounds of butter in storage, 550.5 million pounds of cheese and 917.7 pounds of nonfat dry milk. The annual storage cost: $46.6 million.

Governmental warehouses across the nation are overflowing. Nonfat dry milk fills 180 huge warehouses. Another 127 are full of butter and 171 are overflowing with cheese.

The figure for butter is lower than normal because the government recently sold 220 million pounds to New Zealand—a dairy nation—at bargain prices.

Surplus dairy supplies have been increasing since 1979, when government expenditures jumped from $46 million to $1 billion in 1980, to $1.9 billion in 1981 and $1.9 billion this fiscal year.

Some of the surplus is rotting. Some of it is being sold at major losses overseas—losses that taxpayers are financing. Some of it is being given away.

In December, President Reagan ordered 100 million pounds of cheese given away, cutting annual storage costs by more than $16.8 million.

The government has discussed several other options to reduce the cheese surplus, including dumping it in the ocean or burying it.

Currently, the government is buying about 9 percent of the total U.S. dairy production. The total in 1981 for milk and ice cream was a record $18.1 billion, 9 percent more than the record set in 1980.

An AMPI executive, Leland Anderson, said 10 percent of the nation's dairy farmers would go out of business if the price support system were abandoned.

"It'll cause a drastic drop in production to the point where we won't have adequate supplies," said Anderson, the assistant to the AMPI manager.

"We would have chaos in the industry," Anderson said. "Everybody would be trying to dump on the market to get sales and undercut everybody else. The product would become worthless.

"And the ultimate result is a certain number of people would go out of business," he said. "Are you going to put 10 percent of dairy farmers out of business and have them looking for jobs in the cities where there, are no jobs?"

Critics say this means taxpayers currently are supporting one out of 10 of America's dairymen.

Agriculture Secretary John Block is seeking congressional approval to give him flexibility to reduce government price supports to discourage even larger surpluses, but he has promised to make only a relatively small reduction.

Under current law, the support level is $13.10 per 100 pounds of milk. Block wants legislation giving him authority to set the support level—as opposed to specific minimum support levels mandated by law. He said he likely would not have to reduce the level lower than $12 per 100 pounds.

Time is short because the price support level is scheduled to increase again Oct. 1, despite the 9 percent overproduction.

Even before Block's recent announcement, the dairy industry was mobilizing to defeat the administration's plan which Block said would save taxpayers $700 million the first year.

The surplus milk program, designed to stabilize dairy prices, is regarded as the most expensive byproduct of America's complex array of agricultural support programs.

The prices that milk processors must pay to farmers are set by federal milk marketing orders. Premiums are charged for drinking-type milk, which studies have indicated adds 2 to 8 cents per gallon to the retail price. The marketing order system makes price fixing legal.

Since the processor must pay the higher price anyway, the system keeps reconstituted milk uncompetitive with fresh milk—which, according to *Consumer Reports*, "is exactly what the dairy industry wants."

To give consumers a lower-cost alternative to fresh milk, the Community Nutrition Institute petitioned the USDA in 1979 to hold a hearing on pricing reconstituted milk lower than fresh milk.

Estimates by the USDA itself showed consumers would save between $186 million and $339 million a year. But the USDA did not respond until April 1981 when it denied the petition, saying such a move would cause major changes in the dairy industry.

A source in the Office of Management and Budget says "The price support program raises the price of milk higher than it would be in a competitive market. It's not a good deal for consumers. Also, large government purchases further increase the (retail) price of milk substantially—to the tune of hundreds of million of dollars, if not billions."

The reason milk prices are a lightning rod for public criticism, AMPI's Anderson says, is because of milk's high profile as a staple.

"It's the most visible food in America," he said. "That's why it has become the most political food in America. Everybody is concerned about the price of milk because they buy it every week."

"It's easy to say dairy farmers are ripping off the public, the government shouldn't be in the program, we'd save billions of dollars if we didn't have this price support program, co-ops and federal orders are causing consumers to pay more, all of that," Anderson said.

"But when you really get right down to it, I think dollar for dollar, we've got a situation here that has produced a product that is good for consumers, that they want, that they expect to be available fresh."

(Reprinted from the St. Petersburg Times, June 3, 1982)

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Article #9: Natural Foods by Patrick Malone

They Refer to them as 'Healthy,' But some are Actually Hazardous

Knight-Ridder Newspapers

Some natural foods that are supposed to make you healthy could instead send you to the hospital, medical researchers are discovering.

Scientists browsing through health food stores across the country are finding a cornucopia of unsafe—even illegal —herbs, barks, roots, seeds and other substances plucked from nature.

"This idea of just going and eating plant extracts is very bad," says Dr. Joseph Davis, chief medical examiner of Dade County. "There is a whole host of problems."

New clinical reports of deaths and serious illness are forcing a second look at suddenly hip herbal teas, tonics and folk nostrums. Hospitals have reported health food victims from New York to Colorado.

Plants as common as alfalfa and as exotic as devil's claw root, as harmless as parsley and as dangerous as apricot kernels are sold in health food stores with no warnings about their potential side-effects.

Vomiting, diarrhea, muscular weakness, hallucinations, rashes, severe allergic reactions, high blood pressure and death—all have been linked in recent medical journal reports to medicinal herbs found on health food store shelves.

Based on her 15 years of researching herbal teas from South America to South Carolina, Dr. Julia Morton of the University of Miami is convinced that cancer of the esophagus can be caused by drinking too many beverages rich in mouth-puckering tannin.

That includes teas as unusual as bayberry and as common as Lipton, as well as dry red wine. The tannin-cancer link remains controversial.

Not so with some other products, whose dangers are as unimpeachable as their naturalness.

State and federal agencies charged with protecting the public from hazardous foods and drugs admit they can't keep them all off store shelves.

"There are lots and lots of things out there that shouldn't be there," says Joseph Perret, a consumer safety officer at the U.S. Food and Drug Administration (FDA).

Examples:

Apricot kernels — Rich in Laetrile, apricot kernels are considered illegal by the FDA when sold in health food stores. The FDA has seized tons of the kernels, which have killed at least three Americans by cyanide poisoning.

Mistletoe tea — Reputed in ancient times to be a remedy for epilepsy, mistletoe contains a poison similar to cobra venom. Children have died from eating mistletoe berries. So have mice sipping mistletoe tea in a university laboratory. The FDA seized a shipment of mistletoe tea two years ago as unsafe.

Pokeweed root — Sold as a powder in health food stores, touted for a variety of medicinal uses pokeroot also has killed children. The poison it contains also can cause diminished breathing and an inflamed digestive tract.

Sassafras bark and calamus — Both banned by the FDA in foods, they are known to contain cancer-causing chemicals. They can be bought in health food stores or ordered by mail from one of the country's eight major herb wholesalers, such as Green Mountain Herbs of Boulder, Colorado.

Other health food items are legal because scientific research about their benefits or harms is scanty. Still others are safe if used properly, but food regulations forbid labeling that gives any food a medicinal ring.

Sometimes the distinction between a food and a drug is invisible. That has enabled a substance like apricot kernels to slip through the holes in the regulatory net.

It is true with other plant products as well. As long as something is sold with no advice on how it can help or harm medically, it is legally a food.

The irony for the fledgling herbal industry rests on this thin legalistic line between food and drug. The word "drug" itself comes from a German word meaning "to dry," as in drying plants.

"We're in a twilight zone," says Mark Blumenthal, head of Sweetheart Herbs of Austin, Texas, and president of the Herbal Trade Association. Blumenthal, a 32-year-old vegetarian, started with a partner selling ginseng root out of a car trunk five years ago and now runs a $1 million annual business.

Reclassifying medicinal herbs as prescription drugs would ruin the herbal industry, insist suppliers such as Blumenthal. At last estimate of the Pharmaceutical Manufacturers Association, a new substance requires $50 million and nine years to reach pharmacies as a drug.

In its own defense, the herbal industry will ask the FDA to set toxicity standards and organize a research program to gather scientific knowledge about medicinal plants forgotten since the rise of the modern drug industry.

Already, industry researchers have scoured thousands of chemical and botanical journals to cull what little is known about the hundreds of herbs now sold.

Soon the Herbal Trade Association will issue its first policy statement against one of its products, pokeweed root, advising that it not be taken internally.

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Article #10: Plant Products And Effects by Patrick Malone

Knight-Ridder Newspapers

Here is a list of some plant products sold in health food stores and their potential harmful effects:

Apricot kernels

Contain amygdalin, otherwise known as Laetrile. Hydrogen cyanide is released when swallowed. Can cause severe headaches, vomiting, weakness, disorientation and death.

Pennyroyal oil

Supposed to be used as a flea dip but often not labeled as such. Killed a young Colorado woman and caused sickness in two other women who took it trying to induce abortion. Center for Disease Control in Atlanta is investigating.

Juniper berries

Irritate digestive tract.

Buckhorn bark, senna leaves, yellow dock root, jalap root, aloe leaves

All powerful laxatives that can cause diarrhea.

Shave grass or horsetail

Contains nicotine. In grazing animals has caused loss pf appetite and muscular control, diarrhea, labored breathing, convulsions, coma and death.

Burdock root tea

In one case, doctors reported a person drank half a cup and experienced blurred vision, dry mouth, inability to urinate and hallucinations. Other common plants with euphoric or hallucinogenic effects when smoked or drunk in tea include catnip, juniper, lobelia and wormwood. Lobelia can be fatal.

Camomile

Can cause severe allergic reactions in persons allergic to ragweed, asters or chrysanthemums. Goldenrod, marigold and yarrow tea also should be avoided by people with such allergies.

St. John's wort

Can produce a bad skin rash in conjunction with exposure to sunlight if drunk as a tea.

Sassafras

It was banned by FDA in 1976 but now is considered possibly okay as a tea.

Devil's Claw Root

Should be avoided in pregnancy; has properties similar to the hormone that induces labor.

Ginseng

Can cause swollen and painful breasts, also high blood pressure with regular use of large amounts (several grams a day).

Tonka beans

Contains coumarin, banned by FDA as food additive; sold in health food stores to fix scent of sachets and potpourris. Caused liver damage and growth retardations when fed to animals.

Snakeroot, mandrake root

Sometimes sold as ginseng. Both considered poisonous. Mandrake root contains a hypnotic similar to belladonna. Snakeroot contains reserpine, which causes lowered blood pressure and "possibly severe depression.

Arnica or wolfsbane

Can produce violent digestive inflammation, muscular weakness, collapse and death.

Blood root

Causes vomiting; overdose can be fatal.

Mistletoe

Berries are the most poisonous and have killed children. Leaves and stems used in tea also contain toxins that in large doses can cause muscle and blood vessels to contract, leading to shock and heart arrest.

In fairness says Rob McCaleb, lab director at Celestial Seasonings, several points need to be made in herbs behalf:

Practically any medicine is toxic in large enough doses. The same is true for medicinal herbs. Foods can be toxic too: Prune juice is a well-known laxative, though not labeled as such, and it can produce diarrhea just like drinking senna leaf tea.

But Celestial Seasonings is cautious. The largest herbal tea company with $10 million annual trade, it sells no teas with banned or suspected substances.

The problem, as the industry sees it, is educating the public in sensible use of herbs, most of which are harmless and inexpensive.

The education process will take years. The first problem is that many of the books and pamphlets sold in health food; stores contain only erratic information about potential harms alongside lengthy statements extolling unproven claims of medicinal benefit. Very few books even contain *specific* instructions on how one would use the plant, i.e., the part(s) of the plant to use, how to prepare the plant, how much or how often one would use it, etc. One does not get the complete story when using just one source (or even several) for information. A book might list a number of herbs as being "good for the heart," but if these herbs were researched more extensively, one would find that some are so potent that they actually affect the heart's *rhythm*. Most books don't go into such detail, but obviously, casual or misguided use of such herbs is *dangerous*.

Health food store operators are often little help. Most, like Peggy Childers, district manager for the National Health Food Central chain in Miami, are careful to say: "We do not prescribe in any way, shape or form."

The potential danger of some plant extracts currently sold in health food stores is in dispute.

Ginseng is the best example. One of the hottest sellers in health food stores, it is reputed as an aphrodisiac and a general health tonic and stimulant.

Doctors use it in China to regulate blood pressure and blood sugar, but its only accepted medical use in the United States is in skin ointments. An estimated 5 million to 6 million Americans take ginseng regularly.

A new study by Dr. Ronald Siegel of UCLA found that long-term heavy ginseng users suffered frequently from nervousness, sleeplessness and, most significantly, high blood pressure.

The herbal industry believes those problems were caused more by the caffeine in beverages consumed along with the ginseng.

But no one can say for certain, and even an herbalist such as McCaleb says that studies of the benefits of ginseng have found, in most charitable phrasing, that it has "enhanced placebo effect."

Two other popular herbal items sold in health food stores are camomile tea and alfalfa tea. The herbal industry believes both to be completely safe.

But camomile can produce severe allergic reaction to those allergic to ragweed, and alfalfa has caused problems with barnyard animals: bloating in cattle, retarded growth in chicks, decreased egg production by hens.

The Medical Letter, a newsletter that evaluates drugs for physicians, published in its April 6 issue the most comprehensive listing to date of the dangers of plant products sold in health food stores.

Dr. Walter Lewis of Washington University in St. Louis, a contributor to the article, is bothered by public ignorance of the hazard and upset by the FDA's lack of action.

"They're just absolute idiots," he says of the FDA.

African tribes who use a substance like devil's claw root, reputed to induce labor in pregnant women, control its use better than the U.S. government, which allows its unrestricted sale, he says.

Licorice root in small doses makes a tasty flavoring but in large amounts can cause heart failure. An ulcer drug derived from the root is available by prescription in Europe but not in the United States because of its side-effects.

"The irony," says Lewis, "is that you and I can walk into a health food store and get all we want, completely uncontrolled, and a physician can't dispense it."

Tannin, a substance found in wine and tea, can soothe a sore throat. But the University of Miami's Julia Morton found an atypical incidence of cancer of the esophagus in Curacao, coastal South Carolina and other areas whose inhabitants consumed large amounts of beverages high in tannin. The British put milk in their tea because it neutralizes tannin.

Tannin has produced cancer in animals when injected, but no studies have been completed on its effect when drunk by laboratory animals. The National Cancer Institute does not classify it officially as a carcinogen and has no lab tests scheduled.

Morton believes tannin is no danger if consumed prudently. Still, she has stopped drinking tea in the last few months. Her favorite beverage is water.

Lesson 34 - The Harmfulness Of Beverages In The Diet

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1. Introduction

We live on a planet whose surface is mostly water. About 70% of the earth's area consists of oceans, lakes, rivers and other bodies of water. Your body is also mostly water. In fact, the human body is about 70% water. If you're an average person, you have about 45 quarts of water or fluid in you at all times.

The water in your body is responsible for and is involved with nearly every life process. Digestion, absorption, circulation, and excretion—water is the primary transporter of nutrients throughout the body and is necessary for all the building functions. Water also helps maintain your body temperature and is essential for carrying wastes from the body.

You'll lose about three quarts of water, on the average, each day in the form of perspiration, excretion, etc. If you live in a very hot or dry climate, you might lose as much as 10 quarts per day. This water must, of course, be replaced. Generally, three or four days is the longest person can go without replacing these fluids before serious lamage and eventually death occurs.

Unfortunately, modern man replaces these lost fluids in ways that may be harmful to him. Alcohol, caffeine beverages, soft drinks, hot and cold drinks, drinking with meals—all of these beverages and drinking practices contribute to poor health.

The purpose of this lesson is to inform the reader about the harmful beverages that are used, the harmful drinking practices that occur, and the correct way of obtaining fluids for the body.

1.1 The Harmfulness of Common Beverages

Water is the only fluid that can be used by the body. It doesn't require coffee, tea, milk, beer or soda pop for its functions. Everything that is drunk by man *that is not pure water* must either be classified as a food or as a poison.

If a drink is classified as a food (such as milk, fruit or vegetable juices, etc.) then it should be taken as a food, by self, and not drunk in addition to other foods. If a drink is a poison (such as alcohol, coffee, cocoa, soft drinks, etc), then you should ask yourself if you should drink it at all!

According to Dr. Herbert M. Shelton, water is the only true drink, and in his words: "The time to drink is when one is thirsty and when this time arrives, there is nothing to equal a glass of pure, clear, sparkling, cool water."

Beverages and drinks are now used as forms of entertainment. They are consumed out of habit or for the 'kick' they provide in the form of alcohol, caffeine, or sugar.

Almost everyone drinks excessively, and there are several reasons for this. Many of the common beverages do not satisfy thirst; indeed, many of them with the sugar and chemical content induce more thirst. Alcohol actually dehydrates the body. People drink with meals; they drink when bored, and they also drink because they eat a diet that is deficient in natural fluids.

The most harmful beverages such as coffee, tea, cola drinks, and alcohol are discussed first. Then the beverages that are used as food substitutes (juices, herb teas, milk, etc.) are also evaluated for their suitability in the diet.

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2. Harmfulness Of Common Beverages

2.1 Coffee, Tea, and Caffeine

Perhaps the two most popular beverages in America are coffee and tea. Less than 9% of the population drink neither coffee or tea. About half the people in the United States have two to three cups a day of these beverages, and another one-quarter of the population drinks 6 to 7 or more cups of coffee and tea every day.

These figures mean that over 200 billion doses of the drug caffeine are consumed by people in this country every year. Most people do not think that their morning cup of coffee or glass of tea at lunch is a drug. Yet caffeine is addictive, causes withdrawal symptoms when discontinued, and induces both psychological and physical dependence. It sure sounds like a drug, doesn't it?

2.2 How Caffeine Affects You

Caffeine is a stimulant of the central nervous system, similar to cocaine and amphetamines in this manner. It increases the heart rate and rhythm, changes the blood vessel diameter, and affects coronary circulation, blood pressure, urination, and other physiological functions.

As little as three cups of coffee have enough caffeine to increase the basal metabolic rate of the body as much as 25%. In other words, you are "speeded up" about one-fourth above your normal activity.

In 1973, a study on heart patients revealed that people who drank five or more cups of coffee daily had twice as many heart attacks as nondrinkers. Caffeine is now also a suspected factor in birth defects, diabetes, kidney failure, gastric ulcers, and cancer of the pancreas.

In large enough amounts, caffeine can kill you. The fatal dose of this drug is what is contained in about 70 cups of coffee. That may sound like a large amount of coffee, but it is not unusual for some coffee drinkers to consume about one-third that amount every day. About seven cups of coffee can produce acute toxic effects in individuals. Symptoms of caffeine poisoning include mild delirium, ringing in the ears, flashes of light in the field of vision, and trembling of the muscles.

"I'm mad at the world until I get my first cup of coffee," is a statement heard more than once. Why? Because the habitual user of coffee becomes so addicted to his morning drug that unpleasant withdrawal symptoms occur even overnight.

Dr. J. Murdoch Ritchie, a drug researcher, states that caffeine is physically addictive and withdrawal symptoms are quite common. "Indulgence in caffeine-containing beverages leads to a condition of chronic poisoning, resulting in restlessness, disturbed sleep, cardiac irregularities, and tachycardia (rapid heart rate). The essential oils of coffee cause gastrointestinal irritation and diarrhea is a common symptom. The high tannin content of tea (another caffeine beverage), on the other hand, is apt to cause constipation." The caffeine-beverages are both harmful and addictive.

Caffeine withdrawal can occur from just missing the "morning cup of coffee." Symptoms of caffeine withdrawal are headaches, irritability, inability to work effectively, nervousness, restlessness and lethargy. When a regular user of caffeine drinks ends their use totally, he may experience tight headaches in the back of the neck area and be quick to anger or irritation. These symptoms usually pass in around three days or less as the body detoxifies from its habitual caffeine load.

Although coffee is mentioned as the most widely known caffeine beverage, tea also has a large amount of this drug. Usually tea has about half as much caffeine as a similar amount of coffee (unless strongly brewed), but since many people usually drank a larger amount of tea than coffee at one sitting, they still receive a large dose of the drug.

Interestingly enough, many parents instinctively realize that coffee and tea contain a strong drug, and so they deny it to their children for a few years. I remember at how "adult" I felt when I was allowed to have my first cup of coffee at fourteen years old. Young children instead are often given hot chocolate or cocoa in place of coffee. *Yet cocoa and chocolate drinks have significant amounts of the caffeine drug as well.*

Not only that, but the cola soft drinks contain large amounts of the drug—sometimes as much or more than that in a cup of coffee. Soft drinks, however, have more dangers than caffeine associated with them, and that is the next topic.

2.3 Soft Drinks Are Hard Drugs

In the news was an account of a young boy who drank 64 bottles of a soda drink, one right after the other, to win a two dollar bet. A young girl was given a case of soft drinks as a prize for her scholarship. She drank the entire case that same day.

Over 250 soft drinks are consumed each year for every man, woman, and child in this country. Many people drink one or two such drinks a day as a regular habit. It is not uncommon to find people who drink over 100 ounces of cola, pop, or sodas every day of their lives.

Some drink it the first thing in the morning. Others have it as the last thing at night. Still others have it with every meal or all through the day.

Soft drinks are addictive. They are a drug. They do damage to the body. They furnish no nutrition. They are a menace to your health, and the only thing "soft" about them is how soft they can make your teeth by dissolving them.

Cola drinks were discovered in 1949 to contain a solution strong enough to dissolve iron. As for human teeth, Dr. Clive McCay of Cornell University showed that soft drinks can completely erode tooth enamel and make the teeth soft as mush within two days.

The bad ingredient in this case is phosphoric acid—an acid so strong that it can erode granite rock, and yet it is a common substance in all soft drinks.

Besides phosphoric acid, soft drinks also contain white sugar (usually an ounce or more per drink), artificial flavoring and coloring, carbon dioxide, and caffeine.

The carbonation, or carbonic acid, in the drink (which makes it "fizz") was discovered by Dr. Hunter H. Turner to be a strong factor in the increasing number of nearsighted children and adults. Not only is the stuff bad for your teeth, but it destroys the vision as well.

There is so much sugar in a soft drink that heavy drinkers often get an extra *pound* of white sugar in their diet each day. Blood sugar levels shoot up and sink when soft drinks are consumed. The appetite is dulled, and valuable nutrients are depleted in an attempt to metabolize the sugar in these drinks. When soft drinks are taken with food, the sugar leads to fermentation instead of good digestion.

The coloring used in the drinks are usually coal tar derivatives. Almost every coal tar derivative that has undergone extensive testing has been labeled a carcinogenic, or cancer-causing, agent.

The caffeine in soft drinks is so high that a child who drinks 4 bottles within an hour has received .13 grams of this drug—an amount even termed excessive and dangerous by the medical establishment. Dr. D.G. Steyn of South Africa has demonstrated that cold drinks which contain caffeine (such as soft drinks) are actually more harmful than hot or warm caffeine beverages.

In the last twenty years, soft drink manufacturers have developed, "sugarless" drinks. Of course these are artificially sweetened. The sweeteners used are chemical products which also have been implicated as cancer-causing. Such drinks are often used by people desiring to lose weight. Unfortunately, while cutting down on calories, they may be building a tumor at the same time.

Soft drinks are not "soft"—they are *hard* on you and your health.

2.4 One For The Road

Of all the beverages with harmful effects, alcohol is probably the most widely known and frequently abused. Seven million people in this country have a serious drinking problem. Probably three to four times that amount use alcohol so much as to interfere with their normal lives.

Over 30,000 people a year are killed because of drunken drivers. Tens of millions of work hours are lost each year because of alcohol. We lose millions of dollars every year to alcohol and its related problems.

Alcohol is not a "safe" drug. It is an addictive drug. Out of every eight people who drink, one will become a life-long alcoholic. You cannot find such a high rate of addiction among any other drug users.

Yet alcohol is treated as a non-drug by the government. They issue licenses, collect taxes, and allow manufacturers to spend 300 million dollars a year to push the drug.

Alcohol destroys the liver, contributes to ulcers, enlarges the heart, and kills brain cells. It destroys both the body and the mind. Alcohol must be recognized as the killer it is and no longer treated as a social lubricant or "harmless" relaxant. It is a drug and has no place in a healthful lifestyle.

2.5 Herbal Potions and Drinks

Witches used to have their special "brew." They would toss toads and roots and hair and blood and herbs into a big pot and make their special tea. Today, people leave out the toads and blood but they still use the herbs, and they call their potion "herb tea."

Most of the drugs and medicines used have originally come from herbs. Herbs are drugs. They are not foods. A tea made from these roots, bark and leaves somehow has achieved an unearned reputation of being healthy. Drugs are never health promoting. A tea made from drugs (herbs) cannot be health promoting.

People have been fooled. Health-seekers who would never touch a drop of coffee or an alcoholic drink put away cup after cup of this witch's brew because they think herb tea must be good for them since the ingredients are plants.

Since herbs and their dangers are covered in a future lesson, you only need know that herb teas are *not* such safe and healthy drinks. They may be a stimulant or a depressant or a carminative or whatever, but regardless *every herb is a drug and a poison* and a drink made from them can in no way be considered suitable for human consumption.

2.6 Fruit and Vegetable Juices

Fruit and vegetable juices are the finest liquids we can rink—provided that they are obtained directly from the food itself and not artificially extracted.

Extracted juices, like those in bottles, concentrates, or cans, have undergone oxidation, deterioration, and fragmentation. An extracted juice is an unnatural food.

We are meant to *eat* fruits and vegetables, not drink them. We have a thirst center and a hunger center in our brain. When we drink something that was meant to be eaten, we confuse this mechanism. Our hunger center may tell us that we want to eat one orange. If we pour down a glass of juice containing three or four oranges instead, we are not listening to the true needs of the body.

This is one of the dangers of drinking extracted juices. They are so concentrated that it is easy to overload the body with one nutrient or the other. At the same time, these juices have no fiber.

Frozen concentrates, bottled and canned juices, or any juice made more than twenty minutes ago cannot be good for the body.

If juices are actively desired, then they should be made fresh, consumed immediately, and used only in the same quantities that you would eat them. For instance, it is quite possible to "drink" twenty or more carrots in a couple glasses of carrot juice. We're not equipped to handle twenty carrots given to the body in such a short time. It would be better if two or three carrots were juiced and then sipped slowly.

Even the consumption of freshly made juices cannot be strongly recommended. If you're hungry, eat. It you're thirsty, drink, and when you drink, make it pure distilled water.

2.7 What Can You Drink?

It seems like that everything you drink is not good for you. You might wonder what you can drink. First, realize that most drinking is due to a water-deficient diet. If you do not eat the wrong foods, you'll probably want to drink very little. Often drinking is a social activity—much like eating. People like to offer drinks as a sign of hospitality.

If you experience true thirst, then your best choice for a drink is distilled water. Should you wish to offer someone something to drink or if you feel a desire for "liquid" nourishment, then *freshly* made juices may be sipped slowly in small quantities. These juices are actually foods and should be consumed as foods. No other foods should be taken with these fresh juices.

Other than these two liquids, it is difficult to recommend any other beverages. If you can break the habit of drinking with your meals and if you can eliminate the salt habit, then your drinking needs will be very slight and easily satisfied..

All of the drinking done by most people is pathological and results from a poor diet and unhealthy lifestyle.

Drinking merely replaces lost fluids in the body. Treat it as such and you will find that clear, cool water will satisfy you on all levels.

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3. Harmful Drinking Practices

Besides the harmfulness of certain beverages themselves, the way in which they are consumed is also detrimental to health and well-being. Drinking with meals, drinking hot and cold beverages, and using drinks as substitutes for good nutrition are harmful drinking practices that should be avoided.

3.1 Drinking With Meals

Drinking while eating is such a common practice that restaurants don't ask *if* you'll have anything to drink but *what* you want to drink. If no beverage is ordered with the meal, then water is routinely supplied.

Drinking while eating is a harmful practice because the beverage dilutes the digestive juices of the stomach. Since fluids leave the stomach faster than solid food, beverages tend to carry out the digestive juices of the stomach and the stomach is left without sufficient juices to carry on its work.

Drinking with a meal also encourages poor chewing of the food since it is frequently washed down in a swallow of water or whatever. Normally food must be thoroughly mixed with saliva in the chewing process for it to be easily swallowed. Beverages replace the role of saliva in this respect, and permit the gulping of half-chewed food.

Beverages are usually incompatible with the food eaten as well. Fruit juices, for example, are often drunk with starchy foods (such as orange juice and toast). The acid in the fruit juices suspend the digestion of the starches and indigestion is guaranteed. Milk, another popular meal beverage, requires its own complex digestive environment since it is more properly a food than a drink. When drunk with sandwiches, breakfast or whatever, fermentation of the milk occurs in the stomach.

Beverages with the meal would never be used if people took the time to thoroughly chew their food. Washing food down and diluting the digestive juices with fluids always result in only partial digestion of the food.

If thirsty, beverages may be consumed twenty to thirty minutes *before* a meal. After a meal consisting of fruit, water can be taken within thirty minutes; after a starch meal, two hours should pass before drinking, following a protein or fat meal, a full four hours should elapse before fluids are taken. In general, if thirst occurs before these times, it indicates that salted, spiced or unsuitable foods were eaten at the meal and should be avoided in the future.

3.2 Hot and Cold Drinks: Injuring the Body

If you or someone you know likes to drink a hot cup of coffee or tea, try this simple experiment: take a tablespoon of the hot liquid, just as you would drink it, and pour it onto the bare stomach. Most likely, you'll experience intense pain and perhaps some blistering.

Ask yourself this question: if the hot liquid does this to the *outside* of my stomach, what must it be doing to the delicate and sensitive tissues on the *inside*!

Hot drinks destroy the sensitive nerve endings in the tongue. They benumb the senses so that discrimination of taste is lost. They scar the esophagus and stomach lining. They disrupt body temperature and digestion. Any liquid above 104 degrees (Fahrenheit) should not be drunk.

Similarly, cold liquids also disturb digestion. In fact, an ice cold drink can completely halt the digestive process. The inside of your body is a delicate, well-controlled environment. Digestion proceeds at a proper pace when this environment is kept constant. Pouring a glass of ice water into the stomach is like taking cooking food from an oven and sticking it into a freezer. You can bet that the cooking process is going to be seriously suspended, and so is the digestive process suspended when cold beverages are drunk. Nerve endings are also numbed by intense cold just as they are numbed by high heat.

Drinking iced water or beverages over ice is a habit that has only been recently acquired by modern man. Why he must have ice cold drinking water from fountains is a mystery. No other animal will drink extra cold or extra hot liquids; they wait until they have reached room temperature.

Remember that the inside of the body is a hundred times more sensitive than the outside. Why should you pour burning or freezing liquids into your stomach? Like many habits, drinking hot or cold beverages seems very silly and abnormal when you look at it in an unbiased way.

3.3 Drinking Instead of Nutrition

Another harmful drinking practice is using beverages as a substitute for proper nutrition. Drinks such as alcoholic beverages and soda drinks are full of empty calories. They supply little nutrition in the diet, but many calories. All too often, children use soft drinks for an energy lift instead of wholesome foods. Adults drink beer or mixed drinks in place of good nutrition.

Concentrated fruit juices are consumed instead of the whole fruit. Milk drinks like shakes and malts are downed in place of a wholesome lunch. It's all too easy to fill the stomach up with needless beverages instead of eating a proper meal.

The problem with many of these beverages is that they so easily become habitual. People drink morning coffee instead of eating fruit for their liquid requirements. They have their soda drink every afternoon or their few bottles of beer. In little time, they have established a beverage habit that has replaced the good habits of nutrition and wholesome foods.

3.4 Is Drinking A Natural Process?

To suggest that drinking may be an unnatural or at least an unusual practice may seem foolish. After all, everybody drinks—or do they?

Not actually. There are some people who go for days or weeks without drinking a single glass of water or taking a swallow of any beverage. These people also eat an abundance of fresh fruits and vegetables which have a naturally high water content and they eat no salt or other thirst-creating spices in their food. Consequently, they get all the fluids they need from fresh foods and never feel thirsty or have the need for a drink of water. This is not speculation or heresay; it is an observation of my own personal experience as well. During the last six months, for example, I doubt if I drank more than six glasses of fluids. I did eat large amounts of melons and many other fresh juicy fruits. These foods supplied me with an abundance of fluids or water from their tissues. Many other people who eat a similar diet of chiefly fresh fruits and vegetables also report little or no need for drinking fluids.

The animals that have the greatest need for drinking are carnivores or meat-eaters. Their high-acid meat diet requires frequent flushing of the kidneys to remove the waste products of the meat, and the concentrated nature of their meat diet usually means they do not get enough water in the foods they eat. These animals have lapping tongues so that they can get the water into the mouth quite easily. Man has no lapping tongue mechanism. He has no snout to put into the water to drink.

In fact, man is so poorly equipped to drink water that he invented the drinking cup so he could move the water in his mouth. The truth is that man has very little natural equipment for drinking. Man is not a drinking animal. To be sure, we can swallow water and we can catch some in our hands for this purpose. When compared to all the other drinking animals, however, man is short on the physiological necessities to facilitate drinking. He is like the ape in this respect—another animal that rarely drinks water in its natural habitat.

This is not to say that we should not drink water. Obviously, there are times when sufficient high-fluid foods may not be available to eat and we will need to supplement our fluid sources from water directly. During fasting specifically is the need greatest for drinking water since no foods are being eaten. Then, too, if we eat a conventional American diet with its high amounts of uric acid, toxins, salt, and other thirst stimulators, we will have to drink perhaps as much as the eight glasses of water a day recommended by certain nutritionists.

But the point is this: if you eat a natural diet high in fresh fruits and vegetables, you will rarely experience the desire to drink. Usually, when thirst arises and the individual is not in a fasting state or in a very hot environment, then it is due to an improper choice of foods.

4. Drinking Of The Diet

4.1 Foods That Cause Thirst

Excessive thirst is caused by eating foods which are either deficient in natural fluids or high in salt, spices or their condiments. A high-protein diet also requires more fluid intake because the waste products of such foods require a large amount of water for their solution and excretion.

Foods become deficient in natural fluids either by cooking or drying them. Cooked foods lose their natural water in the steam that leaves them while cooking. Dried fruits, nuts, dried beans, peas, and other foods which have had their water content decreased by storage or drying are also "deficient" in water content.

The solution appears simple: don't cook fresh foods and they will remain water-sufficient. If dried foods are eaten, they may first be soaked in distilled water or eaten with a compatible, high-fluid food (such as lettuce and nuts).

Most thirst occasioned by foods, however, is due to the salt that is added to them. The body tissues become deprived of water when salt is used. Salt is an irritant to all the cells of the body, and water is used to flush and transport this poison out of the system. This is why extra water is desired when eating salted foods—the body is attempting to remove this biocidal seasoning as quickly as possible.

Other strong spices and seasonings may also bring about a desire to drink. These, too, act as irritants to the delicate tissues of the body, and the water serves as a transporter.

To avoid unnatural and excessive thirst, eat your foods fresh, uncooked, and unseasoned.

4.2 The Water-Sufficient Diet

One of the criteria for an optimum diet is that it should also be water-sufficient. That is, a good diet should also supply you with sufficient fluids so that drinking needs are minimal or nonexistent. One reason for this is that the best fluids for your body—the purest and most natural liquids—are the fresh juices of fruits and vegetables *as they exist in the food itself*.

The fluids of fresh fruits and vegetables contain superior minerals and natural sugars. They are easily assimilated and supply all the cells with all the nutrients they require.

By a wise selection of your food, you can supply all your body's fluid needs with the best possible liquids.

Certain vegetarian animals that feed on wild grasses and fruits never drink water as long as they can find their natural food. Generally, these animals live on foods that have about an 85% water content. Mother's milk contains about 87% water, and an infant feeding on this food alone never requires additional water. It appears that as long as foods are eaten which are from 80% to 95% water, thirst will not occur and all the body's water needs will be met in a superior fashion.

4.3 The Water-Sufficient Foods

Almost all fresh fruits and vegetables contain 80% to 95% pure water. These foods should form the majority of an optimum and water-sufficient diet.

Other foods may be included, such as seeds and nuts, provided that they are eaten with high-fluid foods in a compatible combination. For example, most nuts are 4% to 5% water. Lettuce is 95% water. If a sufficient amount of lettuce is eaten with a small quantity of nuts (say, 1 ounce of nuts and 8 ounces of lettuce), then a fluid average of 85% is maintained for the meal and thirst will not develop.

It's really not necessary to be so concerned with figures, percentages, and proportions. A simple rule to follow is this: if a natural food is eaten that is low in water content, then it may be advisable to eat a salad, raw vegetables, fruits or whatever is compatible to balance the low-water food. Of course if your meal consists mostly of cooked, refined, or concentrated foods, then it may be impossible to balance them with water sufficient foods.

The optimum diet does not include salt, seasonings, or spices. All of these substances occasion thirst and cannot be utilized by the body.

If you eat an abundance of fresh, raw, unseasoned fruits and vegetables (supplemented by nuts and seeds if desired), then you will be satisfying all your water needs with the highest form of liquids. You will rarely experience thirst, have no desire to drink, and will enjoy the optimum level of health that is the birthright of every human being.

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5. Questions & Answers

How much water or juice should I drink when I fast?

> When fasting, you should always slowly sip pure distilled water whenever you are thirsty and drink until you are no longer thirsty. There is no fixed amount to drink or not to drink. You should not force yourself to drink while fasting, nor should you ever deny yourself a drink while going without food. Don't try to "fill up" on water to ease your hunger pains—it won't work.
>
> By the way, if you're drinking juices while fasting, you are not actually fasting. You're on a juice diet. There is nothing seriously wrong with a juice diet, provided that the juices are made and used strictly fresh and that excessive amounts are not taken as a substitute for food. However, to get the benefits of a fast, you have to fast and take only distilled water—not juices.

Most doctors and nutritionists say we should drink 8 glasses of water every day for good health. What do you say to that?

> If you eat what most doctors and nutritionists eat, that might be good advice! A typical American diet is high in salt and animal protein—both of these require copious amounts of water to keep the kidneys flushed and the tissues clean. Few people eat enough fresh fruits and vegetables to supply them with adequate fluids. I have no doubt that a diet of hot dogs, potato chips and ice cream would also require the addition of eight glasses of water per day. But if your diet is healthy, if you include high-water content foods, if you don't use salt or animal proteins, then why flood yourself with water? Drink according to thirst, not by some recommendation or the other.

I become thirsty right after I eat, and then when I drink water, I get indigestion. Help!

> You become thirsty after you eat only if you eat cooked foods, salted or spiced foods, or concentrated foods (like nuts). First, give up salted foods. You cannot get around this fact: salt-eating will always give you an unnatural thirst.
>
> If you eat cooked or concentrated food, then you must eat a large amount of water-sufficient foods along with them. This usually means a large raw salad. Make sure you drink some water about an hour before you eat. This may help prevent thirst after eating. Of course if you eat a high-water meal of only fresh fruits or raw vegetables, you should never experience that after-meal thirst—or indigestion, for that matter.

I like to make blender drinks. You know, some fruits and nuts and things. Is this an okay beverage?

> Blender drinks are not actually drinks—they are meals that you have first run through a blender. If you have chewing problems, poor teeth, or whatever, then this might be an acceptable compromise in your diet. If you must blend your foods, don't "drink" them—eat them. Use a spoon and eat the blended food slowly, chewing each mouthful as well as you can and mix it with your saliva. Gulping down a blender drink is one way to indigestion. Also make sure that the foods you blend together are compatible foods to begin with. Nuts and fruits may not make an ideal combination in a blender drink. As we said, a drink (if it's not water) is either a food or a poison. Blended up drinks are foods—separate meals—which should be eaten by themselves and immediately after preparing them to avoid oxidation and nutrient loss.

What can you say to people when they ask you what you want to drink?

> Tell them you want a big glass of "sky-juice"—water in other words. If you are thirsty, drink it. If not, keep it beside you and don't make a big deal out of drinking or not drinking. For many people, drinking is a social activity and an act of hospitality. If you graciously accept a glass of water with no further discussion, then everyone should be quite comfortable.

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Article #1: Warning! Don't Use Commercial Juices!

Bad enough that anyone should use freshly-pressed pure fruit and vegetable juices instead of the whole fruit or vegetable. But commercial juices are not only fragmented, but contain toxins as well.

What juices do you like? Tomato? Freshly squeezed is pretty bland stuff. The jazzed-up commercial juice always tastes thick and "exciting." Of course the tomatoes used may be ripe, overripe, underripe and even partially rotten since any tomato may be turned into juice. Mixed well, no one knows the difference, especially after pasteurization and salt disguise the flavor.

Do you use commercially squeezed orange, lemon and grapefruit juices? It's the fashion these days to use reconstituted juices. The juices are squeezed from oranges, grapefruit and lemons, peels and all.

The juices from the peels contain citron oil which is quite toxic in the human system.

Citrus trees, like other fruit trees, create a fruit to attract animal consumers. The seed is dispersed in the fruit for propagation by the eater of the fruit. The fruit/seed package is protected until the moment of ripeness by a skin against bacteria and insects. Citrus fruit skins contain citron oil (not to mention fungicides and insecticides) which is an excellent "antibiotic" and is repulsive and toxic to all creatures including humans. Commercial juicers squeeze this toxic juice into the mix with other parts of the fruit. Even the juices of the seed, which may contain hydrocyanide, etc. are pressed into the mix. The juices are then dehydrated and pasteurized. The resulting concentrate is frozen and shipped to points throughout the country for "reconstitution." If you buy frozen concentrate and add water, you're getting the same devitalized stuff.

It doesn't matter if the juices come from cans or frozen concentrates. It's all been heated, refined, condimented, preserved and otherwise ruined. It deserves to be left on the shelf.

There's no reason why we can't have all the fresh juices directly from the fruit. Most fruits can be shipped just as easily as the juices, although it involves more shipping volume and weight.

Of course this observation is for those that insist on juices—the best of juices are always second-rate to the whole fruit, the natural juice source.

Reprinted from Healthful Living, April 1982

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Article #2: No Teas For The Hygienist

The practice of drinking teas made from the leaves, the stems, barks, roots, flowers, seeds and fruits of plants is an old one. The practice was taught to mankind by the medical profession, which was, in its origin and for long after its origin, largely herbal in character. Due to the fact that some part of almost every plant contains a poison or two, it is possible to use some part of almost every plant known to man for its alleged "*medical action*," both for the "*prevention*" and "*cure*" of disease. Faith in the healing virtues of herb teas lingers on in the minds of the people long after the medical profession, which originally fostered and cultivated this faith, has abandoned it.

Mint tea, alfalfa tea, horse mint tea, and other teas are in extensive use among a growing segment of our population and great numbers of these people are convinced that they can derive benefit from the practice of drinking these teas. A brief, instructive reference to some of these currently popular teas is given below, in *Herbal Myths*.

Reprinted from The Hygienic Review, August 1973

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Article #3: Herbal Myths

Juniper berry tea is "healthful, adding fluorine to the diet, increasing functional activity and increasing the secretion and flow of urine"—all of this means that it is a stimulant and that the kidneys are forced to expel it quickly.

Parsley tea has a "purifying action" and is a "diuretic" and "mild sedative."

Papaya tea is a "fine tonic," has a "rebuilding effect on the stomach and digestive tract," and contains a "digestant" that is "capable of digesting many times its weight in protein food." If you could find other "digestants" to take care of the other food factors, you could dispense with the secretion of digestive enzymes.

A delicious combination of lime leaves and papaya that you will always use, once you have tasted it, is sold to the public.

Then there is red clover tea which is "beneficial to the bloodstream" (a "blood purifier") and "cleansing to wounds, boils and ulcers."

Chamomile tea has a "soothing effect on the nerves and stomach" and is regarded as excellent for children.

Just plain lime tea, without the addition of papaya, "acts on the nervous system, allaying nervous excitement, invigorating and strengthening, and also soothing and relieving inflammation."

Horse tail herb tea is "invigorating and strengthening." It is an "alterative" and an "astringent."

In spasms, mistletoe tea is said to "relieve nervous excitement." (MISTLETOE IS ALSO POISON—See Article "Plant Products And Effects" in Lesson 33).

Then there is blueberry tea, an "exciting beverage with delicate fragrance," made from the leaves of the blueberry, which "purifies." It is an "antiseptic, a blood purifier and it soothes."

Strawberry tea, made from the leaves of the strawberry, "provides many benefits to the urinary organs." It is "astringent, tonic, diuretic, a bitter alterative."

Sassafras tea, an "old favorite," is described as a "wonder drug." It is a "blood purifier" and an "aid to the skin"—at least, it is said to be.

Fenugreek tea seems to be one of the present day favorites. If we are to believe the advertising, great and increasing numbers of people are drinking this mild poison regularly. This tea "soothes minor irritations of the stomach and intestines, softens and soothes inflamed parts and relieves inflammaton. It is also good for those with excess mucus due to dietary errors." I presume that you take this tea instead of correcting your dietary errors.

Mate, a caffeine-containing tea from South America, is highly praised because it "gives a pick-up like coffee." Why not? It contains the same poison.

Desert herb is an old Indian tonic, often called squaw tea. Although almost all the medicinal virtues are attributed to this tea, it is listed only as "alterative, depurative and diuretic."

Hop tea is both a "tonic" and a "sedative"—stimulates and inhibits—and is used for "relieving pain, allaying nervous excitement, and to abate fever."

Flaxseed tea "relieves coughs and sore throats, painful urination and bladder inflammation. It is also good in dysentery."

Sarsaparilla tea, an old-fashioned favorite, "purifies the blood and is used for affections of the chest." Used for coughs for countless generations, it is "aromatic, depurative and alterative."

Alfalfa tea is said to be especially valuable in rheumatism and arthritis. It is chiefly recommended for its "richness in minerals." When mint is added to the alfalfa, this provides a delicious tea that gives all the "advantages" of the alfalfa plus the "sedative effects" of the peppermint leaves and the "aid" they give to digestion.

Nettle tea is a "diuretic" that has varied "properties." Besides "increasing the secretion and flow of urine" (meaning the kidneys hurriedly eliminate it) it is "excellent for the circulation," is a "tonic" and "relieves infections of the chest."

For your constipation here is a "pleasant" herbal laxative that should be every bit as good as Inner Clean, Hood Lax, All-Lax, NR Tablets, Black Draught, or anything that grandmother used to brew. It is a curious combination of "freshly cut senna, mandrake root, boneset leaves and tops, elder flowers, sassafras bark, peppermint leaves and Mexican saffron." Use this compound and "keep free from annoying symptoms arising from a constipated condition."

Finally, here is a "tasty tea" made of a blend of alfalfa, peppermint and desert herb, which you are sure to like, once you have tried.

Dock root "purifies the blood and strengthens in a permanent manner, both allaying and preventing scurvy." It is also an "astringent."

Certainly from this list of drugs with their astringent, alterative, tonic, diuretic, digestant, soothing, sedative, purifying, emetic, laxative, etc. "actions," you can find one or more that "will help you back to good health, even assist you in retaining good health." If you read over the classifications of the alleged actions of these teas and fail to recognize the fact that they are *drugs* and are "recommended" as such, this is because you are unaquainted with so-called pharmacology and the herbal *materia medica*. They employ the technical jargon of allopathic medicine in describing the "effects" of their teas. What is a depurative, for example? It is "a drug for aiding a cleansing process." An alterative is a "medicine" that "alters the processes of nutrition and excretion." Such a drug is supposed to be capable of "restoring the normal body-functions." A diuretic is a "medicine" that "increases the flow of urine." How does it increase the flow of urine? Does it assist the kidneys? Does it add to the functioning power of the kidneys? It does neither of these things. *It is a poison that is hurriedly eliminated by the kidneys*.

Herbs are nature's own products, we are assured. We could reply that rattlesnakes and cobras are also nature's own products. They come to you "entirely natural." I can hear the hiss of the rattlesnake as he strikes: "My venom comes to you entirely natural."

Teas are made in two general ways. They are prepared as *infusions* and as *decoctions*. An infusion is the solution obtained when a substance is steeped in water to obtain its soluble principles. It is an old medical device used to extract the "medicinal" qualities of herbs. A decoction is a substance derived by the process of boiling. This is also an old medical device used to extract the "medicinal" qualities (the poisons) from herbs. Infusions are made by pouring hot water over the tea and permitting it to steep. Leaves, flowers and thin materials are prepared as infusions. Decoctions are made of the harder materials, such as barks, roots, chips, seeds, etc. These are boiled to extract their "soluble principles." An aromatic is a substance with a spicy fragrance. Such substances are said to be "stimulating," but they are often added to infusions and decoctions to make them acceptable to the sense of smell.

I shall not, at this time, consider all the alleged actions of these various teas. Enough has been said to reveal that they are recommended to the public as drugs and because they are supposed to have *therapeutic actions*. All such actions are actions of the body and are employed as means of freeing the body of offensive substances. An herbal laxative is laxative because of the laxative action of the *bowels* in expelling the herbs or the tea made from these. These are expelled because they are *poisonous*. It does not matter that there may be minerals and vitamins in the herb or tea; the very hurry to expel them from the body prevents their digestion and absorption. Nonpoisonous herbs are foods; poisonous herbs are supposed to be "medicine." Do not permit yourself to be misled by the assertion that "current research is proving the value of teas, herbs and berries used in Grandma's day." Research seems to be able to prove anything it is *paid* to prove.

Review the Articles in Lesson 33: *Natural Foods—They refer to them as "healthy," but some are actually hazardous* and *Plant Products and Effects*.

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Article #4: The Stimulant Delusion

Some time ago, a magazine published by a religious organization came to my desk. It contained an article which traces chocolate from seed to candy bar. It opens by saying that "chocolate in its many forms has been a taste delight of millions." It ends by saying: "Many have come to know the nutritional value of chocolate as well as enjoy it for its taste when mixed with sugar. The Creator has thus provided for his Creatures an unending variety of foodstuffs to sustain them and gratify their varied appetites."

In between these two asinine statements is a brief story of the planting and cultivation of the Cacao tree, the harvesting of its crops and the preparation of the cacao beans for the factories. In the whole article there is not one word said about the poisonous quality of cocoa, nor does the article even hint that the sugar with which it is mixed is white sugar.

The thought comes to me that if the Creator prepared this substance for the use of His creatures, He might well have left the poison out of it. The article does say that the chocolate is bitter, but it fails to mention the fact that, without the addition of great amounts of sugar, the stuff is so bitter that none of the "varied appetites" of man would relish it. It is only by so thoroughly disguising its true character, as manifest in its taste, that foolish men and women can get the poison substance past the sentinel of taste.

Arguments such as that given in the magazine article can be made to sustain any vice or practice to which man may be addicted. We may assume that the Creator made tobacco to satisfy the varied tastes of man, or that he made opium for the same purpose. There is actually more nutritive value in the leaf of the tobacco plant than in chocolate. People do not eat chocolate for is alleged nutritive value but for its *stimulating* quality. The *theobromine* of chocolate is identical with the *caffeine* of coffee and the theine of tea. It is simply a poison and there are no conditions or circumstances under which it should be taken into the human body. Theological defenses of poison vices are always misleading.

Coffee, tea, cocoa, chocolate and the caffeine-containing soft drinks should be classed together and it should be fully recognized that they produce evil and evil only, when introduced into the human system. None of these vices is very old but each of them is very wide-spread. People swallow these poisons under the delusion that *stimulation* is somehow beneficial.

Of coffee we read in medical literature that, "While a certain portion stimulates the nervous system, a large portion acts as a sedative, so that a difference in the quantity of the potion causes a difference in the kind of its effects." It is impossible to explain this apparently contradictory behavior of coffee on the basis of the medical theory that "drugs act." If caffeine is a *stimulant*, why is it less of a *stimulant* in large than in small doses? Indeed, why does it not *stimulate* in proportion to the size of the dose—why aren't large doses proportionately more *stimulating* than small doses? Why does it apparently act the exact opposite in large doses from the way it acts in small doses?

We can find our answer only if we realize that the increased action that we designate *stimulation* is simply the extra effort exerted by the body in expelling the poison. This being true, and it is, so-called *stimulants* must necessarily and inevitably deplete the body's powers in proportion to the expenditure their use occasions. Because the sick person is already greatly depleted, he is less able to bear the losses occasioned by the use of stimulants than is the well and vigorous individual.

Of theine, it is said that when given in small doses to either animals or man, it "quickens the circulation," and "effects some degree of mental exhiliration and wakefulness." But the "final result" is diminished excretion of carbon-dioxide—"the flow of blood through the capillaries is retarded." Large doses "prove poisonous, causing painful restlessness, rigidity of the muscles, and general exhaustion."

Thus, theine is pictured to us as a *stimulant* in small doses, a "poison" in large doses. What is there in the size of dose to change the character and quality of the substance? In what way does the size of the dose alter its relation to the vital structures? As soon as it is realized that *stimulation* is excited action in resisting and expelling the small dose, it will be recognized that the drug is a poison in doses of any and all sizes.

Lesson 35 - Junk Foods: A Case Study On Molasses

- 1. What Is Junk Food?
- 2. Molasses: A Super Junk Food
- 3. Harmful Chemicals In Molasses
- 4. Health Claims For Molasses
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1. What Is Junk Food?

By junk food we mean foods that have been so altered and impaired in the process of manufacturing, bleaching, canning, cooking, preserving, pickling, etc., that they are no longer as well fitted to meet the needs of the body as they were in the state Nature prepared them.

Let's face it, we can't improve upon Nature! But people still insist on trying and the results are disastrous. When we attempt to alter any food by adding or subtracting components or by heating or freezing, we are degrading that food to the extent to which we alter it. Nature prepared our foods perfectly suitable for our consumption in their whole unchanged state. When these food items are changed or altered in any way, they become denatured junk. Disease is the inevitable result from eating such foods.

1.1 Foods Must Be In Their Whole State

Numerous animal experiments have shown that, while proteins, carbohydrates and fats are food elements, they are not in and by themselves food. Junk foods usually contain excessive amounts of the above named food constituents and little else. For example, candy would be almost purely carbohydrate. Butter (according to our definition this is a junk food) would be a pure fat.

It has been established that a diet that contains enough nourishment, by all the recognized chemical standards, still fails to support normal growth and physiological normality, if it lacks some unknown substances. Very little of these substances need to be present, but there is an irreducible minimum. This would consist of the many vitamin and mineral elements, enzymes, etc. which are only available in usable form in whole raw fruits, vegetables, nuts and seeds.

The refining, preserving and cooking processes to which our foods are subjected destroy the delicate constituents in our foods. In fact, the cooking process robs foods of so much of their value that most people feel that they must add salt, spices and various condiments to them to make them palatable.

1.2 Food Constituents Must Be Organic

We need to consume our food in its whole state, for in this form we can readily assimilate all the nutrients which we derive from that food. When foods are fragmented and certain vitamins or minerals are added in an inorganic form, that food loses its value. Any food so deranged is truly a junk food.

The addition of one or more vitamins to such denatured foods would not render them adequate.

Vitamins and minerals never work independently of each other but synergistically for the benefit of the whole organism. When there is either a lack of calcium or an excess of acid in the food, Vitamin A has no effect. It is known that mineral salts are not assimilated in the absence of the vitamins and both are spoiled by cooking. Most junk foods (if not all) which are commonly sold in stores have undergone some cooking.

Minerals which are returned to the junk foods are inorganic and therefore unusable by the body. Sodium chloride, for example, is not assimilable or usable by the body. It is excreted unchanged. It comes out in the same state it entered the body. No metabolizable food does this. Sodium chloride is not a food but an irritant. This is true of all inorganic minerals and salts. They are useless, supply the body with nothing and are toxic.

Dr. Shelton says, "We have not learned to make, nor even to imitate living substances. We know that animals are dependent upon plants for their food and cannot go directly to the soil for it. We can neither synthesize these substances in the laboratory, nor can we tear them down in the kitchen or in the laboratory in "purifying" them (extracting their salts from them) without greatly impairing their food values."

Nature gave us apples, pears, cabbage, celery, lettuce, oranges, nuts, etc. and not vitamins, minerals as such. All our food needs are found in neat little packages and when consumed in this form, we do not have to concern ourselves with food deficiencies. All of our needs will be met most adequately.

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2. Molasses: A Super Junk Food

Molasses is a prime example of a junk food. This is a product which has been so degraded that it really should not be called a "food" at all. It has been refined, processed, contaminated with poisons and boiled to such an extent that it could never be of any benefit and, in fact, will contribute to toxicosis if ingested.

So let us take a look at this "super junk food."

2.1 What Is Molasses?

Molasses is a yellowish or dark-brown, thick, sweet, sticky syrup which is most often used for cooking, candy-making or as a livestock feed. Most molasses is obtained as a by-product in the manufacturing of sugar from sugar cane but some is obtained from the sugar beet. Therefore, countries that grow sugar cane produce most of the world's molasses. In the United States, Louisiana is the center of molasses production.

Molasses contains 36 to 50 percent sugar. Chemists and drug manufacturers use it to make many chemical products, including industrial alcohol. Molasses yields large amounts of citric acid. This citric acid from molasses is used in making soft drinks. Low-grade molasses, called blackstrap, is fed to livestock.

Molasses that is to be eaten contains much sugar, so it tastes sweet. It is often used in making cookies and candy for the unusual flavor which it imparts.

2.2 How Molasses is Produced

In preparation for harvesting the sugar cane, the fields are set afire to burn off the dried up leaves. Then the sugar cane is cut down and taken to the sugar refinery. It is put through high-pressure rollers to squeeze out the juice. The juice contains many impurities including field soil, cane fiber and wax, organic acids, ash, nitrogen compounds, pectin and gum. On the other side of the vat containing the juice is the resulting fibrous tissue, called bagasse.

The bagasse is further processed to get the ultimate sugar content out of it. It is sprayed with super-heated hot water which quickly saturates the bagasse and picks up, in solution, more sugar. It also picks up some of the pulpy organic matter.

This is then squeezed out of the bagasse by yet another set of high-pressure rollers. It is cooled and combined with the original juice. This diluted juice contains less sugar than the virgin pressing. Also, it contains a lot of organic matter or pulp.

To get crystalline sugar from cane juice, the first step is to stabilize it chemically so that its prized content, sucrose, will not become invert sugar, that is, fructose and/or glucose. Cane juice has a pH of about 5.4, which is on the acid side, and the first boiling would cause the sucrose to break down into its two basic sugars, fructose and glucose. As a stabilizer, about five gallons of liquified quicklime is added to 1,000 gallons of juice. This gives it a pH of about 8.0, thus stabilizing the sucrose. Also added at this stage to clarify the liquid are sulphur dioxide/carbon dioxide and, usually, phosphoric acid.

Then the juice is put through its first boiling to remove most of its water and to obtain the first extraction. What remains from this first extraction is called crude molasses. Then more chemicals are added to the residue and yet another cooking (boiling) is done. Acid sulphite and carbon compounds are added.

After this extraction comes yet another extraction during which bone char (cattle bones that have been heated to the point of charring), sulphur compounds and chlorine are used as clarifiers and purifiers. Chlorine is used for its "bleaching" action.

The final residue is called molasses.

2.3 Molasses Contains Sugar

As you have learned from previous lessons, refined sugar of any kind has devastating effects on our health. Such sugars are responsible for many diseases and disorders including tooth decay, obesity, heart disease, hypoglycemia, diabetes, meningitis and many others.

You have also learned that when you eat any refined carbohydrate, the body must take vital nutrients from healthy cells to metabolize incomplete foods. Thus, sodium, potassium, magnesium, and calcium are drawn from various parts of the body to make use of the sugar. Likewise other valuable vitamins, minerals and enzymes are robbed from the body.

Since molasses contains 36-50 percent sugar, the known harmful effects of white sugar would also apply to molasses.

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3. Harmful Chemicals In Molasses

Most of the chemicals which are used in the refining process of cane sugar eventually find their way into the waste residue which is the molasses. Therefore, you not only have the harmful effects of the sugar but also of the toxic chemicals which are used in its manufacture. We will take a look at some of the chemicals.

3.1 Sulphur Dioxide

Sulphur dioxide is a chemical compound of sulphur and oxygen, having antioxidant properties. It is sometimes used in food for control of discoloration.

An antioxidant is a substance that prevents or delays oxidation—a substance capable of chemically protecting other substances from uniting with oxygen. It is one of the most common groups of additives used to prevent change in color or flavor caused by oxygen in the air. For example, some fruits and vegetables containing certain enzymes (such as apples, apricots, bananas, cherries, peaches, pears and potatoes), darken when exposed to air after being cut, bruised, or allowed to overmature.

According to the Merck manual, exposure to sulphur dioxide results in respiratory tract irritation: sneezing, cough, dyspnea, and pulmonary edema when inhaled as in smog. If the body responds so strongly to this agent when it is in the air, it makes sense that it cannot tolerate it when we ingest it with our food. It is, in fact, a deadly poison and is treated as such in the manual.

Everyone knows that we need oxygen to live; in the absence of oxygen we cannot breathe. On a cellular level our cells require oxygen to function. All plants and fruits of plants contain oxygen as an essential component of their structure. Oxygen also plays a role in every action and reaction in our body and is required to produce the ATP (adenosine triphosphate) for energy metabolism.

Oxidation may be interpreted in several ways. The addition of oxygen to a molecule is one form of oxidation. Every oxidation must also be accompanied by the opposite reaction, a reduction, and this is when oxygen is taken away or reduced from a molecule.

Oxidations and reductions are essential in utilization of foods to provide energy. The oxidation of foodstuffs, fats, carbohydrates, and proteins, takes place in a step by step manner through what is called the "Kreb's cycle." The end result of the Kreb's cycle is liberation of energy to be used as needed by the body.

Any interference at any point during the oxidation reduction process can and does effect the entire body. Research is lacking on what effect antioxidants which are added to our food can have on general cellular metabolism but as students of Life Science you know that any fragmentation of our natural foods always results in adverse consequences. Especially serious consequences occur when out and out poisons are added to our food, such as sulphur dioxide.

- Must be digested efficiently.
- Must have protein adequacy.
- Must have vitamin adequacy.
- Must supply mineral salts amply.
- Must supply our needs for essential fatty acids.
- Must supply our needs for caloric values.

Does molasses meet any of these requirements?

Molasses is the end product in the manufacture of refined sugar. It contains many toxic substances. Psychologically, this dark gooey product has no appeal at all except that we have become accustomed to it and have learned to accept it as an addition to our diet along with other perversions. Children naturally rebel against the taste of molasses. This does not occur with a nice ripe banana or a piece of watermelon, for example.

Molasses is not delicious to any unperverted palate. Furthermore, molasses has no natural state since Nature never created such a conglomeration of sugar and chemicals. Molasses has no living state in

Nature. It is repulsive to our sense of smell, taste and sight. Molasses is not easily digested. As little as one tea-spoonful will result in nausea. This indicates that the body rejects this poison rather than attempting to digest it as it would with a normal food such as an apple.

Molasses is not digested efficiently. It is often passed through the body with little absorption and often results in diarrhea. This is another indication that the body is attempting to dispose of this toxic matter.

Molasses is entirely lacking in protein.

Since molasses goes through such a long boiling process, there are no vitamins left in the end product. The only mineral salts that are detectable in molasses are those inorganic minerals that are residues from the contaminants accumulated during the manufacturing process. These inorganic minerals are not usable and are toxic.

Molasses supplies no fatty acids.

One tablespoon of blackstrap molasses supplies approximately 43 calories. In order to meet our daily caloric needs, we would have to consume an entire meal of molasses. Molasses cannot be relished by itself by anyone. A proper food of humans can be eaten as a meal. For instance, we can make a mono meal of any one of these foods: apples, watermelon, cantaloupes, bananas, grapes, oranges, peaches, apricots, figs, dates, etc. And you can maintain health for several weeks just on these foods alone. However, you could never make one mono meal of molasses. It would be repulsive to even think of doing so and it could certainly not support life.

The fact that molasses cannot meet any of the criteria of a food automatically puts it in the category of junk food and it should be eliminated from our diet forever!

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4. Health Claims For Molasses

4.1 Minerals in Molasses

Dr. Rudolph Ballentine says that, "Since it is a concentrated residue, molasses contains significant quantities of minerals such as iron, a fair amount of calcium and generous quantities of trace elements such as zinc, copper, and chromium."

Just because these minerals can be detected in molasses does not mean that they are in a form that can utilized by the body. In fact, these minerals are mostly resulting from the residues from the lime, cattle bones, soil, and other residues left after being boiled for many hours at high temperatures. Most are inorganic and totally unusable to the human body, Even if there were any organic minerals left, they would be rendered useless after the boiling and chemical treatment.

4.2 A Rich Source of Vitamins

It is claimed that the chief value of molasses lies in the fact that it is rich in vitamins of the B family. Considering the process which the molasses has gone through, this is quite impossible. First of all, the B vitamins are water soluble. Large quantities of water are added to the molasses during its manufacture. So the B vitamins would be dissolved. Second, B vitamins are destroyed by heat at even a moderate temperature. They are certainly destroyed by the high heat and long boiling time required in the process of rendering molasses.

4.3 Molasses - A Good Laxative

The fact that the consumption of molasses results in diarrhea or seems to have a laxative effect is proof that the body is attempting to dispose of this unwholesome food as quickly and as best it can. It is completely incompatible with bodily needs or functions.

P.E. Noris writes, "At night take a teaspoonful of molasses in warm water or milk." He cautions that one should not take more than this as it may nauseate you. His body is trying to tell him something but he is not listening. The body knows what is a poison and what is not. Take a tablespoon of any wholesome food such as sunflower seeds. You will feel fine and most likely will want more. Take a tablespoon of molasses and you will be immediately sick. There will be no craving for more.

Do yourself a favor and do not poison yourself.

You should also be aware of the fact that this poison is not only added to molasses but is often seen in most dried fruits. As you know, dried fruits are valuable additions to our diet when they are of good quality. However, when treated with sulphur dioxide, these fruits become deadly as the poisons with which they are treated and should never be consumed.

How can you recognize sulphur treated fruits? Mostly by the color. If the fruit's color is bright and unusually clear, it has been treated. If the fruit's color is dull and a little brownish, then most likely it has not. Also, read the labels when buying these packaged dried fruits. Another excellent idea would be to dry your own. Home food dehydrators are readily available and do an excellent job of drying and preserving fruits. This way you know for sure that the fruit was of excellent quality and no poisons were added to them during the drying process.

4.4 Carbon Dioxide

Carbon dioxide gas is generally produced in the combustion, decomposition, or fermentation of carbon or its compounds, is found in the air and is exhaled by all animals. It is the final product of combustion of carbon in food, which the body exhales through the lungs or eliminates through the kidneys in urine, or in perspiration through the skin. Although carbon dioxide is present in the air we breathe (up to about 5%), if it is in a greater quantity than this, it produces an uncomfortable degree of hyperpnea with mental confusion and will cause death by suffocation.

Carbon dioxide gas is used in the manufacture of molasses, carbonated drinks and commercially used in dry ice.

So we know that carbon dioxide is a waste product given off by the body. We also know that if inhaled in large amounts it can result in death. We do not as yet know what effects it will have when added to our food in small quantities. Should we take the chance? As Hygienists we cannot condone the use of proven or unproven poisons. We may assume, however, that if it is poisonous in one form (air), it will also be poisonous in another (food).

4.5 Phosphoric Acid

Phosphoric acid is not only used in the manufacture of molasses but is also added to carbonated soft drinks. It is a solvent which is used to keep all the constituents in a compound in a liquid form. This acid, according to the Merck manual results in corrosive burns from inhalation, skin contact, eye contact, and ingestion. It will also cause local pain. This is another deadly poison.

4.6 Bone Char

In order to understand why this substance, which is added to certain foods including molasses, is dangerous, we must understand what it is that we are dealing with. Bone char is the charcoal remains of animal bones. Charcoal is actually the carbon remains after burning or heating these bones. Carbon is a chemical element which is present in all organic substances. These include proteins, carbohydrates, and fats.

When a compound containing carbon combines with oxygen in the body, energy is liberated and carbon dioxide is formed. Carbon has several chemical features that make it unique as a foundation for life. However, if these features are altered drastically as they are upon the addition of heat, disastrous results may occur. It is a known fact that the charcoal formed on charcoal broiled steaks which are so commonly eaten today are carcinogens. It is also possible that the alteration of the carbon element in a cooked foods could have adverse consequences on our health. The addition of bone char to molasses just taking this product one step further down the ladder of the junk food dungeon.

4.7 Chlorine

Chlorine is commonly used as a water purifier an bleach. Added to flour at 400 parts per million, it instantly ages the flour and bleaches it white. For many years a flour bleach called Agene was used, until England's Dr. Mellanby discovered that Agene caused running fits and mental deterioration in dogs. The Food and Drug Administration, under public pressure, finally outlawed the bleach. But the chlorine bleaches used today, although regarded as safe by the FDA, are highly toxic poisons. Nitrosylchloride, for example, is a very corrosive reddish yellow gas which is intensely irritating to eyes, skin and mucosa. Inhalation may cause pulmonary edema and hemorrhage. Yet this is added to foods.

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5. Impurities In Molasses

Molasses contains 9% ash and 17.5% waste. That consists of mostly cellulose plus all of the wastes left over after the processing of white sugar including soil, residues and chemical contaminants.

So molasses is worse than refined sugar as it carries with it all the bad qualities of refined sugar *plus* the added toxins. As Life Scientists, we attempt to build health and not destroy it. When we ingest such a totally unwholesome and anti-life product as molasses, we are truly destroying life. Do your body a favor and do not give poisons but give it fuel for life in the form of whole fresh fruits, vegetables, nuts and seeds.

Instead of satisfying our craving for sweets with such poisons as molasses, use fresh or dried fruits and your sweet tooth will surely be satisfied.

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6. Molasses Is Not A Food

As Hygienists we know that there are several criteria that a substance must meet before we will regard it as a food. Molasses does not meet any of these criteria and we shall see why.

First of all, it might be helpful to review the criteria food must meet to be considered natural and therefore acceptable in our daily diet. Our natural food:

1. Must be nontoxic.
2. Must have aesthetic or sensory appeal.
3. Must be relished in its natural raw state as taken in nature.
4. Must be digested easily.

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7. Questions & Answers

I realize that molasses is almost 50% sugar, but wouldn't it be better to consume this product than pure sugar? After all, 50% is better than 100%!

> The fact that molasses contains up to 50% sugar is not its only bad point. The fact that it contains so many other poisonous contaminants, some of which may be carcinogens, is the main reason to stay away from this product. Also, if you are eating a diet of mostly fruits with vegetables, nuts and seeds, additional sweeteners are not necessary or desirable.

I am convinced that the Hygienic diet is best for overall health and I have been on a raw foods program for six months and feel great! But the problem is that my children love junk foods—especially candy, ice cream, cookies and other sweets. How can I get them away from these awful foods?

> Congratulations on your wise decision to change to a more healthful diet. Apparently your children crave sweets and this is natural—we all do. The problem is they are satisfying their sweet tooth with the wrong kind of sweets. First of all, try to not have any of the junk food that you mentioned in your home. Second, replace it with more healthful sweets like fresh fruits and some dried fruits. When one of your children asks for candy, give him some Barhi dates instead, or any other kind of dried dates or figs. I am sure that your children will love them and it will certainly satisfy their sweet tooth.

My mother always gave us molasses to eat. She mixed it with some milk and said that is was a good "tonic". I always hated the stuff! Does molasses possess any health benefits?

> No, it is a common misconception that molasses possesses health benefits. No food, even the most healthful, has the quality to act, for it is the body which acts upon the food. There are no benefits in eating molasses and, in fact, only harmful results follow its ingestion. The fact that your sense of taste found this "tonic" repulsive is one clear indication that it should not be eaten.

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Article #1: Denatured Foods Destroy Life by Alfred W. McCann

Animals, human or dumb brutes, die when their food is debased, but the very number of such foods makes it impossible for an individual to go before a grand jury with the charge: "This food killed my little girl."

For months, perhaps for years, one juggled food brought substances to her diet which her little body could not use. Her vitality in throwing off the excess baggage was slowly sapped.

She was not poisoned by any particular food. A combination of inadequate foods merely robbed her tissues of their tone.

Another food from another source had been processed in a manner that removed some or all of its most indispensable elements. In its refinement it withheld from her little frame the very materials she required for growth, materials that God had elaborated for her, but which unnatural practices had withdrawn from her reach on the vain assumption that it is not necessary to credit the Creator with a profoundly conceived and marvelously executed scheme of biochemic balances and harmonies.

Persistently, month after month, the disordered combination of artificial foods sallied to the dinner table, where all the forces of outraged nature were called into battle with the unseen enemy of health and life.

Commercial expediency looked on as the fight was waged with nature but nature had been equipped with poor fighting materials and the child's resistance, broken at last by the combined attack of unsuspected enemies, buckled, snapped and was gone.

There is no pathologist, no public prosecutor, no father or mother who can accuse the food industry of her death. Let this be fully understood.

Before we can correct a single refined food abuse, by law, we must produce in court the body of a dead child, and prove that life was destroyed by a particular food.

Scientists will be on hand to testify in behalf of the defendant. Food manufacturers have been paying scientists for twenty-five years to testify in their defense.

I have listened on hundreds of occasions to their testimony in adulterated food cases, and in many instances I have seen their sophistries fail, but the facts have rarely been reported to the public.

The fear of advertising losses, as we have seen, has closed the columns of most newspapers and magazines to the truth.

Foods that kill mice, rabbits and guinea pigs are not "harmful" to the child in the law's eyes, for the reason that nobody is willing to feed a child on an exclusive diet of such things until it dies, in order thereby to produce as evidence, a dead body in court.

However, when it is argued that chickens or other experimental animals are not human beings, and that therefore any deductions based on barnyard phenomena are unwarranted when applied to humanity, we are not confined entirely to animal experimentation for our facts.

The same facts have been established in most startling and dramatic fashion, hundreds of times, upon human beings.

In Billibid Prison, Phillipine Islands, 1912, twenty-nine criminals under sentence of death were fed exclusively on refined and denatured foods of the kind most common in America for the purpose of determining the effect of such diet.

Their chief food consisted of polished rice. In six weeks the condemned men became anemic. Their first symptom was slight edema (water-logging or swelling) of the feet and ankles which disappeared after lying down. Puffiness beneath the eyes, with general weakness and pains in the legs, soon followed.

Later the edema became massive, involving even the thighs. Then came marked apathy with muscular wasting and extreme pallor. Finally, an enlargement of the heart with feeble heart action.

It is noteworthy that the symptoms of war-edema reported among German, French and British soldiers, 1916-1918, are identical with these.

Commenting on the Billibid experiments, Drs. R.P. Strong and R.C. Crowell stated: "These diseases developed owing to the absence of some substance or substances in the diet necessary for the normal physiological process of the body. Without a supply of such substances in the food sickness results." This comment in all its vagueness disclosed the poverty of food knowledge possessed by the medical profession six years ago.

The prisoners fed on the denatured diet mingled freely with the other prisoners but there was no tendency of the disease to spread outside the group fed on the polished rice.

When this denatured food was removed from their diet and whole natural brown rice restored to them, they recovered promptly.

In the near future, depending upon the rapidity with which the truth is spread, it will not be so difficult to prove with evidence that cannot be controverted that a murder was committed by depraved food.

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Article #2: Junk Food Diet Result In Disease by Susan Hazard

In recent years, there has been an increased consumption of meat, refined foods, highly processed and packaged foods with assorted additives and preservatives. This practice has resulted in a marked increase in many chronic and degenerative diseases. The table below demonstrates the serious impact these harmful foods have on our society as a whole.

Nutrition-Related Diseases

Heart and vasculatory	Over 1,000,000 deaths in 1967
Respiratory and infectious	82,000 deaths per year
Mental health	2.5 percent of population of 5.2 million people are severely or totally disabled, 25 million people have manifest disability.
Infant mortality and reproduction	Infant deaths in 1967—79,000
Early aging and lifespan	49.1 percent of population, about 102 million people have one or more chronic impairments
Arthritis	16 million people affected
Dental health	44 millions with gingivitis; 23 million with advanced periodontal disease;

	22 million endentulous persons; 1/2 of all people over 55 have no teeth.
Diabetes and Carbohydrate disorders.	3.9 million overt diabetic; 35,000 deaths in 1967; 79 percent of people over 55 with impaired glucose tolerance.
Obesity	3 million adolescents; 30 to 40 percent of adults; 60 to 70 percent over 40 years.
Alcoholism	5 million alcoholics;
Eyesight	48.1 percent or 86 million people over 3 years wear corrective lenses; 81,000 become blind every year.
Allergies	32 million people (9%) have allergies
Kidney and renal failure	55,000 deaths from renal failure 200,000 with kidney stones
Musuclar disorders	200,000 cases
Cancer	600,000 people developed cancer in 1968 and the numbers increased drastically every year since

Eliminate Junk Food For Better Health

It is well known that heart disease, stroke, cancer, diabetes, arteriosclerosis, and cirrhosis of the liver are among the leading causes of disease in the United States today. What we must do is to remove the cause behind the cause. What caused the heart disease, stroke or cancer? As Hygienists we know that the underlying cause of all disease is toxicosis. But now we must ask ourselves another question. What caused the toxicosis to develop? Well, it could be a number of factors. But one of the main culprits is the junk food in our diet.

During a session of the Select Committee on Nutrition and Human Needs, Senator Charles H. Percy of Illinois stated that "experts have found enough incriminating evidence to conclude that our super-rich, fat-loaded, addictive and sugar-filled American diet is sending many of us to early graves unnecessarily." He says that simple changes in the diet will product positive results in good health and agrees that this would be a far better choice than spending money for medical care.

Cellular Health Depends Upon The Quality of the Nutrients

The immune system, the blood, the fluids which bathe the tissues can be markedly influenced by the nutrients available to the body. In other words, the health of all our cells and tissues depends upon the quality of the nutrients which are available to them. When these nutrients have become altered or destroyed through processing, refining, cooking, etc., the health of the cells within the entire organism will decline as a result.

The Body Responds

The body responds to all influences and deals with them . as they arise. When we consume food which is laden with contaminants such as artificial preservatives and other additives, the body treats these as poisons and attempts to eliminate them as rapidly as possible. Those substances which cannot be eliminated through regular channels of elimination are stored in the tissues and accumulate there. This forms the basis of a toxemic state. When toxins accumulate to a certain extent the body makes a concerted effort to rid itself of this unwanted debris. Thus, we witness signs of acute disease. It may be in the form of a cold, bronchitis, flu, skin eruptions, diarrhea, etc. If at that point symptoms are suppressed, we have the basis for chronic degenerative disease.

Eliminative Causes

In order to eliminate disease we must first eliminate the cause of disease. If you are consuming junk food, this practice must be stopped if health is to be regained. By junk food we mean foods that have been so altered and impaired in the process of manufacturing, bleaching, canning, cooking, preserving, pickling, etc., that they are no longer as well fitted to meet the needs of the body as they were in the state Nature prepared them.

We do not need junk foods. We can delight in the exquisitive flavors of all the fresh fruits which are so easily available now. These foods need no altering or refining to make them truly appealing.

A diet of fresh fruits, vegetables, nuts and seeds is one which will result in true health and vigor. Eliminate junk foods and your body will respond favorably.

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Article #3: Food In Your Poison by Viktoras H. Kulvinskas

Although Americans are eating more, (in spite of high food prices), they are receiving less nourishment. Real food, for the most part, is virtually unknown. Most Americans don't care. Their attachment to food is emotional and induced by advertisement. They load their shopping carts with a variety of colorful, unnutritious, plastic foods, saturated with synthetic ingredients. "Oh! But it tastes so good," they exclaim as they endlessly cram their stomachs, but remain unsatisfied.

More and more people are becoming conscious that both shelved and perishable products in the supermarkets do contain a wide array of poisons. The mass media, even as they glorify such products, announce that they are embalmed with over 3,000 questionable chemicals.

The average consumer as defined by scientific literature and popular publications is a phenomenon of the 20th century, with no antecedent in history. There was a time when no one dined on poisons and called it lunch. Food producers are deliberately supplementing the diet with food additives of a toxic nature at the rate of over three pounds per year for every person in America.

A stranger in our land, reading labels, might wonder whether American food is too "fresh." Almost every package has something added to preserve "freshness": BHT, sodium proprionate and a host of other preservatives. After a "fresh" imitation dinner, a dizzy spell, difficulty in breathing, or a peculiar feeling in the stomach is very common. Some even think it is love when the pulse rate increases and they become feverish. Others turn to the "imitation life box" for relief from their distress. Every other commercial, served at the rate of 60 doses per hour, encourages food habits that lead to disease or prescribes a potion to alleviate food-induced illness. They lull us into the belief that it is all right to sin as long as we turn to the right product for forgiveness.

Most shoppers in 1970 anticipated the removal of cyclamates from the market. They may instead discover that the fine print on the label warns that the additive may be dangerous to one's health. Yet this chemical is capable of inducing cancer, and recent tests show that calcium and sodium cyclamate can induce chromosome breakage in the human leucocyte in vitro and in rat spermatogonial cells in vito. Its effects are very similar to a type of chromosome damage reported for LSD as well as caffeine when used in large doses.

An article headlined: "Are Cancerous Chickens Edible?" Yes! People will eat anything. "If tumors are detected on the wing of a bird, the wing could be cut off and used in products like hot dogs and the rest of the bird sold as cut-up chicken—all supposedly without posing a threat to human health."

It is well known to chemists that subjecting organic compounds to high temperatures produces complex polycyclic compounds by pyrolysis. Several carcinogens are included in this group of compounds. A benzopyrine (carcinogenic) content, as high as 50 micrograms per kg was found in some instances. It seems to arise from pyrolysis of fat when cooking food. The amount produced increases with increased fat content and longer and closer exposure of the food to the flame. Benzopyrine is found also in all smoked foods. The relatively higher incidence of gastric cancer in Northern Russia and Iceland has been related to the large quantity of smoked fish eaten by the inhabitants of these regions. In a review of cancer-causing properties of benzopyrine, it was found to be quite high in salami, salmon, bacon and provola.

Eating heated fats may be deadly. Animals fed cooked fat die prematurely said Dr. R. Kurkella, University of Helsinki. Research has discovered that the more fat a person eats, the shorter will be the life span.

Meat, the most perishable (and most expensive) of all foods is also one of the most tampered with. To see exactly how meat is produced one should read the Animal Machine by Ruth Harrison. It is the story of animal factories, where animals may live out their lives in darkness, immobile in steaming pens from birth to death, fed by conveyers containing drugs, antibiotics, tranquilizers, pesticides and hormones.

After an animal is slaughtered, or dies from disease, it is shipped off to the processing house. The meat is doctored up, for the benefit of the gullible public, with aesthetic beautifiers, stink reducers, taste accentuators, color additives, drug camouflagers, nutritive "enhancers," bleaching agents and death certificate. No corpse gets such a face lift by the embalmers and with good reason, for the corpse is soon buried, whereas salami, hotdogs, bologna, and chicken may sit on the shelves for months.

Meat is colored red with sodium nicotinate, otherwise it would turn yellow-gray. Uneven or excessive application can result in severe sickness, even death. However, when such incidents occur, they are seldom diagnosed correctly. At the Congressional Hearing on Meat Inspection it was reported that the sausages, ham, hamburgers, and the hot dogs you eat may be filled with hog blood, cereals, lungs, niacin, water, detergents and/or sodium sulfide.

The FDA refuses to recognize tests conducted by Dr. Patrick Riley at a London Medical School, where it was shown that BHA, a widely used preservative, is carcinogenic.

This preservative appears in luncheon meats, such as salami, bologna, and pressed ham, canned meats, peanut butter, canned chicken and other foods. Senator Alan Cranston commented in 1970 that "perhaps they (FDA) consider food processors' interests more than people's interests."

A typical associated press release occurred around Thanksgiving 1969: "U.S. finds pesticide in 90,000 turkeys in toxic levels." A few years ago cranberries were found to be unfit companions to the turkey. In Massachusetts alone during a more active month for health inspectors, 250 tons of meat were seized because it was contaminated. Such meat is quite often resold as 4-D meat: dead, dying, disabled or diseased. The winter of 1969, Boston had a month long scandal over the pollution of the slaughter houses of Massachusetts. Someday we are going to be civilized enough to be concerned over the killing and torture that goes on in the same slaughter houses.

ONLY TEN PERCENT of the meat adulterated with pesticides and chemicals, or contaminated with filth and diseased organs is condemned by food inspectors. The other 90 percent gets through to the unsuspecting consumer, so claims Leray Houser of the Health Education and Welfare Department.

"In 1965, a total of 711 firms suspected of producing harmful or contaminated consumer products refused to let the FDA conduct inspection...the FDA does not have subpoena authority either to summon witnesses, or authority to require firms to divulge pertinent records."

A very striking observation about the quality of animal products comes from the lips of the Health, Education and Welfare Secretary, Robert H. Finch, who FEARED THAT WE WOULD BECOME "A NATION OF VEGETARIANS" if there were strict enforcement of pesticide residues in red meat, dairy produce, eggs, fowl and fish.

Today we are faced with an external environmental crisis. We can control the inner body environment through good diet, pure water and joyful, positive thoughts. To procure good organic food economically, cooperation is a must.

Lesson 36 - Junk Foods: A Case Study Of Garlic And Onions

- 1. Introduction
- 2. History of Garlic
- 3. The Garlic Plant
- 4. Claimed Health Benefits
- 5. Onions
- 6. Claims Of Health Benefits
- 7. Are Onions And Garlic A Food?
- 8. Questions & Answers
- Article #1: Are Garlic and Onions Helpful in Preventing Stroke?
- Article #2: Gorgeous, Glorious Garlic

1. Introduction

Even though garlic or onions are not processed or altered, they are regarded as junk foods because they do not contribute to the welfare of the body when ingested. On the contrary, they contribute to disease by adding toxins to the body. As you will learn from this lesson, there are no health benefits to reap from ingesting either of these foods. They both contain toxic irritants which result in much harm when included in the diet and should, therefore, never be consumed. The importance of this statement will become evident upon completion of this lesson.

2. History of Garlic

Garlic is a hardy perennial bulb, native to the Mediterranean region of Africa and Europe. Its history dates back many centuries, and it was long used for rubbing the newborn infant's lips, and as a protection against disease by tying it around the throat.

The sun, the Cross, and garlic are the only three things reputed to scare away vampires. Both the ancient Egyptians and Greeks regarded garlic as having supernatural powers.

During the 17th century, garlic was credited with protecting many European households from the ravages of the Great Plague. In New England during Colonial times, garlic cloves were bound to the feet of smallpox victims. Cloves were also placed in the shoes of whooping cough sufferers. For intestinal worms, raw garlic juice or milk which had been boiled with garlic was often drunk. A clove or two of garlic pounded with honey and taken two or three nights successively, is good for rheumatism, herbalist lore tells us.

During World War I, garlic was used as an antiseptic in hospitals. Pads of sphagnum moss were sterilized, saturated with water-diluted garlic juice, wrapped in thin cotton, and applied as bandages to open wounds.

3. The Garlic Plant

The botanical name for garlic is Allium sativum. This hardy bulbous plant is a member of the lily family, which also includes leeks, chives, onions, and shallots. Like the onion, the edible bulb of the plant grows beneath the ground. This compound bulb is made up of several small sections or bulblets called "cloves" which are encased in thin papery envelopes. The cloves are eaten and also used for planting. Farmers plant the crop in early spring and the bulbs mature early in the fall. The bulbs are "cured" by drying in the field. Workers then braid the tops or remove them, and the garlic is ready for market. The bulbs are either sold whole or ground into powder. The juice of the garlic bulbs may also be extracted and sold.

3.1 Garlic's Pungent Flavor

Garlic is most often used to season foods because of its pungent flavor. A substance in garlic, called allicin, is responsible for its flavor and odor.

3.2 An Antibacterial Agent

Allicin is an antibacterial agent and an extremely irritating liquid. It has a drug-like property which, like any other drug, destroys life. Antibacterial agents kill bacteria. Do we wish to kill bacteria? Certainly not! Bacteria are essential components to life and without them life would not continue.

As students of Life Science, you know that bacteria do not produce disease but perform a very important function. These useful organisms come into action when the cell has finished its life cycle to decompose the dead cell and help to eliminate it from the body. They also act to clean up toxic material which the body eliminates. This is why they are often seen during a disease process.

Bacterial action takes place in all disease phenomena because these are processes requiring the breaking down or disintegration of accumulated refuse and toxic matter within the body, which the system is endeavoring to throw off. But to assume, as many medical scientists do, that merely because the bacteria are present and active in all disease phenomena, that they are therefore the cause of these same diseases, is just as wrong as it would be to assume that because bacteria are present and active in the decomposition process connected with all dead organic matter, they are the cause of the death of the organic matter in question. Bacteria are part of the results of the disease, not its cause.

It does not make sense to ingest a food which would interfere with or destroy this important function within our body.

3.3 An Anthelmintic and Rubefacient

According to Stedman's Medical Dictionary, the volatile oil from the bulb or entire plant of garlic is used as an anthelmintic and rubefacient. These are big words, but with big effects. We will take them one at a time.

An anthelmintic is an agent that destroys or expels intestinal worms. Now if one suspects that he or she has intestinal worms, one had better look very closely at his or her diet and lifestyle. And then run (don't walk) to their nearest Hygienic practitioner and go on a long fast! Taking an anthelmintic drug would not be the answer in any case as we cannot promote health by ingesting deadly poisons.

Any agent which is so poisonous as to cause immediate death to any other living organism should *never* be consumed. If this volatile oil, which is part of the garlic plant, is so powerful as to result in death of internal parasites and bacteria does it not stand to reason that it would also have a serious detrimental effect on the entire organism?

When any food is ingested, it goes through the same process of digestion and assimulation. Its components are broken down, absorbed through the intestinal lumen and eventually find their way into the bloodstream and lymph. These components are then carried throughout the body and the nutrients are used by the cells as needed. Nonusable components are, of course, rejected and eliminated. If these components are deadly poisons, much harm can be done as they circulate throughout the system and possibly combine with other chemicals within the body or are stored in the tissues.

A rubefacient is an agent which results in reddening of the skin. In other words, as soon as the extracted oil from the garlic is applied to the skin, a redness will result. What does this mean? Redness indicates inflammation and the body's response to an irritating substance. The body attempts to isolate this invading substance so that it does not enter the bloodstream and create further problems for the body to deal with.

We may assume that if this reaction occurs when this oil is applied topically, extreme irritation must result when it comes in contact with the more delicate lining of the gastrointestinal tract.

We know that the body regards garlic as a poison and attempts to eliminate it as soon as possible. Anyone knows that when they ingest garlic (even a very minute quantity) the odor will remain on the breath and even the skin will smell of garlic. The body is eliminating this poison through the lungs and skin, which seem to be the most rapid and efficient routes.

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4. Claimed Health Benefits

Many authors claim that garlic is a "miracle food" and recommend it to 'cure' all types of ailments. Paavo Airola says, "garlic is, indeed, a tremendously nutritious health food and a miraculous healing plant. It can truthfully be called 'the king of the vegetable kingdom.'" In the book, *Herbal Medicine*, Dian Dincin Buchman says, "If garlic weren't so cheap, we would treasure it as if it were pure gold. Garlic draws out pain, helps in resisting a cold, is an aid in combating hypertension, is a remarkable vermifuge (releases worms from the system), quiets the body, tranquilizes, can be directly applied to warts to whittle them down, can be used (diluted in lots of water) to irrigate the colon to control amoebic dysentery, and can help treat mild cases of mononucleosis."

In other words, garlic is a powerful drug which results in the suppression of symptoms. But causes have not been removed and no healing has occurred. We have, in fact, halted the healing process when we suppress the symptoms.

4.1 Reduced Blood Pressure

Paavo Airola says that, "In my own clinical practice, I have treated many patients with high blood pressure; in most cases the blood pressure was reduced 20-30 mm. in one week by taking large amounts of garlic and garlic preparations."

This was a very dramatic drop in the blood pressure of this patient. What would cause this pressure to drop so quickly? Was it the 'miracle' preparation of garlic? No, garlic has no ability to act just as no drug has the property to act upon the body. But the body does respond to food and toxins which enter. Furthermore, the garlic does not have a mind of its own to treat specific symptoms. It goes through the same digestive process as other foods and enters the circulation. The body detects it as a poison and marshals all of its forces to deal with that poison. Meanwhile, other bodily functions are slowed or depressed while this energy is being directed toward the emergency at hand. If there were healing in the heart, the body would have to stop this process in order to deal with the poison. Continued consumption of large amounts of garlic would have a continued depressing effect on the heart and all the bodily organs and a state of enervation or exhaustion would occur. It may be especially enervating on the heart as opposed to another organ in persons who have high blood pressure because this may be their weakest organ. One should not palliate symptoms but remove the cause of disease.

4.2 Prevents Plague Formation In Arteries

It is claimed that garlic prevents the formation of plaque in the arteries and thus helps prevent the development of artheriosclerosis and heart disease. Paavo Airola describes one experiment where one-fourth pound of butter at one time was given to five healthy volunteers. Three hours after the volunteers had eaten the butter, their cholesterol levels had risen from an average of 221.4 to 237.4. Later, the same volunteers received the same amount of butter along with the juice of 50 grams of garlic. This time, the cholesterol levels, instead of rising, went down from 228.7 to 212.7 in three hours. Now that really was a "miracle," or was it?

Now we must recognize that no one consumes one-fourth pound of butter in one sitting. The cholesterol levels in the blood would naturally rise after such a meal. But this is where the cholesterol should be after the meal—in the blood. Excess is then eliminated (as much as possible). That is, under ordinary circumstances, the excess would be eliminated when the body is not so drastically overloaded.

When the volunteers were given garlic with the butter, blood cholesterol levels were reduced. Where did the fat go? Did it disappear? No, it is still in the body, but it is in the tissues and has not remained in the blood. Allicin makes the cells and tissues more permeable and substances enter which would not ordinarily enter.

Garlic also interferes with certain physiological processes. It is known to interfere with the synthesis or breakdown of lipids in the liver. This is why the cholesterol level of those ingesting garlic over a period of time is lower. However, the body synthesizes cholesterol in the liver for a reason and it is needed for certain cellular functions. Any agent which interferes with any normal bodily function is health-destroying and not health-promoting.

The body has its own way of controlling the amount of cholesterol which is in the plasma. Cholesterol synthesis, as well as the hepatic mechanism for removing this steroid from the plasma, are both stimulated by thyroxine. Thyroxine is the hormone which is produced by the thyroid gland. This hormone plays a role in many metabolic activities besides control of cholesterol in the plasma as will be explained later. The output of thyroxine is controlled directly by thyroid stimulating hormone (TSH) secreted by the anterior pituitary. These mechanisms are part of the body's homeostatic mechanisms of checks and balances to keep all bodily actions and reactions in harmony and in balance.

A substance which is present in garlic as well as onions is mustard oil. Mustard oil is metabolically converted to thiocyanate in the body. This substance contributes to the formation of goiter by decreasing thyroxine synthesis in the thyroid gland. Thus, when garlic is eaten, thyroxine is decreased and therefore cholesterol synthesis is reduced.

Garlic then results in the interference of a very important homeostatic mechanism. The impairment of this mechanism does not have just one effect but many. Remember, the body works as a unit and never as separate independent parts.

People think that they have discovered a wonder drug or a miracle food just because one symptom has vanished—in this case, elevated serum cholesterol. In reality, it is a grave deception—an illusion.

Quite often one hears that excessive lipids are the major causes of heart disease. This is not quite the truth. The real cause is the overloading of toxins created through the over-consumption of fats in the diet and in general, an unnatural diet.

4.3 Garlic Cures Anemia

It has been claimed that garlic extract has a beneficial effect in the treatment of anemia. This is far from being the truth. In fact, the use of garlic actually results in anemia. The red blood cells are actually destroyed by the allicin in garlic.

4.4 A Cure For Arthritis

It has been claimed that garlic exhibits some anti-inflammatory activity and is therefore effective in the treatment of arthritis.

One cannot get well by suppressing disease. We must remove the cause of disease and provide the conditions for health. Then the body will heal. Garlic undoubtedly does have some anti-inflammatory drug effects. However, this is not a good aspect but an adverse one. Inflammation should never be suppressed as it is a healing response without which even a mild infection could become fatal. To suppress this response by an anti-inflammatory agent is to suppress healing. To more fully understand the consequences of suppressing inflammation, we will take a closer look at this process.

4.5 Inflammation

As mentioned, inflammation is a healing response within the body. Whenever there is tissue damage as a result of disease or injury, the damaged tissue cells produce histamines. These histamines cause changes in tiny blood vessels, which in turn release fluids into the injured area. Local blood flow increases, bringing blood cells whose specialty is destroying foreign microbes to the area. Along with these disease-preventing cells comes fibrinogen, which causes clotting. The clotting results in what is called "walling off," that is, Nature literally builds a partition between the infected area and the rest of your body. The effect is to prevent the infection from spreading. This partition, or wall, stops body fluids from moving outside the infected area, and these fluids build up in the area, causing the characteristic swelling of inflammation.

Before inflammation can arise, there must exist an exciting cause in the form of some obstruction or of some agent inimical to health and life. In this light, we see inflammation as a healing process.

The body does not suppress the growth and multiplication of disease germs until the morbid matter (toxins) on which they subsist has been decomposed and consumed, and until the inflammatory processes have run their course. The use of serums, antitoxins or anti-inflammatory agents given to suppress germ activity and the process of inflammation before it has run its natural course will lay the foundation for chronic destructive disease.

4.6 Garlic—A Body Detoxifier

How could any agent which is so poisonous and irritating be a detoxifier? It does, in fact, add toxins to the body. It is claimed that it detoxifies by stimulating the liver, the nervous system and the circulation. This stimulating effect is in reality the body's response to an unwanted agent and the body's efforts to eliminate it as quickly as possible. The ingestion of this food as a stimulant will, according to the Law of Duel Effects, eventually depress these organs. Only much harm can come from this practice.

4.7 An Anticoagulant Agent

One of the so-called benefits of garlic is claimed to be its anti-coagulant factor. In other words, it inhibits blood clot formation. In truth, this is not a benefit but an undesirable factor. As we all know, if our blood did not clot, we would bleed to death from a slight wound.

In certain disease conditions, a thrombosis (blood clot) occurs in the blood vessels. But if given the proper conditions, the body is equipped to handle this also. Nature has its own anticlotting factors.

Heparin occurs naturally in the body tissues. It reduces the ability of blood to clot by blocking the change of prothrombin to thrombin. Thrombin is the enzyme responsible for the formation of fibrin which is the structural ingredient in blood clots.

If a blood clot occurs with a blood vessel, a system within the body called the fibrinolytic system digests the fibrin clots into a number of soluble fragments.

4.8 Pesticidal Properties

The following are just some of the pesticidal properties of garlic:

1. Causes 100% mortality in 5 species of mosquito larvae when used in such small doses as 200 parts per million.
2. Planting rows of garlic plants between rows of vegetables or flowers which are specifically vulnerable to insect attack, such as rose, tomatoes, potatoes, cabbage, etc. will prevent insect infestations and protect plants.
3. When used on dogs, garlic will kill ticks within 20-30 minutes.

Would you put a pesticide on your salad? We had better leave the garlic in the garden!

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5. Onions

The onion is one of the oldest vegetables known to man, having been cultivated from the most remote period, as references in Sanskrit and Hebrew literature indicate. It is represented on Egyptian monuments. An inscription on the Great Pyramid states that sixteen hundred talents had been paid for onions for the workmen who built the Pyramids. There were certain religious sects who maintained that onions were impure and forbade their disciples and priests to eat them.

5.1 The Plants

Onions were raised in America as early as 1750. The leading onion-growing states include California, Idaho, Michigan, New York, Oregon and Texas. But onions are grown in many other states and Canadian provinces. Mexico, Italy, and Spain are also noted for their onions.

The onion plant is a biennial (a plant that lives for two years). The upper part of the plant is a set of leaves growing inside each other. The lower part of the leaves become very thick. The flowers are small and white, and grow in round clusters. The bulbs are enclosed in a thin papery covering made up of dried outer leaves. The onion plant has a few shallow roots.

The different kinds of onions have many sizes, colors, and shapes. People who trade in onions classify them as American (strong onions) and foreign (mild onions). The strong type includes the Yellow Globe types and the flatter Ebenezer type.

The onion is not particularly high in vitamins or in energy value.

5.2 A Toxic Substance

The substance in onions which gives them their characteristic odor and flavor is mustard oil, a volatile oil which is highly toxic. Its vapors are so irritating that they cause profuse watering of the eyes just by being in contact with the vapors for a few seconds. This oil, if applied directly to the skin, would cause extreme redness and blistering.

Anyone can testify to the fact that after they have eaten onions, even if it was only a small amount, the onion smell stays in their breath for a long time afterwards. The body eliminates much of this toxic oil through the breath as it attempts to get rid of this poison from the system.

5.3 Contributes to Goiter

As mentioned earlier, the mustard oil is metabolized in the body to thiocyanate. Ordinarily small amounts of thiocyanate are eliminated. But in large amounts this substance is highly toxic and results in disease. Thiocyanates are goitogenic. They contribute to the formation of a goiter by decreasing thyroxine synthesis in the thyroid gland. Thyroxine performs many important functions in the body.

One important function that thyroxine has in the body is to increase the rate at which cells burn their fuel, glucose. It also works in partnership with cortisol (a hormone of the adrenal glands) in defending the body against stress resulting from extreme cold. Thyroxine is also involved in other antistress responses. Emotional stress and severe hunger also provide an elevated thyroxine output. In general, thyroxine comes into play when there is an extra demand for energy. Thyroxine also increases the heart rate. When it is synthesized within the cells of the thyroid, this hormone becomes a part of a protein (thyro-globulin) until needed. When needed, a complex reaction involving the proteolysis (hydrolysis) of thyroglobulin and the synthesis of thyroxine takes place.

This is the point where the thiocyanate interferes with the synthesis of thyroxine. Apparently, the interference occurs with this protein but further research still has to be done in this area. At any rate, much harm can result.

5.4 Onions and Anemia

In *The Complete Book of Food and Nutrition*, J.I. Rodale relates a series of experiments concerning the adverse effects of eating onions. According to Rodale, Dr. M. Kaiser, of the University of Illinois College of Medicine, gorged (experimentally) on enough onions to bring himself down with an all-out case of anemia in a single week.

Experimenting with dogs, the same Illinois scientist first tried them out on the ordinary onion oil extract that is widely used in restaurants and homes for food-flavoring, and discovered that a daily dose of a mere quarter teaspoonful of this substance produced the disease in marked degree. Found to be too potent to try in a proportionate scale on humans, this extract should, they agreed, not even be used in extreme moderation in seasoning.

The next stage in the course of their study consisted simply of enlisting volunteer medical students to overeat the plain food, and in this stage Dr. Kaiser himself participated. Besides their regular diet, the group consumed over two pounds of cooked onions daily for 5 days. At the end of this time all showed typical anemia symptoms, dragging themselves around in an exhausted state and turning pale to their fingertips. On laboratory examination, the red cell count in their blood exhibited a drop of about a million, and the hemoglobin content was also starkly reduced. But this was only a slight anemia when compared with that of the dogs, which for 15 days had been fed comparable amounts of the pungent bulbs. In the animals both red cell count and hemoglobin had sunk to 50 percent below normal.

This destruction of the red blood cells and subsequent liberation and loss of hemoglobin has very grave consequences to the body's overall integrity. The red blood cells, along with the other constituents of the blood, perform many very important functions. Below is a list of just some of these duties:

1. It is the medium by which oxygen is transported from the lungs to the tissues.
2. Carbon Dioxide, a product of the metabolism of cells is transported from the tissues to the lungs.
3. Nutrient materials are absorbed from the intestine and carried to the tissues.
4. Many organic substances that represent breakdown products of metabolism are carried by the

blood to the kidneys for excretion.

5. Hormones, the secretions of ductless or endocrine glands, are distributed throughout the body by the bloodstream.
6. The blood flows from the deeper and warmer parts of the body to the extremities and tends to distribute heat more evenly to all parts of the body.
7. The blood plays an important part in maintaining acid-base balance of the tissues.
8. There is a constant relationship between blood volume and the fluid content of the tissues.
9. The ability of the blood to form a clot and so reduce bleeding has been of survival value to animals and man.
10. The blood performs an important part in cleaning up foreign matter and dead cells from the body.

We can thus see that by disturbing one thing in the body we disturb many functions. But these problems can be avoided simply by staying on a correct diet and avoiding such toxic foods as garlic and onions.

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6. Claims Of Health Benefits

It has been claimed that onions 'cure' coughs, colds, flu, sinus ailments, bruises, hemorrhoids, and chilblains plus assorted other diseases.

As Hygienists, we know that this could not be true. Only the body can heal. The use of onions may suppress disease symptoms but this is certainly an undesirable effect as this results in suppressing our body's attempts to heal.

Poisons do not heal—poisons only poison. There are no health benefits in eating onions.

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7. Are Onions And Garlic A Food?

In order for a food to be considered an acceptable part of our diet it must not contain harmful or toxic substances. It must not furnish the body with digestive and eliminative problems. Neither garlic nor onions qualify in this respect.

The food must be delicious. We should be able to eat it with relish. We can't really say we relish the strong flavors of garlic or onions. Just peeling onions is a job most people dread!

The food must be easy of digestion and assimilation. Does not qualify here!

The food must contain a rather broad range of nutrients and be fairly complete in their complements of nutrients. Both onions and garlic offer little food value.

We should be able to make a mono meal of the food if we desire. No one could make a complete mono meal of either garlic or onions or even consider doing so. Whereas, a mono meal of watermelon, mangoes, grapes, peaches, cherries, or oranges is very appealing.

The conclusion is undeniable that neither garlic nor onions is a true food and they both should be excluded from our diet. I cannot really imagine that anyone would greatly miss these items as they are not really appealing and their after-effects (such as bad breath) are so disturbing. Do yourself a favor and eliminate garlic and onions and you will reap the benefits by increased health and vigor.

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8. Questions & Answers

Would onions be all right to eat if they were cooked?

> Since mustard oil in the onions is a volatile substance, some of it will evaporate during the cooking process. However, enough will remain to make it a toxic substance. Furthermore, I do not recommend cooking as it alters or destroys most food constituents and contributes to toxins in the body. Try staying with an all raw food program and you will find that you will not require onions for seasoning.

I always heard that if you wear a clove of garlic on a string around your neck during the winter, it wards off colds. Any truth to this?

> No, it is just an 'old wives tale' which has been passed down through the generations.

Are the milder tasting onions less harmful than the stronger ones?

> They are somewhat better but still contain enough mustard oil to warrant keeping them off the diet.

Why do I always experience indigestion following a meal that contains either garlic or onions?

> All members of the onion family—onions, garlic, leeks, shallots, chives, etc.—as well as radishes and all other foods containing appreciable amounts of mustard oil—inhibit digestion. This is because they occasion irritation of the stomach and intestines.

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Article #1: Are Garlic and Onions Helpful in Preventing Stroke?

A reader of the Health Crusader has submitted an article praising onions and garlic as useful in preventing stroke. He was sure we were right in our stand on garlic and onions but is not so sure now that he read the article that says we need these obnoxious plants to prevent stroke.

The article says "these smelly vegetables are beneficial in treating many ailments." Now two scientists (unnamed in the article) have isolated the compounds (also unnamed) in garlic and onions which prevent the clumping together (clotting) of blood cells that block circulation and cause strokes.

Of course we know the names of these substances in onions and garlic. They are allicin, a poison on the same order as digitalis (an extract from foxglove) and mustard oil, a highly volatile oil that goes through cell membranes and gets into the cells with great ease. The body cannot digest either of these poisons nor make use of them. They go into the tissues and blood quite readily and cause havoc. The body violently objects to poisons and the eliminative and purifying organs are burdened with a big job. The kidneys, lungs and liver become injured. Their ability to get rid of poisons becomes impaired as they are abused and overworked.

In this article is a basic mistake, namely, the presumption that strokes must be prevented. Nothing is further from the truth. They must be caused! We must not consume disease-causing, sickness-promoting "foods" and drugs. We need to obtain plenty of rest, exercise, and fresh air. Healthy people don't get blood clots, and taking substances of any kind which contain poisons will not make up for wrong living and eating habits. It will only add to the body toxicity that caused the problems in the first place.

Let's not eat overly strong foods containing poisonous substances in the mistaken belief that we can prevent stroke or any other health problem. That which is not bound to happen doesn't have to be prevented or avoided. Vibrant health is normal and will exist unless disease is caused.

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Article #2: Gorgeous, Glorious Garlic

Beauty is in the eyes of the beholder. To us, a ripe red apple entices. To a tiger, a gory red carcass is enticing.

So, in seeing an article that sings the praises of garlic in the November, 1978 issue of Reader's Digest, I wonder what is at the heart of it. Magazines usually don't devote their space to something without a commercial angle unless there is an overriding reader interest. But let's presume this article is simply an effort to present a topic of general interest which they sincerely feel will benefit their readers.

When we get into the article we find that garlic is praised for about everything except its food value. In fact the windup is that garlic is a "flavoring agent," a condiment. But in between we find it is quite toxic (not by the tenor of the article but by some of its uses as an antibiotic and an insecticide). It was noted that its juice can be used as an antibiotic to kill a culture of bacteria in just minutes.

We organic gardeners have long known that we can protect our gardens well by planting garlic amongst some of the rows. Also, it is suggested that the juice of garlic can be used for killing mosquito larvae, aphids, houseflies, caterpillars, etc.

But we of life Science recommend that you not eat garlic because of its poisonous qualities. To be sure, the mustard oil of garlic is the sole ingredient for which it is recommended. And just as surely, it is a poisonous indigestible oil that plays havoc with the human constitution just as does the capsicum of hot peppers, the nicotine of tobacco, the solanine of the nightshade family or any of the myriad of other poisons of popularity referred to as herbs.

There will be a day when garlic and other plants bearing poisons will be recognized for what they are and shunned rather than praised.

Lesson 37 - Fermented And Putrefied Foods In The Diet; Studies Of Other Junk Foods

- 1. Introduction
- 2. The Myths Of Fermented Foods
- 3. The Harmful Effects of Fermented Foods
- 4. Types of Fermented Foods in the Diet
- 5. Questions & Answers
- Article #1: Excerpt from The Health Crusader

1. Introduction

RECIPE: "Take one fish and press it under a heavy stone for 24 hours. Remove the fish and pound it until soft and add two cups of salt. Lay the fish in the open sun for another day. Pack fish into straw and put into an open jar. Set jar with fish out in the sun for another month. Smash month-old salted fish into a paste and use it as a soup or spread. Delicious!"

This is a recipe for probably the first fermented food ever eaten by man. Today he eats many more types of foods that have undergone some fermenting processes. Cheese, yogurt, pickles, sauerkraut, soy sauce, vinegar, beer and buttermilk are some of the more common fermented foods eaten today.

None of them are necessary in the diet.

1.1 What Is A Fermented Food?

A fermented food is basically a food that has been very carefully spoiled. Fermentation occurs when certain microorganisms (bacteria) break down a food into various waste products. If the "wrong" types of microorganisms decompose the food, then putrefaction, or rotting, occurs.

Fermented foods, then, are the result of active bacteria and contain their waste products (lactic acid and acetic acid are two examples). Putrefied or rotten foods also contain bacteria and certain waste products (usually a nitrogenous substance like ammonia).

Why do people want to eat rotting or decayed foods? Can these foods be beneficial in any way, as some people have claimed? What happens when you eat fermented foods?

1.2 How Fermented Foods Began

Fermented foods like yogurt, pickles, beer and so on were originally used as a substance for fresh foods. Fermentation became a way of preserving foods for the time when there was no supply of fresh food. In effect, man found a way to "spoil" his food by choice so that he could eat it at a later date.

Cheese, for example, was one way that milk could be preserved without refrigeration. Excess cucumbers and cabbage were turned into pickles and sauerkraut for the winter. Fermented foods were actually some of the first preserved foods.

And, like all preserved foods, they cannot supply the ingredients of good nutrition. Still, man has eaten them for hundreds of years, and over that time he has developed some good reasons (or excuses) for eating foods that are full of bacteria, decay and waste products. Let's look at the reasons given for including fermented foods in the diet.

2. The Myths Of Fermented Foods

Fermented foods have been used and have been recommended in the diet for basically four reasons:

1. Fermented foods are a healthy way to preserve food.
2. Fermented foods can replace beneficial bacteria in the intestines.
3. Fermented foods can aid digestion.
4. Fermented foods are necessary for a long life. All of these reasons are false.

2.1 Fermentation Is NOT A Healthy Way To Keep Foods

Once a food has begun to ferment, it usually continues to do so until it has completely rotted. To halt the fermentation process, either salt, vinegar or extreme cold is used to inhibit the growth of the bacteria living in the food.

Many fermented foods are heavily salted. Salt is a biocide. It kills and inhibits life. The salt in fermented foods prevents the native bacteria from multiplying to the point where putrefaction occurs.

Salt is a useless and harmful inorganic chemical that should never be eaten. Pickles, sauerkraut, cheese and other fermented foods are very heavily salted. Foods preserved with salt should not be included in the diet.

Vinegar is another popular additive to various fermented foods. Vinegar itself is the result of fermentation and is used in concentration to halt the continual decay of fermented foods.

Vinegar, however, disrupts the digestion, kills healthy blood cells, and irritates all the membranes. Pickles and other foods which have been soaked in vinegar are rendered totally indigestible. Many times the digestive juices cannot penetrate and break down the food preserved by vinegar, and so the fermented food passes through the system just as it was swallowed.

A few fermented foods, such as yogurt and beer, are not salted or preserved with vinegar. These types of fermented foods are usually held at low temperatures or bottled to inhibit the continuing growth of the fermenting bacteria ?

2.2 Fermented Foods Do NOT Replace Beneficial Bacteria

One of the reasons most often given for eating fermented food is that they replace beneficial bacteria which naturally live in the intestines. These bacteria aid in the breakdown of food particles and are a part of our native intestinal microflora.

By eating foods rich in bacteria (such as fermented foods), it is believed that our own native bacteria will be enriched and re-established. It sounds reasonable, but this is also a myth.

The effects of fermented foods on the intestinal bacteria are only transitory at best. For example, one of the major so-called beneficial bacteria is called *Lactobacillus bulgaricus*. It's found in yogurt and other naturally fermented foods.

This bacteria, however, *is not a normal inhabitant of the intestine*, and it does not survive long in that environment. In fact, as soon as the foods containing this bacteria are no longer eaten, this "beneficial" bacteria packs its bags and leaves your intestines with the next bowel movement.

Still, there is the persistent insistence that fermented foods can somehow re-establish the needed bacteria in the intestines. People are often advised to drink buttermilk or eat some yogurt or take a swig of acidolphilus after taking antibiotics which have killed the "beneficial" bacteria along with the so-called "harmful" bacteria.

This is quite humorous. First, some bacteria are deemed bad or harmful and a pill is taken to kill them. But the pill works too well, and bacteria we call "good" are also killed. So now we must eat foods full of bacteria to get the "good" bacteria back into our system!

Because of these claims made for fermented foods, much research has been done to see if they can indeed reestablish beneficial bacteria in the intestines. According to a study reported in the *American Journal of Clinical Nutrition*, the influence of "dietary microflora (bacteria) on the large intestine microflora is unsubstantiated." The researchers also discovered that even eating *two pounds daily* of true Bulgarian yogurt "failed to elicit a response in the fecal flora."

2.3 Myth: Fermented Foods Aid Digestion

When a rotten or spoiled food is eaten, the body hurries it to the nearest exit in an effort to protect itself. If the food is extremely putrefactive, diarrhea may result. If the food is fermented, an increased motility of the intestines occurs. This increase in intestinal motion is wrongly associated with beneficial digestive or laxative properties of the fermented food. In reality, the body is trying to speedily eliminate a substandard food.

The idea that fermented foods could somehow make digestion easier probably came from the observations of people who could not tolerate whole milk but could eat yogurt or some other fermented milk product.

Over 70% of the world's adults cannot digest milk. They lack a digestive enzyme called *lactase* that is needed to digest milk sugar or *lactose*. Undigested lactose results in diarrhea, cramping and abdominal pains. Fermented milk products are low in lactose, and cause less discomfort than unfermented milk.

Two things should be obvious from this discussion. First, fermented foods (in this case, fermented milk products) are *not* aiding digestion, but instead are just low in one of the factors that may cause digestive distress (lactose). Digestion is always and entirely under control by the body. Foods cannot "aid" digestion anymore than they can aid breathing or circulation. True, unsuitable foods can disrupt digestion (like milk and its products) but it is fallacious to say that foods which do not disrupt digestion are in fact aiding it. Food is inert. It can do nothing. It is acted on by the body. It cannot perform or abet an active, organic process.

The second thing to be learned is that obviously milk and its products are not good foods for the human body. If a food cannot be enjoyed in its natural and unprocessed state, then it is not a suitable food for the human diet. If milk must first be fermented (or partially decomposed) before it can be tolerated, then why should it ever be used in the first place?

Remember that foods cannot improve digestion, be they papayas or yogurt or sauerkraut. Digestion is improved by allowing the body to rest from this process (fasting) and letting it regenerate its own capacities—not by swallowing a fermented and rotted food.

2.4 Eating Rotting Foods For Longer Life?

The most romantic myth about fermented foods is that they can prolong your life. We are given images of 100-year-old Russians dutifully swallowing their yogurt or we're told about how every long-lived people include at least one fermented food in their diet.

Here is a recent promotion for eating yogurt, perhaps the most popular fermented food: "Yogurt can cure ulcers, relieve sunburn and forestall a hangover. It can be used as a facial or as a remedy for malaria. It confers long life and good looks, prolongs youth and fortifies the soul...."

Stay young, live long and have your soul fortified—quite a claim for a dish full of soured milk. If only it were true.

The idea that fermented foods can prolong life is totally unsubstantiated. This belief got its start around the turn of the twentieth century when an over-enthusiastic researcher named Uya Metchnikoff visited the Bulgarians in Europe. He discovered they had the greatest number of people who had lived past 100, and most of these people also incidentally ate yogurt. He seized upon these two coincidents and tried to present them as "cause" and "effect" without any real research or facts.

Other health writers since that time accepted Metchnikoff's speculations as truth and let their imaginations run wild. The truth is this: *There has never been any validated research which indicates that yogurt or any other food has "life-prolonging" properties*. One nutritional researcher, Beatrice Trum Hunter, states that "the yogurt in the long-lived Bulgarians diet was by no means the entire reason. The generous quantities of home-grown vegetables and their stress-free lifestyle played the vital roles in health and longevity of these people."

It's always tempting to think you can eat yourself into a long life, and for those people who fall prey to that kind of thinking, the yogurt manufacturers can find a ready market.

A long life, full of happiness and well-being, has as one of its requirements that wholesome, natural foods in an unprocessed state make up the diet. In any case, fermented and rotting foods could not be termed wholesome or natural. In no way, should yogurt or any other fermented food be given "magical" properties by over-enthusiastic promoters and writers.

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3. The Harmful Effects of Fermented Foods

So far, we have only discussed the myths of the supposedly beneficial effects of fermented foods. Can we say that even though these foods may not be particularly beneficial that they are perhaps harmless? No.

Fermented foods are not only ineffective, but they possess harmful properties as well. We have already mentioned that many fermented foods are heavily salted or preserved with vinegar which makes them harmful. What are some of the other bad properties of these foods?

3.1 The Side-Effects of Fermentation

When foods ferment, or decompose, certain waste products are produced by the bacteria which break down the food. One of these byproducts is alcohol. Many fermented foods, such as soy sauce, contain a significant amount of alcohol. Of course the alcohol in fermented foods is usually a small quantity (unless the fermented food happens to be wine or beer!), but even small amounts of alcohol affect the cells of the body.

Ammonia is another product of fermentation. Fermented soy may be as much as 15% *ammonia*. Ammonia is dangerous enough as a house-cleaning agent. You certainly shouldn't be eating it.

Vinegar, in the form of *acetic acid*, also results from food fermentation. This acid gives fermented foods their sour or sharp taste. That sharp taste is a signal to the body that the food should not be eaten as it is harmful. Vinegar prevents the digestion of foods, so a food filled with vinegar and other similar byproducts would seem to be indigestible.

Another acid that results from fermentation is *lactic acid*. Lactic acid is a waste product. If you have ever exercised or worked harder than usual, you might notice a stiffness or soreness in your muscles. That stiffness results from a buildup of lactic acid in the muscles. Now eating fermented foods that contain lactic acid may not make you "stiff," but does it seem intelligent to eat foods that are already high in waste byproducts?

Other acids are also present in fermented foods. Carbonic acid is found in fermented foods and also soft drinks. All of these acids are the wastes produced by the bacteria which are feeding on the decomposing, "fermented" foods.

3.2 Fermented Foods Are Low In Nutrition

The foods that are highest in nutrition are those which are eaten in their fresh, natural and unprocessed state. As soon as a food is tampered with in any way, nutrient loss results. The longer a food is held in storage, the lower it becomes in nutrition.

Fermented foods are usually processed or destroyed in some manner. After that, they are often stored and used over a period of weeks or even months. You can eat a pickle that was once a cucumber perhaps one or two years ago, but it is very doubtful if any of the original nutrients remain in that cucumber.

Many times, foods are first heated to a high temperature before fermentation is allowed to occur. Milk is first heated or pasteurized to kill off all bacteria. Then it is inoculated with a specific bacteria strain to ferment it into yogurt. The milk serves merely as a bacteria culture ground.

If heat is not used, then the food is often chopped, sliced, smashed or blended. A whole head of cabbage does not readily "ferment," but if you bruise and chop it to pieces, then the bacteria will do their natural job of finishing the decomposition process. Whenever foods are cut, chopped or sliced to start the fermentation process, rapid oxidation of the food and a nutrient loss occur.

Another reason given for eating fermented foods is that they are high in B-vitamins, or that they may somehow encourage the body to produce more Vitamin B12 in its intestines. Just the opposite may be true.

According to research, the levels of Vitamin B12 may be *reduced* by fermented foods. A Bulgarian report indicates that the bacteria within yogurt use the B12 *for their own growth*. The B12 in kefir (a fermented milk drink) decreases in proportion to its fermentation.

Instead of adding nutritional benefits to the food, fermentation decreases some vitamin and mineral availability.

We've explored the myths surrounding fermented foods and described some of the harmful effects that may occur from their use. Now it's time to name names and discuss each popular fermented food.

4. Types of Fermented Foods in the Diet

Various fermented foods are eaten all over the world. Fermented fish cake is a delicacy in Japan, while the Koreans eat pickled garlic. Our discussion of fermented foods is limited to those foods eaten in the United States.

4.1 With A Moo-Moo Here...

The most popular types of fermented foods in this country are those made from dairy products. We have already discussed the unsuitability of milk and its products as human foods, so we'll give you a brief rundown on other aspects of these fermented foods.

4.2 Yogurt

Yogurt has been aggressively marketed as a health food. It's been called the "perfect food" and "insurance for good health." The U.S. Department of Agriculture in its yearbook for 1965 makes this unqualified statement: "Yogurt has no food or health values other than those present in the kind of milk from which it is made."

Yogurt has also been advertised as the perfect diet food. Even on this point, yogurt fails. It is high in saturated animal fats, and although plain yogurt has 154 calories per cup, over 80% of all yogurt eaten is the sweetened fruit-flavored variety which has 275 calories a cup.

Research in the last ten years has pointed out another danger of yogurt: cataracts. A cataract is the cloudiness of the lens of the eye. In severe cases, it causes blindness.

In animal experiments, *all* animals that were fed yogurt exclusively for several months developed cataracts in both eyes. In parts of India where yogurt is a large proportion of the diet, the incidence of cataracts is very high. A coincidence? Doubtful.

Researchers finally decided that some individuals may develop cataracts if they eat foods containing high levels of galactose (a sugar less soluble and sweet than glucose). Yogurt is one of the highest foods in galactose. Most commercial yogurts are 22% to 24% galactose.

People that usually do not eat dairy products sometimes feel obligated to sneak some yogurt into their diet for "health" reasons. There is nothing magical or healthy about yogurt. Like all milk products, it should not be used in the diet.

4.3 Don't Say Cheese!

Cheese is a very popular fermented food. The harmful effects of this food have already been discussed in an earlier lesson. You may want to consider this fact: most commercial cheeses have their fermentation process started by the addition of *rennet* to the milk. Rennet contains the enzyme rennin which is found naturally in the stomach of a cow.

To get rennet to ferment the cheese, the stomachs of cows are scraped. These stomach extracts are then added to the milk for curdling the cheese. So, can you be a "vegetarian" and still eat cheese which is made with stomach scrapings of cows? Probably not.

Cheese is a food that is always rotting. Leave a piece at room temperature and you'll have blue, green, white and yellow mold growing all over it. Some people even like to eat this mold, but then some people will eat anything. You don't need "moldy milk" or cheese in your diet.

4.4 Buttermilk, Sour Cream and Kefir

There are other fermented dairy foods besides cheese and yogurt. Buttermilk and kefir are two popular fermented milk drinks. Sour cream is exactly that: cream that has soured and gone bad.

Be aware that not only are these foods substandard because they are dairy products, but they are often adulterated before being sold. Buttermilk frequently has salt added to it; kefir is usually sweetened, and sour cream will have preservatives to keep it from becoming totally putrid.

4.5 Vegetables You Can't Digest

A popular diet a few years ago allowed the dieter to eat all the pickles he or she could hold. If you wanted a snack, eat a pickle. If you had a meal, eat some pickles with it. Why? Because pickles are indigestible. They pass right through just as they were eaten, undigested and unabsorbed. There are better ways to lose weight that this pickle diet, but it does point out one fact: pickled and fermented vegetables are indigestible.

A cucumber is an excellent vegetable. It's crisp, slightly sweet, full of vital fluids, minerals, vitamins and amino acids. But if you soak that cucumber in vinegar and make a "fermented" food out of it, you've destroyed any beneficial properties it had. Digestive juices cannot penetrate pickled foods. They're like eating rubber. They pass right through you in the same small chunks that you chewed.

They are also heavily salted, spiced and preserved. They should not be eaten.

Although almost any vegetable can be fermented, the next most popular vegetable besides cucumbers for this purpose is cabbage. Sauerkraut is eaten in great quantities by some nationalities. Could it possibly be an acceptable food? Here is what T.C. Fry wrote about this food in 1981: "Sauerkraut is indigestible. The acetic acid (vinegar) that results from its bacterial decomposition is damaging to our digestive tract and inhibits the digestion and utilization of foods eaten with it. It is in the same class as all rotted foods."

4.6 Where's The Joy In Soy?

Most of the fermented foods eaten in the world are made from soybeans. Of course, most of these fermented soy foods are chiefly popular in the Orient, but in the last few years they have greatly increased in use in this country as a result of the macrobiotic and other health movements. Is a fermented soybean good for you? You probably know the answer by now, but let's look at some of them briefly:

Soy Sauce or Tamari: This is the most popular fermented soy product. It is a liquid made from fermenting soybeans and sometimes wheat in large barrels. The end product is a very dark and salty liquid. It contains ammonia, alcohol and various acids. It is also 18% salt.

Miso: Another high-salt fermented food made from soybeans principally. It is used in great quantities by the Japanese, which in turn makes them the highest salt-consuming nation on earth. The Japanese also have the highest rates of stomach cancer on earth—a fact closely related to their high-salt intake of fermented and pickled foods.

Tempeh: This is not a very widely known fermented soy food yet, but it is being very aggressively marketed by private soy industries in this country and also by the Department of Agriculture. Tempeh is a cake of souring soybeans that have a heavy layer of grey-white mold growing all over them. This heavy layer of mold is somehow supposed to make the soybeans more digestible (incidentally, soybeans are probably the hardest to digest of all beans, none of which are easy to digest anyway).

Research in the last 15 years has shown that there are dozens of different toxins produced by molds. Different molds produce different toxins. Aflatoxin is the best known toxin and is a potent cancer-causing agent. All molds, however, produce their own unique toxin. Cooking does not destroy the toxins produced by mold. Why anyone would desire to eat moldy foods is a mystery, but it is no secret that they are dangerous.

4.7 Other Fermented Foods

There are fermented grain products such as sourdough bread. There are fermented drinks such as beer and wine. Some health enthusiasts have devised fermented "nut" cheeses and saltless sauerkraut.

There are two things you need to know about these and all other fermented foods. First, these foods are not needed in the diet. They perform no function, provide no special nutrients, contain no "beneficial" bacteria and have no magical, life-extending properties. Secondly, all fermented foods contain harmful bacterial waste byproducts as well as possible salt, vinegar and other preservatives. In and of themselves, they are harmful to the living organism.

If a person follows the biologically correct diet of fresh, unprocessed fruits, vegetables, nuts, seeds and sprouts, he will have no perverse cravings for such spoiled foods. Eating rotting, putrefying and decomposing foods is an acquired habit, much like meat-eating and eating junk foods. Like these perverse habits, the practice of eating fermented and putrefied foods should be quickly abandoned by the dedicated seeker of health.

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5. Questions & Answers

I think you're wrong. Whenever my stomach is upset, I can eat yogurt but any other food bothers me.

> Fermented foods may be "tolerated" by people with poor digestion because in actuality these foods do not digest at all! The body has the wisdom to recognize a spoiled and rotted food (which is what a fermented food is). It tries to hurry this food through the digestive tract to the anus where it can be quickly expelled and not disrupt the body. You don't digest a fermented food—you can only quickly eliminate it.
>
> By the way, no food should be eaten on an upset stomach. People often make the mistake of eating something to "soothe" digestive upset. If you ever experience any digestive discomfort, that is a strong signal for you to skip or postpone your next meal.

Almost every country in the world has some fermented food that they eat. Don't you think that means something?

> Tradition and popularity are the poorest ways to determine a proper diet. The only authority you should rely on when it comes to determining what is best to eat is your own body. In other words, the physiology and anatomy of your body are what make foods "acceptable" or "harmful" in the diet.
>
> Your physiology will not accept fermented or rotting foods as a substitute for wholesome foods. Your body does not digest them. The waste products in such foods disrupt the digestion. The nutrient loss in fermented foods makes them unbalanced. Learn about the physiology of your body and the mechanics of digestion. These will tell you

more about a good diet than the mistakes made by millions of others.

I make my own saltless and raw sauerkraut from fresh cabbage. I also have "yogurt" made from milk of blended raw nuts. I enjoy these foods and they have not been cooked, salted or so on, Why shouldn't I continue to use them?

Let me ask a question. Do you actually improve the cabbage or nuts or whatever you ferment by this process? No. You have processed them either by blending, chopping, liquifying, grinding or whatever. You have fractured the foods and encouraged oxidation and nutrient loss. You have allowed fresh and wholesome foods to slowly decompose and rot from bacterial action.

What do you gain from all of this? Better health? Mysterious benefits? Nothing at all. If there's no benefit to fermented foods, why go to all the trouble of adulterating your food? True, you are using the best of ingredients with no harmful additives. But by encouraging these foods to putrify to give them a sour taste, you are wasting them and doing yourself no good at all.

Article #1: Excerpt from The Health Crusader

If cooked and processed foods, meat, coffee, tea and other beverages are so poisonous, how come 75% of our population live to be 70 to 80, some even older? If dead food and poisonous foods are so bad, that doesn't seem right. There is some contradiction in your teachings somewhere along the way. Please explain.

Your question really opens a can of worms! First, there are some unwarranted assumptions, namely that people live to be 70 or 80 on an exclusively dead food diet containing poisonous beverages and processed foods. That is not true. Most people do get raw foods almost on a daily basis. It is because of these foods that we survive as well as we do. The main thing humans require in their food intake is fuel, and cooked foods do furnish this. But they also give an unwanted product—poisonous ashes which result from the breakdown or destruction of food from heat. These poisonous ashes are not as readily observable as ashes in a fireplace or from a cigarette, but they are there nonetheless. Consuming ash-laden food is destructive. It is by a thin margin that we last as long as we do.

The human body is marvelously complex. It has hundred of defensive mechanisms to protect it against the ravages of poisons. The body has a tremendous capacity for throwing off poisons. But this capacity is best not used because each bout with poisons lowers our vitality until finally we become the whimpering suffering bunch that the majority of us really are. Did you know that over 50% of Americans suffer from some serious chronic illness? Did you know Americans suffer over 600 million colds a year? Did you know that 50 percent of American meals end up in indigestion? Did you know that 45 percent of Americans die of heart problems? Another 20 percent from cancer?

Humans are hard to kill—that's all that your question indicates. If we look into the factors of longevity, we see that disease and suffering are very, very common among Americans. It's incredible that many live to 70 or 80! But, if we lived healthily we might live to well over 100 on the average—*without any suffering!* America is so bad off healthwise that I can say there's a 99% chance that you have bad teeth, a 72 percent probability that you have less than perfect eyesight (perfect is normal), a 50 percent chance that you have some nagging perpetual ailment, and so on.

Yes, it is remarkable that the human body can take so much punishment and yet survive. But that is no reason to continue the abuse of our highly-developed organism. It will be so much more serviceable and perform so much better if it is accorded the care it requires. In this regard it is like an automobile. But, unlike an automobile, we cannot replace it. Attempts are made to replace body parts but this is often unsuccessful or unsatisfactory because the body rejects alien tissues.

Do you know what happens to those who don't get enough nutrients and who consume junk food and other poisonous substances? Have you ever wondered why cancer is now our number one child killer? The truth is that junk foods, cokes and sodas, meats, eggs, etc. cannot make healthy (normal) cells. Without the minimum nutrients needed the powers of life wane and the poisons wreak their havoc until leukemia or other cancers result. One of the most prominent features of our way of life is our prevalent disease and suffering. The average Chinaman is a living example of fitness and well-being compared with the average American. Yet this is not to praise the Chinese mode of living. Rather, theirs is simply much less harmful than our own. They do so many more things that are right by their bodies than we do.

Americans play the game of Russian roulette with their bodies. But it's our life, not a game. Learn how to live healthfully. Then apply what you know. Put what you're learning into practice now.

Lesson 38 - Sociological Benefits And Economic Ramifications Of The Avoidance Of Junk Foods

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- 3. Junk Food Tactics
- 4. Breaking The Junk Food Addiction
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- Article #1: Control Through Clear Thinking By A.D. Andrews, Jr.
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- Article #3: Blueprint For Survival By Keki R. Sidhwa, N.D., D.O.
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1. Introduction

1.1 The Junk Food Problem

Junk foods are more than just something to eat. They also represent money, profits, past emotional associations, childhood indulgences, and high-power advertising.

The junk food problem is not simply one of nutrition, but is related to the economic structure of this country and to the psychological and emotional makeup of millions of Americans.

If you want to wean yourself, your friends, and your clients away from health-destroying junk foods, then you must also understand the true nature of junk food addiction. You must learn how junk food is promoted, and why we allow ourselves to become willing addicts to food that supplies no nutrition or fulfills no need in the human diet. In short, you must learn about the economical and psychological aspects of junk food.

1.2 The 50% Junk Food Diet

More than half of all foods eaten by the typical American are junk foods. A junk food in this case means a food that is exceptionally high in sugar, fat or salt and supplies little or no nutrition. In short, a junk food consists largely of calories and little else.

Still, it is hard to believe that one out of every two bites eaten is a mouthful of junk food. Yet, it is true. Here's what the typical American ate last year:

1.3 Junk Food Consumption of the Average American (Per Year)

1. Refined white sugar	100 pounds

2. Fats and Oils	55 pounds
3. Soda and Cola Drinks	300 cans or bottles
4. Chewing gum	200 sticks
5. Ice Cream	80 quarts
6. Candy	18 pounds
7. Potato Chips	5 pounds
8. Other snack chips	2 pounds
9. Doughnuts	63 dozen
10. Cookies and cakes	70 pounds

On the average, every man, woman and child in this country is eating about *700 pounds* of junk food each year. This does not even count other substandard and inappropriate foods, such as meat, alcohol, white bread, jams, jellies, and soon.

These foods have no nutritional value; indeed, they contribute to over 90% of all illnesses in this country. Why do people eat them? Obviously it's not for any food value.

No, junk foods are eaten for two basic reasons: 1) they are highly visible, heavily advertised and are a cornerstone of this nation's food dollar; and 2) junk foods exert a subtle but powerful psychological appeal for the user of such foods.

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2. The Economics Of Junk Food

2.1 Foods For Profit

Junk foods exist today for only one reason: they are highly profitable. Because they can be marked up so heavily over the costs of production, junk foods put millions of dollars into the pockets of manufacturers.

It's a fact that the lowest-profit item in most grocery stores is the produce—the fresh fruits and vegetables—and that the highest mark-up comes from packaged, processed and junk foods.

Natural and traditional foods, like fruits, vegetables, nuts and seeds, are rarely advertised because they cannot be given a brand name or identity by a manufacturer. After all, a potato is just a potato, and worth only a few cents a pound. But if you slice that potato, boil it in oil, add a large dose of salt and preservatives, and package it a bright bag with a catchy name, then you have potato chips that can be sold for ten to twenty times the cost of the original potato.

Even twenty years ago, it was discovered that for every dollar spent on breakfast cereals (a sugary junk food), only a fraction went for the cost of the raw materials. Consider where the average junk food dollar goes:

For Each Dollar Spent On Junk Food...

- 12 cents goes for packaging
- 17 cents pays for the advertising and promotion
- 55 cents goes for processing and profit-markup
- 6 cents is for additives, preservatives and colorings
- 10 cents is for the actual food in the product

In contrast, for every dollar spent on produce and natural foods (like whole grains, nuts, seeds, dried fruits), about 65 cents goes for the actual food cost and the remaining for transportation and retail markup.

Not only does the consumer of junk and processed foods pay in terms of health and well-being, he is also spending 5 to 20 times as much as he should for the actual food.

Here's another example: a popular "food" developed a few years ago was called "Shake 'n Bake." It was a food crust or covering put on chicken, fish and so on. It sold for $2.63 per pound. It was mostly wheat flour, with a few artificial spices and coloring, that could be purchased for 15 cents a pound for its raw ingredients. The consumer was paying the extra $2.48 for television advertising and promotion.

It's the advertising and packaging that make junk foods so expensive and so profitable. In fact, without mass advertising, there would probably be no junk foods. An understanding of the junk food problem, then, requires an understanding of the advertising and promotion of this food.

2.2 Creating a Need

Of all the products sold in this country, food is the most ideally suited to manipulation and deception. The consumer has a limited ability to evaluate the effects of food processing on its nutritional value. He has no idea about the long-term effects of food additives on his health. He cannot verify any of the claims made by the advertising.

Food should serve one primary purpose: supplying the materials needed by the body for its health and preservation. Junk foods cannot do this. In fact, they do just the opposite. In that case, it should be easily seen that there are no rational reasons to purchase or consume junk foods. There is no real need for them.

The manufacturers of these foods realize this. They also know that if they can create an imagined need for their products, they can get consumers to buy them. If you take a child that is raised away from the influences of television, peer influence, and deceptive advertising and ask him what he desires when he is hungry, he might respond with something like "an apple" or "a banana." He most assuredly wouldn't answer with "a Ding-Dong" or "Captain Chocolate Cereal."

Unless a junk food is advertised, we know nothing about it. Having no innate need for it, we wouldn't buy it. But if we are told that it exists and that we should probably try it, then we may fall prey to the advertising gimmicks of junk food salesmen.

Michael S. Lasky, author of *The Complete Junk Food Book*, has this to say about eating junk food and the power of advertising:

"We are all proselytized at an important age into consuming puppets of the junk food barons. Our parents inadvertently help them by buying their products as a form of 'reward' food. We grow up unaware that we have slowly acquired a junk food habit by the subtle forces of advertising. By the time we are capable of making a decision about junk food, we are already hooked from years and years of indulging in what we had been told by TV was good food."

Actually, very little "good food" is advertised. Eighty percent of all food advertising is for blatant junk foods. Most of the remaining 20% is for convenience foods that are often little better than the candy, cakes, and snack foods which make up the majority of food advertising. In fact, out of the top 100 most heavily advertised food products, over 30 of them have absolutely zero food value, except for empty calories.

The majority of Americans receive almost all of their nutritional information from advertising. In other words, the typical person only knows as much about nutrition and good food as the advertisers want to tell him. When asked how good a job food manufacturers do in telling the public about good nutrition, a leading advertising executive for a convenience food company said: "The job of product advertising is to persuade and sell, not to educate."

Studies have shown that it does not matter how nutritious a food may be or even how good it tastes. It is advertising alone that sells a food product, and it is primarily the junk foods and the nonfoods that are advertised the heaviest.

2.3 Partners In Crime

The manufacturers and advertisers of junk food are not the only ones to blame for our nation's ill health. Economics dicates that chain supermarkets and grocery stores must also be aggressive partners with the producers of junk food.

Walk into any grocery store and what do you see? Outside of maybe one aisle for fresh produce and the milk and meat sections, the rest of the store is filled with packaged and convenience junk foods.

Consider these facts: Eighty percent of all food items sold in the supermarket *did not exist ten years ago*. In the past decade, over 9700 new items were introduced into grocery stores. The majority of these items are packaged junk foods which are characterized by a remarkable lack of nutrients due to overprocessing.

That's right, your friendly neighborhood grocer is simply another of the links in the junk food chain—foods that the Senate Committee on Human Health and Nutrition say contribute to 6 out of 10 of the leading causes of death in this country.

2.4 Surviving The Supermarket Jungle

More than 50% of all purchases made in a supermarket are done on a whim. You don't go to a grocery store with the conscious thought of buying frozen brownies or butterscotch chip cookies. The designers of supermarkets know this, and consequently they stack all of the high-profit junk foods in front of the consumer so it is impossible to avoid seeing them.

In a book called *The Supermarket Trap*, author Jennifer Cross says that even a person with a cast-iron will can fall prey to the junk food merchandising used in grocery stores. "The consumer's senses become so blitzed by the sheer amount of food choices that everything becomes a blur. Logic and common sense fail us, and we choose food items solely because of attractive packaging or name recognition."

The simple way to avoid such a trap is to buy only specific items from a supermarket. If you go into the store and head straight for the fresh produce department and come straight out, you can miss the cookies, candies and packaged foods that might beckon you. Most grocery shoppers make the mistake of pushing their basket up one aisle and down the other, exposing themselves to thousands of poor food choices and useless products.

Marketing studies have shown that from 70 to 90% of the time, the purchase of junkie favorites like candy, frozen desserts, snacks and chips occur because of an instored decision. People do not consciously go into a store to purchase useless and destructive nonfood items, but once they are inside, they become fair game for the promotion and advertising tricks of the store.

There are two ways to handle this situation. The best way is simply to refuse to ever buy or eat such products. If junk foods are never a part of your diet, you'll never be tempted to buy them. Even if you eat them only on rare occasions, the potential for buying them will still remain. The second way is to make a list *before* you go shopping. Then refuse to buy anything not on your list, and always shop alone—without a spouse or begging children.

3. Junk Food Tactics

3.1 Candy Is Good For You And Other Lies

Not only does the junk food industry aggressively promote health-destroying foods through advertising, but they defend them with a barrage of propaganda, misinformation, and outright lies. Much of this propaganda is aimed at children and concerned parents.

Consider the following statements that are in a booklet distributed to over 60,000 students by the National Confectioner's Association.

1. "Candy is vital for weight watchers. To reduce, eat candy before and after each meal. We can promise you it works."
2. "Candy helps fight fever and can prevent vomiting and diarrhea."
3. "Candy is not the cause of cavities, but the lack of hard chewing causes tooth decay."

Not to be outdone, the National Soft Drink association passes out literature to children and high school athletes that tell them "soda drinks are a good source of water." A better source of water is water itself—but then, you can't sell pure water for a hefty profit under some brand name.

Finally, read what the Hershey Foods Corporation has to say about proper nutrition in their "Nutritional Information" handbook: "Calories are important, and foods which supply only calories can, if used correctly, contribute to good nutrition." Of course, one of the highest calorie, no-nutrition foods is white sugar—a chief ingredient in this manufacturer's products.

3.2 The Great Fortification Rip-off

Besides deceptive advertising and outrageous propaganda, the junk food industry defends its products by emphasizing the added nutrients these products contain. "Fortified" candy bars and cereals are used to lure consumers into thinking that they might be getting a little nutrition among the garbage.

Here's how it works. Junk food manufacturers know that their products have no nutritional value and that their foods are open to attack by nutritionists. To head off such criticism, they often add vitamins and minerals to their products. Thus we have sugary bits of cereal that claim to supply 100% of all our vitamin and mineral needs. There are candy bars that give us "10% of all 19 nutrients" that we need.

Adding inorganic and useless vitamins and minerals to junk food is a cheap process. You can turn a box of sugared, processed cereal into a daily vitamin pill by adding about two cents worth of additives. In turn, these fortified junk foods are then marked up 15 to 25 times what it costs to add these useless vitamins and minerals.

Fortified junk foods still have the white sugar, the saturated fats, the high salt content, and the empty-calories. The consumer is fooled by two cents of added minerals and vitamins. Even worse, the so-called "extra" vitamins and minerals which were added to the junk food cannot be used anyway. They are inorganic chemicals, just like the other additives and the preservatives already laced through the destructive foods.

3.3 Hooking the Kids

Children are the helpless members of out society. And they are the biggest target for the junk food pushers. Children know nothing about nutrition or the necessity of eating wholesome foods. They receive most of their knowledge from television programming and advertising.

Junk foods are advertised on children's television shows at the rate of 20 times per hour—certainly enough to qualify it as brainwashing. Robert B. Choate, a television critic, told a Senate investigating committee, "When you take a child who sits in front of Saturday TV and hears sugar, sugar, sugar, chocolate, chocolate, chocolate, he picks up a habit that is going to last all his life."

"Get'em while they're young" is the attitude of the sugar cereal and candy manufacturers. And they're successful. The Surgeon General's Scientific Advisory Committee found that junk food products advertised on television are more frequently requested by children than any other products, including toys.

"Television advertising," says Dr. Judith J. Wurtman and author on children's nutrition, "is probably the most persistent force undermining good- eating habits." One father who became concerned about his children's health threw away his television set after he became tired of salesmen in my living room telling lies to my children." Maybe you don't want to go that far, but here are some things you can do to counter the effects of junk food advertising on children.

1. **Fight propaganda with facts.** No matter how young your child is, he or she can understand some basic facts like "Sugar will make your teeth rot and hurt" and "Fresh fruit makes you strong and healthy."
2. **Restrict television watching.** Have your children watch commercial-free programs and stations. Try to avoid the heavy Saturday morning advertising schedule.
3. **Give your own reactions to commercials.** React with undisguised disgust at commercials for bad food or products. Point out to children how advertising is often deceptive. Don't let them think that television and advertising is to be trusted or accepted on face value. Teach them to think for themselves and to question things that they see or read.

If you're a parent, you will have a massive job in reeducating and protecting your children from the effects of junk food advertising. It is amazing that we have removed ads for cigarettes and hard liquor from television, but allow ads for "Sugar Puffs-Puffs" and "Chocolate Doo-Dads" to be blast into our children's brains at the rate of 5,000 per year.

Junk food addiction begins in childhood, and this is where the problem can be most easily handled.

4. Breaking The Junk Food Addiction

4.1 The Psychological Appeal of Junk Food

We cannot blame the entire junk food problem on the manufacturers and advertisers of these products. After all, if people did not eat such foods, they would never be kept in the marketplace. But people do eat junk foods. And they eat them almost compulsively, without regard to their health or to the innate harmfulness of these foods.

Why do junk foods exercise such a stranglehold on America's nutritional well-being? Primarily because such foods are psychologically addictive. A habitual use of junk food occurs not because the food is fulfilling any physiological need, but because they answer some psychological need. People eat non-nutritious, worthless foods purely for emotional and psychological reasons.

Psychological studies have shown that food is the single most powerful emotional stimulus in our lives. We use foods as much to cheer us up, to fight depression, to reward ourselves, to indulge ourselves as we do to satisfy any hunger, real or imagined. And because we often eat for emotional reasons, we often choose foods that are associated with specific emotional experiences. Unfortunately, such foods are often "pleasure" foods or junk foods.

"Most people do not eat foods because they are good for them," says Dr. Robert S. Harris, a professor of nutritional biochemistry at MIT, "But because the foods appeal to their appetite, to their emotions, to their soul."

Junk foods have a strong appeal to the primitive and infantile emotions. They are usually very sweet, very rich, and very filling. They remind us of our first rich and sweet food, mother's milk. They take the place of the natural sweets, like fruits, that our sweet tooth craves.

Junk foods are often the foods that our parents gave us for being "good"—ice cream, candy, cookies. Consequently, when we have been "good," we still reward ourselves with these foods. It is an early conditioning that persists long into adulthood.

It is interesting to observe that junk food is the single largest class of pollutants that modern man *inflicts upon himself*. Forget about air pollution, cigarette smoke, contaminated water, radiation, or so on. It is the junk food eaten everyday by almost every person in this country that is the biggest source of internal pollutions. Now psychologically, this is an interesting situation.

Junk foods, besides being a way to reward ourselves, now also become a way to *punish* ourselves. People who are depressed and who have a low self-esteem often eat health-destroying foods in an effort to punish themselves for being unworthy or for having committed imagined wrongs. Junk food becomes for these people a socially-sanctioned form of suicide.

A successful avoidance and elimination of junk food from the diet requires efforts from two sides. First, a barrage of nutritional information and hard facts about the destructiveness of these foods must be obtained. Second, the person's psychological state must be evaluated and improved so that this addiction can be exposed and eliminated forever.

4.2 The Economic Benefits of Avoiding Junk Food

Nutritional arguments for the elimination of junk food may not be effective enough to wean people away from a poor diet. Almost everyone, however, understands the benefits of saving money. Eliminating junk food not only results in better health, but it means a real savings in the amount of money spent every day.

Let's look at the typical costs for a junk food habit for the average person. During a week, every person in this country is calculated to consume, on the average; the following amounts of junk food:

One Week of Junk Food And Us Cost

- 7 bottles of soda
- 1 package of gum
- 2 quarts of ice cream
- 2 ounces of snack chips
- 1 dozen doughnuts
- 1 pound of cookies or sweets
- 6 ounces of candy

1982 costs for such foods: $16

Notice that the above does not take into consideration any fast food eaten out or convenience foods prepared (such as frozen desserts, sugared cereals, etc.) The average spent on such foods per week varies greatly, but a conservative estimate of the costs of such foods per week is around $18.

Not only do these junk foods and fast foods cost money to eat, but the after-effects of consuming such foods often results in additional money being spent. Indigestion, headaches, colds, hemorrhoids, colitis, and many other ailments may be traced to junk food consumption. The average person may spend another $5 per week just on "medicine cabinet" remedies or over-the-counter drugs for these illnesses that result from such foods.

A year of junk food eating also typically results in about six new cavities and a tooth needing capping or pulling, according to figures from Army dentists. This translates into an average $10 per week for dental care.

We still do not know the costs of medical expenses that accumulate because junk food eaters go to their doctors, nor can we accurately figure in how many lost days of work result from such a diet. Even so, the total costs of eating junk food for a year are impressive. Consider these 'figures:

Annual Costs of a Junk Food Diet

Junk foods	$832
Fast foods	$936
Drugs and Medication	$260
Dental Bills	$520
Medical Bills (estimate)	$250
Days lost from work (estimate)	$350
Total yearly loss of income from junk foods	$3,148

By eliminating junk foods from the diet, a person would realize enough yearly savings to purchase a new car every three years. He or she would have more energy, a higher level of health and well-being, and literally extra years to enjoy such benefits. No one really knows how much junk foods shorten the lifespan, but it would probably not be unrealistic to use the same figures that are often quoted for cigarette smokers. Every cigarette smoked means a 15-minute decrease in your life. Junk foods, with all their poisons and additives, may be more harmful than smoking and it would not be unreasonable to assume for every bag of cookies or quart of ice cream, you're knocking off hours, days, and weeks of your life.

Understand that these figures are speculative and have no sound basis in hard research simply because no one has had an opportunity to study the long-term effects of eating junk foods. We are the first generation of guinea pigs for the high-sugar, high-salt, high-fat and high-poison junk food diet.

Regardless, it is painfully obvious that people who consume junk foods not only steal money from themselves and their families, but also lay the foundation for expensive and painful suffering in the years to come. Can any type of food or sensual pleasure be worth these costs? Is a chocolate chip cookie or a scoop of ice cream or a diet soda worth $3000 plus a year?

The next time someone says to you, "I'm just dying for a piece of that cake or pie," you should let them know that that is just precisely what they are doing, and they are also paying dearly for this "privilege."

4.4 Kicking The Habit

As we have seen, the junk food problem is not simply one of nutrition. Good nutrition is easy to teach, but is only partially effective in getting people away from their junk food habits.

People must also be made aware of the economic and psychological aspects of eating junk food. This lesson should help you educate others who are ready to abandon the typical high junk food diet of most Americans.

First, teach the person the economic facts of life about junk foods.

1. Junk foods are very expensive to eat in terms of the actual nutrition provided. Most junk foods have only about 10% of the food you are paying for. The rest is for pretty packaging, promotion, advertising and profits.
2. Junk foods cost you twice. Once when you pay the overinflated prices for them and again when you pay the costs of ill health that they produce.
3. A typical overfed American family can save anywhere from $5,000 to $10,000 a year if they eliminate all fast foods and convenience foods from their diets. This saving results from the actual costs of the junk food, the sick time lost because of them, and the incidental expenses of eating such foods.

Second, the person must be made aware of the psychological reasons for junk food addiction. He should be told that most eating patterns are based on emotional and not rational decisions. Foods as a reward or punishment should not be used—neither for children nor adults.

Negative eating habits and poor choices sometimes result from a lack of self-esteem or self-worth. A person addicted to junk food may have other serious problems connected with the personality or with social behavior. To eliminate junk foods from such a person's diet, he or she must also embark upon an overall health program of improvement. They must view themselves in a different light, and consider themselves worthy of good health and sickness-free living.

Third, children are especially vulnerable to junk foods. Outside of rational explanations and setting a good example, you can wean children away from junk foods with healthy substitutes. Sweet dried fruits can replace candies. Fresh juices or blended fruits can take the place of sugary drinks. Realize that most children want the sweetness of junk foods because they have a natural sweet tooth and demand for high-carbohydrate foods that can supply them with energy. In this case, give them plenty of natural carbohydrates with fresh fruits, dried fruits and occassional nuts and seeds.

The way to fight junk food addiction is through education. Tell your friends, your family and your clients about the nutritional inadequacies of these foods. Let them see the economic harm that also comes from consuming such foods. An approach to this problem on several levels—nutritional, economic, and psychological—can help most people end their romance with junk food and give them years of healthy and illness-free living.

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5. Questions & Answers

There's one aspect of junk foods that you overlooked. The ecological benefits from avoiding all junk foods.

> Thank you. That is also a very important area, and it may help some people end their consumption of these foods. Ecologically, junk foods are a disaster. Right now there are millions of acres of trees and rain forests in South America that are being destroyed forever by a major hamburger chain. They are clear-cutting trees hundreds of years old so that they can raise more cattle at a cheap price for their hamburgers. Not only that, but millions of trees are sacrificed annually so that these hamburgers and french fries can be packaged in paper and wrappings.
>
> Junk food is a rich source of both external and internal pollution. Litter from junk food products is astounding, and it is everywhere. My family and I were once picking peaches in a large orchard that allowed the public to pick and eat all the peaches they wanted., We were happily picking and eating tree-ripened fruit right in the orchard. Suddenly I noticed that all over the grounds of the orchard were candy bar wrappers, chip bags, empty soda cans, and bags from rake-out fast food places.
>
> Here were thousands of luscious fruits all around us—the natural food for man, and the best available, just for the picking. What were people doing? They were bringing in bags of junk food and throwing the remains on the ground. They had become so blinded and desensitized by their addiction to junk foods that they could not even recognize wholesome foods that were literally hanging before their very eyes.
>
> Not only that, but after eating such foods, their consciousness was so deadened that they threw the trash and garbage from these foods all around them. It's sad, but people that eat junk and trash foods often act trashy. There is no way that you can claim to be concerned about the environment or ecology and still eat junk foods. It's a contradiction, and junk foods are a significant part of the pollution affecting our planet.

My problem is other people. They all think I never have any fun because I won't eat their "fun" foods, like potato chips and cookies. They tell me that I'm cheating myself out of some simple enjoyments. What should I say in return?

> The main problem with junk food is that so many people see it as a harmless pleasure or as a legitimate form of entertainment. Food should be pleasurable to eat, but too often it is used just as social entertainment. Why people think that you must eat health-destroying foods to

be sociable is a mystery. Often you will find people that eat junk foods do indeed know better. They realize that they are making poor and incorrect food choices, and no doubt they unconsciously resent it when you do not "join in" and give your support to their bad habits. Probably the best thing to say when offered junk foods is a polite and smiling, "No, thank you" without any further explanation. If you're pressed, simply say that you feel much better when you don't eat such foods. Make it sound like your rejections of these foods is a personal choice and not an attack on their dietary habits.

People dislike being told that they are doing the wrong thing—especially when they already suspect it. By remaining pleasant and exhibiting a well-balanced attitude toward such foods, you may make a positive impression on the person and thereby encourage them to also give up junk foods. By no means should you lecture to the person or point out how much better you are than them. A well-balanced, healthy person is usually a strong enough argument for the avoidance of junk foods.

My friends always tell me that fast foods are a cheap way to eat dinner, and that they really couldn't afford to eat just fresh fruit and vegetables. Now you say that these foods are actually costly. What's the truth?

Fast foods are deceptive. Certainly you can fill your stomach up for every little money, but this "full" feeling is because of the heavy amounts of grease and fat present in these foods as well as the cheap white bread and filler that they use.

Junk foods may seem like a cheap way to fill up, but they are an expensive way to get nutrition. *Proper eating is not just having your stomach full.* When these same people who get a cheap meal at a fast food place later have to pay hundreds of dollars on dental or medical care, they don't see the connection. When they later have cancers, heart problems, kidney failure and premature aging, they never suspect that they are results of too many "cheap" meals.

You cannot cheat your body of the nutrients and foods it needs by just "filling it up" with cheap, greasy bulk. The best way to eat inexpensively is to select those foods that promote the highest level of health—regardless of financial costs. You see, even if you spend twice as much for good foods than for junk foods, you're avoiding the much greater expenses of pain, suffering and ill-health.

Junk foods are nutritionally worthless and health-destroying. Yet they still make up, half of the average person's diet. Why? Because the economics of junk food production and promotion make them a high-profit and a highly visible item.

People are first manipulated by the manufacturers into buying junk foods, and then they are controlled by their psychological addictions to continue eating the foods.

Eliminating junk foods from a person's diet depends upon a three-fold approach. First, intensive nutritional education. This is the rational appeal. Next, a concrete illustration of how much money can be saved if junk foods are eliminated (actual costs of the foods, expensive sicknesses caused by such foods, etc.). This is the material appeal. Finally, an explanation of the psychological factors in eating junk foods (how they serve as an emotional substitute, how they are used to "reward" or "punish.") This is the emotional appeal. An education program of this sort is effective in breaking the junk food addiction.

Article #1: Control Through Clear Thinking by A.D. Andrews, Jr.

I have a Master of Science Degree in Health Education. Also I have been certified (for life) by the State of Missouri to teach classes in Health. This presentation of personal achievement is supposed to impress you. It is important that I make a big impression on you at the beginning of this article because I am getting ready to make some highly unusual statements in the very next paragraph and I want you to pay close attention to the statements and to follow the advice which I offer.

If you are going to eat anything besides raw foods, namely fruits, nuts and palatable vegetables, then eat the junkiest foods you can get. Eat canned foods, processed foods. When you cook at home cook out of aluminum utensils. Peel all vegetables and boil them thoroughly. Fry foods in cast iron skillets at high temperatures using saturated fats and oils. Apply salt, pepper and other condiments freely. Pay no attention to combinations. Eat as much as you can stuff down. Have rich desserts and drink liquids with your meals.

Now my earnest advice is for you to eat no cooked foods, only raw foods. However, if and when you "slip" eat all things bad and nothing good. I am completely earnest. Here is why. It will make you quite ill, quite soon and shake you up. It will bring you back to your senses, put you back on the straight and narrow. You may even decide to fast for a day or two to keep your wits about you for an extended period of time. It will precipitate or *stimulate* symptoms of acute disease. You will have no difficulty relating cause and effect.

It helps clear thinking if we learn to think through analogies. A number of years ago friends of mine were "busy-busy" working for the enactment of a "humane" slaughter law in the state of Missouri. They were disgruntled that I fought against this bill. (It passed, by the way.) Why did I fight against it? People already are too far removed from the act of slaughter and what it entails. The attractively arranged meat platter with garnish and color seldom is connected with the violence it took initially to bring that pleasing plate to the table. Those appealing prepackaged meats on display in the local supermarket are a far cry from the appalling brutality of the slaughter house. So the very thing that is needed is whatever is at hand to make people see flesh eating for what is really is, a barbarous, gruesome, ugly, cruel practice that destroys human morality as surely as it destroys the animals we kill. Flesh eaters need to see their flesh in stark reality as corpse rather than prime rib, as carcass of a dead animal instead of K.C. steak, as cesspools of putrefaction rather than as sources of complete protein. Already people are mired and bogged in the slough of a vile practice. The last thing they need is further lulling with thoughts that it all has been accomplished "Humanely." And the long-range effects of any practice that benumbs man's noble instincts of kindness and concern for creatures less able than himself are more dangerous and devastating to his final demise than the damage done by the pathological effect of meat-eating on his body.

People are rather fooled in their minds with the seriousness of an offense (in any area) in relation to the overall harm that is done. They assume, for example, that arsenic is more "dangerous" than, say, fluorides in public drinking water. They assume this because they see an arsenic victim agonize and die on the spot. The fluoridated water drinker seems to go on day after day and live out his "normal" life.

The truth of the matter is that one man takes arsenic and dies. Many people see the result of this, see it quite clearly. They understand what they saw and no one ever considers taking arsenic purposefully or accidentally. He fears and runs from arsenic, arsenic compounds or anything containing or thought to contain arsenic. One dies; many live.

However, the man who "thinks" it's a good idea to drink only distilled or filtered or mountain stream water, may, at inconvenient times, get caught thirsty in an office building or a friend's home or he may just react mechanically as he passes a drinking fountain and take a drink of fluoridated water assuming in his mind that "It won't kill him." But when the sum total of all the damage to all life done by drinking and using fluoridated water is considered, it will be recognized that far more damage has been done than was done by the one dose of arsenic from which many learned their lessons. Here, no one learns. To the contrary all are lulled into the acceptance and further practice of something which gradually will leech the health potential of the entire nation. And down, down, down we shall go until we know again the company of the dodo bird!

This one practice is only one of many things we do that sap us, drain us. And it is our rationalization of each one's being only a minor thing. We wrongly see narcotics as being more harmful than candy; alcohol as being more dangerous than white bread. The list could be added to indefinitely. We see the big lie as sinful but the white lie as expedient. We view the robber and the thief with disdain but tell our own children to lie about their ages to enter cinema or ride the bus for less cost. Less cost, my eye! The bombing of a Birmingham church that kills little children is horrible, I agree. But, at least it shakes up and horrifies the total nation and causes it to examine its conscience. And the damage done is nothing when compared to the insiduous moral erosion that takes place day after day, year after year, by individuals collectively and sustainingly thinking, feeling, voicing little hates, biases, prejudices against other human beings for any reason be it race, religion, business or politics.

Why is man forever fooled and deluded by the obvious? Why does he clutch so tenaciously to a dollar bill and look so disdainfully upon a penny? It is recognition of this foible that makes beggars rich! And it doesn't matter what be the area—food, drink, health, crime, morality, everything. It is not the big, obvious things we have to fear. We know the big things for what they are. We have no trouble relating big things to their results, to the damage they do.

It is a little thing done over and over for a long period of time that does widespread, irreparable harm. It is the variety of little things which when considered in aggregate kill individuals and nations.

Let us work to broaden our picture of the present to include yesterday and tomorrow, yesteryear and the years ahead. Let's become aware, really aware that an act is the same as the result of an act. Cancer is horrible! It is ugly, painful, frightening, stinking. No one argues this. And if this be so then all things that lead or contribute to cancer are ugly, painful, frightening, stinking! It cannot be otherwise.

So, if you see a single, occasional, sociable cup of coffee, with an old friend as being "nice," then brother, you are blind! And a blind fool at that...because coffee and stomach cancer are related. They are one and the same. And if you say, "So what, I'll run the risk for the pleasure of the moment," then, brother, not only are you a fool, you also are insane!

If a man is sitting in the middle of the floor hitting himself in the head with a hammer you have no trouble adjudging him as nuts. And because he says he enjoys each blow knowing it will finally destroy him makes him no less crazy. There is no difference between him and ourselves except that we have more company.

We will be wise to examine all our practice's in unemotional, unfettered light without reference to immediacy of pleasure, custom, tradition, conformity, external appearances, likes or dislikes. Examine these practices and determine one by one whether they are good or bad, healthful or harmful, right or wrong. Not just a little bit of one and a little bit of the other. Remember that nothing can be innocuous. Make it clear cut, black or white, no grays. And most important of all! Remember that the less harmful it seems to be the more dangerous it actually is to the greatest number of people over the greatest period of time.

And when you pick out the harmfulness of a practice, no matter how small and insignificant it may seem to be, then relate it to the big damage to which it contributes later on. When you do this you will see the little practice for what it really is. Also, and just as pregnant, you will see the big damage for what it really is. A morally sick society is made up of morally sick, singular persons. A war is but the remote extension of conflict and greed at the level of individuals. Hardened arteries are but the accumulation of many single deviant acts each of which seemed delightful at its moment but none of which can be recalled a day after it has occurred.

It can be no other way. Can it? Do you see the big point I am making? War never caused greed, greed causes war. Hardened arteries never caused a man to eat greasy foods; greasy foods easily can be related to hardening of the arteries. Think about it. Come to understand that any practice, any action or reaction, anything that you do that you can recognize to be against your inner sense of well being, your fitness, your longevity is bad, wicked, sinful, evil and must be seen in that light. To see it in any other light is illusion, delusion, unreal. You don't have to be a college graduate to understand these things. (In fact, it may hinder your clarity.) All you have to do is to be quiet within yourself and think. Don't "work" at "think," just be still within yourself and the message will come through. Try it. You'll see. Life will be less hectic. "Control" will come easier, because when one really understands, he understands with his whole, entire self—not just with his mind. And when there is understanding, change in behavior comes. You don't have to "struggle" or "fight." Just learn to broaden your concept of today to include yesterday and tomorrow, yesteryear and all the years ahead. If you do, there will be more of them. They will be better ones too.

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Article #2: Is This The Kind Of System You'd Like To Live Under?

In this country we have what is called the capitalist system. Its sole motive is to produce for profits. The other day we received a brochure from LITTLE FREE PRESS that points out some of the inhumane drives of our present system. LITTLE FREE PRESS advocates a system that involves a non-money non-credit economy...a very challenging concept. I have embellished their points somewhat but they areas follows:

1. The establishment (capitalism as a system) is rapacious and indifferent to human welfare. It places private profit above peddling of pernicious products by the tobacco industry, the drug industry, the junk food industry and the recent mass manipulation of fuel supplies to jack up the prices of petroleum products—price hikes that bore no relationship to costs...charges all the marketplace will bear.
2. Polluting air, land and water is more profitable than recycling wastes in most cases or in installing equipment to prevent its release into the ecosphere.
3. In nuclear energy human safety and welfare have been subjugated to the quest for profits. Nuclear wastes are a legacy that can boomerang very quickly on us and keep posterity on the hook if not, indeed, outright suffering, for perhaps thousands of years.
4. War and war industries are more profitable than peace.
5. Planned obsolescence is more profitable than quality. Goods that will wear out faster are thus put on the market. Things are made for use, yes, but industry needs repeat customers to keep sales and profits high. If an automobile lasted in great condition for 50 years (as Rolls Royces do), the automobile industry wouldn't come out nearly as well as they presently do. Deliberate waste of human and material resources is built into a system geared to the profit system.
6. Discontented and unhappy people can be exploited for more profit and happy people.
7. Sickness and disease are the bases for profitable industries. Healthy people are not customers for disease treating business. Inasmuch as the petroleum industry, the drug industry, the hospital industry and the medical trades need diseased people for their profit-geared operations, they will fight tooth and nail steps that threaten this cushy racket of trading upon suffering and misery.

8. Cultivating an atmosphere of fear, mistrust, ignorance, confusion and nurturing outright lies and myths are a basis of great profit whereas an informed people shun the whole thing.
9. Overconsumption, overbuying, needless buying, ostentation (keeping up with and ahead of the Jones) are encouraged that the beneficiaries of the system might realize more sales and profits.
10. People who think for themselves and who get off the commercial treadmill are a threat to the system whereas those who unthinkingly accept the system and who bask in the superficial "roman circuses" designed to mislead and allay human intellect are the raw material from which much profit can be derived. In short the thrust of all commercial endeavors is to create a populace that accepts the status quo of the profit system, glossing over its injustices, its inhumaneness and its predisposition to churn out human wreckage rather than dignified humans.
11. Disposable products are more profitable than durable ones. Even though it is wasteful of our resources forest by forest, we cite as an example the use of paper towels versus fabric towels. Fabric towels can last years. One towel represents perhaps a $2 value. Over the same period one individual might use fifty or sixty rolls of paper towels that cost $40. The use of the one conserves resources, the use of the other expends them prodigally. America is geared to a "built-in wasteful system."
12. Making things unduly complex, mysterious and inscrutable is more profitable than making things simple.
13. Monopolies and controlled markets are more profitable than free trade.
14. When people have accidents, suffer from illness, catastrophe, etc. there is profit to be realized. A content and happy people are a poor market.

Thus you can see how inverted and perverted our values are.

I'll end quoting Ernest Mann, author of the piece:

"If we don't switch our method of "economic motivation" soon, our striving for profit may ruin our life-support system beyond the point of no return."

What is your role in this great play? Are you a tiny gear that helps to keep this juggernaut rolling? Could you find a way to survive without working for a company that is destroying our environment? Are you adding to people's distractions, to keep them from becoming aware of viable alternatives? Or are you helping others to become aware of our problems and turning them onto the solutions?

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Article #3: Blueprint For Survival by Keki R. Sidhwa, N.D., D.O.

The great international debate today is not about the imminence of internecine war or the morality of nuclear weapons. It is about the quality of life that we may expect in the future for ourselves and our children. The important question now is—can the human race survive in terms of our present day relationship with the world outside and nature and, if we do manage to survive, in what state of health or ill health?

Are we heading for doom, come what may, or do we still have a chance? In which direction is the world heading?

There is no easy answer to the question. The web of life that nature has woven on this finite plant is immensely complex, full of subtle balances and involved interplays.

Natural Hygiene has always, from the beginning, demanded that we understand this scheme of natural balance. Now it seems the time is approaching when we either pay heed or pay the consequences. Instead of exploiting the natural resources we must learn to conserve and thus try to achieve once more the balance that nature achieved on earth before the impact of man and his "technological achievements."

Not only must we understand how man has disturbed the balance, but learn what steps we must take to rectify that mistake. Have we the will to make the changes we must make? Have we the power? I do not know. But, if only because of our growing understanding of our plight, I still hope.

The more of us who try to live a *Hygienic* Life—the better it is for the world also. *Natural Hygiene* is not smug isolation from the rest of the world. It is total commitment on behalf of the whole of mankind and the animal kingdom. The fact that you benefit also is incidental—a sort of bonus for the total involvement with the rest of life. By observing the following blueprint for the individual you will help the human race to survive:

1. Try to control the size of your family unit by natural means.
2. Use durables rather than disposables. Boycott over-packaged products, especially in plastics and aluminum and anything in nonreturnable or aerosol containers. Take your empties back to your store and tell them to re-use them.
3. Keep pesticides out of your home.
4. Boycott convenience foods and eat natural whole foods rather than fragmented foods. Use the wild foods that grow near you. Grow and preserve as much as possible. Eat vegetable rather than animal protein. Buy insect or virus blemished foods, they are less likely to be polluted by pesticides. Eat to live, not live to eat. Enjoy your food by all means and get all the pleasure out of it that you can, but don't be greedy. Overeating is not only a crime against your body, it is a crime against all living creatures. Getting the most out of your food is an art that only Hygienists have perfected.
5. Use building materials from reclaimed industrial waste.
6. Insulate your house well and cut your energy consumption. By getting plenty of exercise and keeping fit you maintain body warmth through efficient circulation. In winter put on extra clothing, keep moving and save heating fuel.
7. Water shortage—then shower instead of bathing. Never flush poisons in the W.C. Boycott detergents.
8. Use low wattage for light bulbs. Make the most of natural light. Let light, sunshine and air into your house. In order to conserve power do things with your hands. Use machines only when absolutely necessary.
9. For transport use a car with fuel economy in mind. Use a bicycle to go about in your town or village. Avoid lead-additive gasolines.
10. In your daily life use both sides of paper in writing. Pass on outgrown toys and clothes. Compost all organic waste. Garden without pesticides, herbicides, chemical fertilizers, etc.
11. In your community organize a local recycling club for glass, paper, cloth, iron and steel.
12. Monitor all local government plans for their environmental effects. Press for maximum recycling, especially of water in local industries. Press your local authority to make compost out of sewage.

In the final analysis we have to realize profoundly as *Natural Hygienists* that all our studies, deep and superficial, whether through books or by direct and personal experience in any form, cannot be divorced from living.

We can have more life, only if we help to enhance the whole of life.

Reprinted from Dr. Shelton's Hygienic Review, January 1977

Article #4: Junk Fooders Have It Made

The University of Montana conducted some experiments on the food preferences of five-year old children before and after exposure to TV food commercials. "Natural preference" and preference after exposure to TV food commercials were compared.

The children were free to choose from junk foods such as corn chips, sweet cereals, cookies, soda pop, etc. and from higher-nutrition foods such as cheese, carrots, grapes, apples, milk and orange juice. Their natural preference was measured based on this simultaneous exposure.

Then the children were shown a mere 12 minutes of children's programming that included a half-dozen commercials for both low nutrition foods and for the higher-nutrition foods. Then back to the food tables and guess what?

The children consumed more junk foods and less higher-nutrition foods than in the previous exposure. Moreover, the children were more excited about the junk and had more recall of the junk food ads than of the other food ads.

It would seem the junkier your food products are, the better chance you have of selling them through TV advertising.

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Lesson 39 - Food Supplements

- 1. Presenting The Universal Problem
- 2. Vitamins
- 3. Minerals
- 4. Enzymes
- 5. Other Supplements
- Article #1: Disease, Stimulation and Therapeutics - A Question of Consistency
- Article #2: The Law of Stimulation
- Article #3: Patients Dilemma: Who's Taking Care of Them? By Mrs. Elizabeth McCarter

1. Presenting The Universal Problem

1.1 Man Is Confused

Rod sat in a chair across the room rubbing his knees. From time to time his body would jerk and he would squirm in his chair as if ill at ease or uncomfortable for some reason or other. He recounted a sorry tale of how he had sought relief from many physicians and medical specialists for the constant pain which had limited his productiveness both socially and in the economic world from his early childhood and which was now causing him to quit his job as an accountant in a multi-national corporation because he could no longer hold a pen or pencil between his fingers.

The young man, just past thirty, recited an array of drugs and supplements which he had dutifully swallowed per the instructions given him. The drugging had begun at the age of two years when he had "come down" with a muscular rheumatism. It had continued unabated to the present day. Even as he spoke, Rod pulled from his pocket the latest prescription, deadly prednisone, and a bottle of a well known and highly advertised multiple vitamin-mineral supplement. Pitifully, Rod cried, "Can you help me? I have nowhere else to go!"

Unfortunately, Rod's story is only too common in today's pseudoworld, a world where humankind has been taught to live in a fantasyland of unreality, to believe that humankind can go on indefinitely defying the laws of living structure, that we can eat what, when and how we please, that we can continue to abuse our bodies, that we can take all manner of vile liquids, pills and potions into our bodies, that we can inhale foul air and make all manner of mistakes and not have to come face to face with the realities of our organic existence if we only have recourse to the supplement products offered, for a price, by the huge industrial giants of the times in which we live.

1.2 World Health Statistics

As a result of this kind of foolishness, an insidious creeping debilitating force is at work among the peoples of the world, and especially in this country, with many being troubled by the sickness they see around them and their own eroding well-being, but not knowing what to do or where to turn for help.

The World Health Chart for 1968 shows the average age of males at death in the United States is 66.6 and females 74.1; 25th place for men and 14th for women, respectively among all the nations in the world. In recent years we have dropped from an earlier and now out-dated rating of 15th in spite of the fact that the supplement- and drug-related businesses have skyrocketed in sales and dollar volume. The people have lost confidence in the medical profession.

1.3 Philosophy of Modern Medical Practice

The whole history of medicine is one of palliation and stimulation. If you are sick, you take the proffered pill and make the hurt go away. Are you tired, unable to cope? No matter, just take this vitamin, that herb, a little wine or smoke the weed and swallow a packet of man-made inorganic or fancy synthetically chelated minerals and your body's vitality battery will be recharged, your mood elevated, your cares soothed away and all problems solved; the sun will shine in the sky and the, world will lie at your feet. *It is too good to be true!*

We are a sick nation and getting sicker with every passing moment. We have not learned that, only nature can heal, that health will have none of forcing, but must be maintained and built through wholesome eating and living.

1.4 Supplementation

Dr. Elizabeth well remembers that when she was a child her mother kept a veritable cupboardful of patent medicines: there was cod liver oil in the form of Scott's Emulsion, Dr. Lydia Pinkam's Tonic for Women; and others. There was always a tin of aspirin tablets on hand to relieve the headache as well as a special box of baking soda to soothe acid-troubled stomachs.

You see, at that time, vitamins were a totally new and unexplored area, but the family always had recourse to Grandma's green "tizzy," a green drink made from selected herbs which grew in the garden, guaranteed, of course, to "cure" any ailment.

Dr. Robert's childhood and early years were no different, even though his father was a medical doctor, a specialist in anaesthesiology at one of the large hospitals in the East. The "remedies," of course, had different names, fancy medical names, but the effects were the same: palliation and stimulation.

Now, we live in modern times. During the past fifty or so years, patent medicines have, for the most part, disappeared from the pharmacist's shelves and the home cupboards have been replaced by a collection of bottles of all kinds containing all manner of supplements: vitamins, enzymes and minerals especially, but also others. The drugs of our father's time have also largely disappeared only to be replaced by newer and more potent drugs because the others failed to fulfill the promises made for them —as these will also fail.

"Health" food stores are now found in almost every major and minor shopping center from Maine to California and in countries overseas, all offering all manner of magic ways to restore radiant health to a deeply troubled public eager to buy their offerings. We know many elderly people living on Social Security who trudge wearily into health food stores paying out huge sums for pills and potions which they firmly believe will bring them youthful zest and vigor. Yet all the while they continue their life-destroying practices and drag through the days of their lives ever hopeful that the "magic" of pills will give them back the youth of their childhood.

1.5 Is Supplementation the Answer?

Is it true that because the vast majority of people now live in cities where admittedly the quality of the food is something less than ideal, that we must supplement our diet in order to have any hope of achieving and maintaining a reasonable level of health? Rod, the young man whom we met at the opening of this lesson, was advised by the last specialist he had consulted to drink nothing but pure mineral water so that he would be assured of getting all the minerals his system required and, also, to drink at least one pint of milk every day and to take his prescribed mineral supplements in order to maximize his calcium and other mineral intake.

In this day of known soil mineral deficiencies, should we supplement the mineral content of our foods in order to be sure that we receive a sufficiency of these important nutrients? Do herbs offer a panacea for all of mankind's ailments as many herbalists contend? After all, it is well known that mankind has historically used herbs since time immemorial and, therefore, *ipso facto*, they should be an important part of our armentarium so that our systems will be well fortified against possible "attacks" by germ, fungus and/or virus. In other words, through supplementation we can gird our loins, as it were, to do battle against a formidable foe.

Some scientists contend that cooked food is easier to digest than uncooked, that man has cooked his food for so long a time that his digestive organs have become adapted to eating cooked foods, that it is no longer possible for humankind to subsist totally on uncooked food, even though he may once have done so, that his digestive organs have changed over the centuries to accept cooked food and reject raw fruits and vegetable foods as indigestible. We know this is *not* true.

These "scientists" recommend mega-vitamin and mineral supplementation as a means of ensuring a more youthful resurgence of energy and higher level of health. Do we dare postulate the question, "Is vitamin dosing another gimmick, one perhaps that ensures an acceleration of energy outflow rather than the longed-for extender of youth?"

Are there certain commonly accepted but harmful practices we should all avoid if we would either restore a state of diminished health to a higher level or retain the good health we now have? We believe there are and, hopefully, we will learn some of these in this lesson. Natural hygienists contend that the very structure and function of the body, its physiological and biological methods and practices, its capabilities and limitations, dictate certain unchanging principles which should and, indeed, must dictate how and in what manner the human organism must be nourished to remain in superb health.

1.6 Unchanging Principles Govern Life

Hygienists unequivocably hold that a general law under-girds life, one derived from physiology and biology and that we cannot escape the rule of law either in our eating or in our living, if we would retain our health. If we would escape the degenerative diseases that plague the vast majority of people, we must learn not only what we *should do* but also what we *must not* do. When the laws of life are ignored and possibly defied, due accounting will be required of us and, more often than not, such accounting will result in the rapid or more subtle erosion of health according to the inherited constitution and the extensiveness and intensiveness of the infractions of physiological and biological order.

In this lesson we will expand our knowledge in this respect. When we fully understand the truism that we, like all living things, are a part of the universe, one with all life and governed by exact laws, we will cease chasing after "cures," we will stop popping our pills and having recourse to vile substances; we will forego our stimulating habits and practices and start living hygienically, in accord with body design. As was said long ago by one Thomas Campanella, "The Laws of Nature proclaim themselves and are their own avenger." And let us proclaim with equal truth that the Laws of Nature, when obeyed, will reward us most magnificently with all the many faces of joy.

2. Vitamins

2.1 A Statement

In this lesson we will not concern ourselves with specific functions of particular vitamins, nor will we identify precise sources for obtaining this or that vitamin, nor with minimum daily requirements per se as set forth by governmental agencies, nor with similar data. There are any number of books and pamphlets setting forth such information and we refer our students to them. Our concern here will rather be centered on vitamins as a class and whether or not supplementation of the diet with man-made manufactured vitamins is advisable for health-seekers. We, of course, accept the fact that real vitamins are a necessary nutrient of life.

2.2 What Are Vitamins?

Most people who take vitamins religiously have little or no real understanding of what vitamins are and what their function in the body is. Vitamins are not mysterious substances that hold the key to life and health in and of themselves as one might be led to believe by reading the popular literature on the subject.

2.3 A Very Profitable Business

The selling of vitamins is a very profitable business, profits often being as high as ten times over cost. Increasing numbers of persons searching for better health "repair" are purchasing vitamins. The gross incomes of many proprietors of these outlets are well over the six figure dollar mark annually. Some physicians make a practice of selling vitamins directly to their patients also, making their purchases from large pharmaceutical houses.

2.4 As Members of a Group

Real vitamins are simply one of a group of organic substances which are present in exceedingly small amounts in natural foodstuffs. They are essential to normal metabolism and, if they are in short supply, certain changes adverse to health can result.

These changes are generally cumulative in kind, not spectacular. They do not arise following a single failure to obtain a particular vitamin or group of vitamins but, to the contrary, adverse tissue changes and organ degeneration are, more often than not, the product of many years of poor management of SELF, including among many others, the failure to provide an adequate intake of vitamins from natural sources.

2.5 Need for Vitamins Grossly Exaggerated

Vitamins are only one of a group of natural accessory food factors very important in the maintenance of health. They are taken into the system as an accessory factor whenever food is eaten, foods such as ripe luscious fruits, leafy green vegetables, and other delectable food packages which come from Nature's hand.

Our systemic need for vitamins has been grossly exaggerated by certain commercial interests and, as a result, there are numerous uninformed individuals who indiscriminately ply their bodies with as many as a hundred different supplements of one kind or another every single day, some even taking single vitamins in enormous amounts, in what are known as megavitamin doses.

Not too long ago we were counseling a woman who suffered from a rheumatic disorder which greatly curtailed her ability to get around. At our first meeting she spread out on the table an array of supplements, including a variety of vitamins, that was hard to believe. She took vitamins with her meals and in between meals, before going to bed and upon arising in the morning, all in doses many times greater than those recommended by the government. She said she had been taking these massive doses simply on the basis of what she had read in the popular magazines.

"For well over a year now, but I don't seem to be getting any better. The pain goes on and my muscles keep getting stiffer." And then came the plaintive cry we hear so often, "What can I do?"

2.6 The Problems Posed by Excess

We found it necessary to explain to our client that, as with overnutrition of any kind, when the body's need for any nutrient is exceeded, the system is called upon to dispose of the excess as best it can and, in the process of doing so, the liver and kidneys are overworked and the adaptive energy and other reserves of the body wasted, never to be retrieved. Once wasted, the life energy is gone, it cannot be recovered to any appreciable extent. This woman has wasted her precious energy in coping with *unnecessary* and *unusable* materials she had been constantly putting into her mouth. It was little wonder that her health had kept on its degenerating course.

2.7 Discovery and Chemistry of Vitamins

The term "vitamin" first appeared in the year 1912. So, vitamins are a comparative newcomer on the nutritional scene. They were so named by one Casimir Funk, the scientist who gave this name to the substance which he obtained from rice polishings while attempting to isolate the factor, the absence of which was believed by some investigators to be responsible for the condition known as beri-beri. The substance Funk obtained was a pure crystalline chemical to which he gave the name "Vitamine." We now call it Vitamin B1 or Thiamine.

The two parts of the word vitamin mean "life" and "amine." An amine is a substance derived from ammonia, the formula of which is NH3, the N standing for nitrogen and H being the symbol for hydrogen. Ammonia therefore consists of one atom of nitrogen to three atoms of hydrogen, thus the formula NH3. When one atom of hydrogen is replaced by a hydrocarbon or other radical, we have a primary amine, when two are replaced we have a secondary amine, and so on.

A primary amine might be Nh3CH3. As you can see, here one hydrogen atom has been replaced by one CH3 grouping (a radical).

A secondary amine might by NH(CH3)2. Here, two hydrogen atoms have been replaced by two CH3 radicals. And soon.

This is the basic chemical structuring of a vitamin, some being more complex than others.

Since Funk's initial research, efforts to find and isolate these new and exciting substances have gone on ceaselessly and still continue today.

2.8 List of Isolated and/or Identified Vitamins

- Vitamin A
- Vitamin D - Ergosterol. Viosterol. Calciferol.
- Vitamin E - Tocopherol, D-alpha tocopherol, tocopheryl, dl-tocopherol
- Vitamin C - Ascorbic Acid. Cevitamin Acid.
- Vitamin P - The Biovlavonoids - Not true Vitamins

The B Vitamin Group:

- B1 - Thiamin. Thiamine Chloride. Thiamine HCl.
- B2 - Riboflavin. Vitamin G.
- B3 - Niacin (two chemical forms: nicotinic acid and nicotinamide, the latter also often called niacinamide; Niacin Amide).
- B6 - Pyridoxine. Pyridoxine HCl.
- B12 - Cobalamin. Cyanocobalamin. Also called the "Red Vitamin."
- Biotin - Vitamin H
- Choline - one of the "Lipotropic Factors."
- Folic Acid (also known as Folacin). Pteroylglutamic acid.
- Inositol
- PABA (Para-aminobenzoic Acid). Bx.
- Pantothenic Acid
- B13 - Orotic Acid
- B14 - A mix of Vitamin B10 and B11
- B15 (Pangamic acid) - Does not meet the criteria for a vitamin.
- B17 Amygdalin. Known as Laetrile. (Does not qualify as a vitamin.)

- Vitamin F - Essential fatty acids
- Vitamin K - Menadione
- Vitamin T - Sesame seed factor, unidentified
- Vitamin U - Vitamin-like factor found in some vegetables, cabbage, for example.

2.9 Grouping the Vitamins

Vitamins are organic chemical compounds which are normally divided for purposes of convenient identification into two groupings:

1. The Fat-Soluble Vitamins
2. The Water-Soluble Vitamins

Only the more familiar vitamins are so classified. They are grouped in this manner because they cannot be more readily classified because of their chemical similarity as can be done, for example, with the various kinds of carbohydrates which, as the student already knows, can be easily grouped as monosaccharides, disaccharides or polysaccharides according to the complexity of their molecules and the similarity of their chemical construction. This is not true of vitamins since they differ widely in their chemical make-up with no clear pattern emerging.

Some vitamins are proteins with very complex molecules while others seem to be simple amino acids. Many people consider vitamins to be food, but vitamins are really not food in and of themselves, but rather protein compound's or simple amino acids which assist the body at the cellular level to utilize and assimilate the food which is eaten and, in excess, they stimulate the metabolic process. Their main responsibility is to regulate body activity.

The body also has other helpers which also perform this same regulatory function—namely, the enzymes. No one is exactly sure just how enzymes go about their very important duties but we do know that thousands of chemical actions and interreactions which are all a part of the cellular scene depend upon enzymatic action. Without their presence, these metabolic functions simply could not take place. As we shall see later, without the presence of certain enzymes, many bodily processes in which vitamins play their own peculiar role would require such high temperatures that the body would literally burn up.

Thus, the vitamins assist the enzymes, too, in their catalytic work and, for this reason, are often called "Co-Enzymes." They assist both hormones and enzymes so their role might be compared with that of the nurse's aide who assists the registered nurse in caring for all the patients!

2.10 Vitamin-Enzyme-Hormone Synergism

The secretions of the ductless glands, hormones, are the prime regulators of metabolic activity in addition to performing the very important task of instigating metabolic action. The hormones are normally referred to as instigators of metabolic action; that is they are primarily responsible for keeping metabolic activity going on. But, additionally, and most importantly, they also serve as regulators of metabolism, seeing to it that things do not get out of control—that we don't wear out the physiological clock, as it were, making things go too fast.

Thus we can see that vitamins and enzymes dually share in this major responsibility working in tandem, as it were, with the hormones. None can fully fulfill its responsibilities without the presence of the others. This is synergism at its best.

2.11 Vitamins Have Other Roles

So far as is known, vitamins supply no energy or nutrient to the human body but simply make it possible for the system to appropriate the proteins, carbohydrates, fats and salts. We also know that they are absolutely essential to growth because they are required in cellular replication (division); they play an important part in the regeneration of cellular matter and in the overall maintenance of health. Some of them are probably involved in membrane maintenance, in the stimulation of brain action, cleansing of the peripheral capillary system, in blood clotting, and in a myriad number of other activities. Their total role will probably never be known.

2.12 The Fallacy of Vitamin Supplementation

From the foregoing, it would appear logical to assume that the more vitamins we can take, the healthier we should become but, unfortunately, this is simply not true. We have a limited capacity to utilize and/or to store vitamins, as is true of food. When any substance, including vitamins, is introduced into the system in excess of present need, an unnecessary burden is immediately placed upon all the organs and systems. They cannot use the product. It is an obstructive influence in the body and therefore potentially harmful to it. The organic domain is placed in the position of having to cope with it in the least damaging manner.

The presence of any excess or foreign substance is immediately recognized. The danger-ahead alert is sent via the nervous transmitting mechanisms (the nervous system) to the control center in the brain where it is interpreted, evaluated and an appropriate response (instructions) sent out; or perhaps the alert may be relayed to a more locally placed substation (a plexus) for a sympathetic response.

If an obstructive foreign substance (for example, a vitamin overload due to dietary supplementation), cannot be stored or disposed of by temporarily or permanently "dumping" it somewhere in the body where it will not greatly interfere with normal systemic function but can be "tolerated," then the body will instigate other measures to get it out of the system as fast as possible.

The usual route for such exodus is via the kidneys and when the kidneys are thus called upon for emergency service, they must necessarily work overtime. Vitamins, when taken in excess of actual body need, are handled in exactly the same fashion as any other unncessary impediment. In the case of vitamins, the easiest and quickest way to get rid of existing excess is to incorporate it in the urine and send it out of the body via the bladder, making the urine a very expensive secretion, indeed!

In order to accomplish the "dumping" or the rapid exodus of any foreign or excess material, vitamins or other, the body is stimulated by the nervous response and shifts into "high gear," stepping up the metabolic activity. The stimulation makes the vitamin-taker feel good, at least while he takes the vitamins, and it is for this reason that the need for this kind of stimulation can become habitual.

Why, you ask. It seems that a very delicate balance obtains among and between the secretions of the ductless glands, the hormones, the vitamins and the enzymes; especially with the millions of enzymes which are directly concerned at the cellular level with the multitudinous activities comprising the life process. You see, once inside your body the vitamins take their proper place in a tremendously complicated scheme of life about which we actually know very little. They do not just work alone but they require other factors for them to be effective at all, factors like fats, minerals, hormones and so on. Only too soon the body becomes accustomed to their stimulating presence and when deprived of it, can sink to an unexpected and quickly felt lower level of well-being as attends all drug withdrawal.

We are only becoming more informed in this area of concern through microbiological studies. We really know very little about life within the cell. But what we do know strongly suggests that the indiscriminate taking of vitamins could and perhaps does disturb delicate internal nutritive balance resulting in metabolic confusion, a confusion which disrupts and diminishes efficiency of performance. Health is reduced commensurate to the imbalance.

Some vitamins, like the enzymes, are found in just about every living cell, plant or animal. Not all Vitamins however, are required by all animals but it does seem to be a requirement of life that the vitamins required by a particular kind of organism must be present at all times, each to play its own specific role as to time and place within that organic community. This is true, also, of man but, as we have noted, the vitamin role is secondary rather than primary, that of assistant, not instigator.

2.13 Human Guinea Pigs

Vast realms of the human life motif are yet to be explored and resolved in finality. Millions of people who are presently taking vitamins are willing guinea pigs in a vast experiment, the results of which are, by the measure of things, completely unknown and unpredictable in the absence of long-term and precise evidence.

Those persons who enthusiastically promote mega-dosing of vitamins do so on the basis of evidence that is often misleading because it is insufficient on many grounds and often misinterpreted. For example, hamsters which developed lung cancer due, in part, to exposure to smog and cigarette smoke were given Vitamin A and, according to the researchers, the development of cancers was halted. These results were interpreted to mean that dosing with Vitamin A helped to prevent the cancers from arising.

Since it takes years of body mismanagement and a multitudinous number of physiological errors to produce, as a final conclusion of the pathological process, the condition of true cancer, this was certainly a simplistic assumption to make, especially in view of the fact that, to the present at least, there are no known methods of accurately determining exactly what else is going on in the recesses of an experimental subject. It may well be that the drugging effect of suppressing symptoms may be operational within cells to be stimulated at a later date to an unhealthy derangement of cellular growth. Vaccinations prevent symptoms from arising through the toxicosis and unhealthful practices continue. Disease continues its evolutionary ways and manifests itself years later, often in more horrendous ways.

It is said that autopsies reveal that vitamin deficiencies are widespread, not only in other parts of the world; but here in America in the face of an abundance of readily available food. This is the rationale which is used to promote vitamin dosing. Little or no attempt is made to inform the public as to the realities of organic existence, to ascertain what errors are being made in eating and living that produce vitamin deficiencies in the first instance. Instead, the populace is lulled into believing that they can continue to eat *a la* their television instructions, to eat "junk" food, in fact to disobey all natural organic law and, in spite of their indiscretions, maintain a lasting health. Manifestly, this is impossible. They are being stimulated, propped up and goaded into a false sense of security, instead of being encouraged to partake of nature's grand packages which contain all the vitamins man could ever need or want.

2.14 The Living Plant as Provider

The living plant is the only organism which can synthesize vitamins, though animals create some vitamins too. This fact means, in effect, that all animals are dependent upon the vegetable kingdom for their vitamins. It is true that some animals can take the immediate predecessor, the precursor of the vitamin, the provitamin, and from it complete the synthesis of the vitamin itself as, for example, man can take the carotene provided by the carrot and also in other vegetables and by a series of changes, chemical in nature, convert it into Vitamin A. To a limited extent, man is also capable of storing up vitamins in his liver and elsewhere within his body, these being included among his adaptive reserves, held in readiness for times of unusual need.

Another point of interest in this discussion is the fact that plants which have the highest mineral content also have a high content of vitamins and that the particular part of the plant which is richest in minerals is also richest in vitamins. In other words, it would appear that nature is telling us that the life processes which favor the appropriation of minerals by the plant also favor the synthesis of vitamins and that perhaps because all of nature is so symbiotically intertwined that the carefully proportionated relationships displayed by plants designed for man's consumption might also be most favorable to body processes in the human who eats of the plant.

The darker the color of the plant, the higher its vitamin and mineral content. When leaves of plants are exposed to many days of suitable sunshine, they are more abundantly endowed both with vitamins and minerals. This fact seems to tell us something: namely, that insofar as both plant and animal existence is concerned, there is a relationship existing between the vitamins and minerals, a precise balance in each plant and, indeed, in each part of the plant. It would appear reasonable to assume that, if we desire a maximum vitamin-mineral intake, we should eat of those foods that are well exposed to the sun; we should choose foods which grow above the ground for a well balanced nutrient pool and, to conserve body energy, we should concentrate on those foods that not only contain valuable nutrients but are also easy to digest and do not possess known irritants. A plant having the highest vitamin value may not necessarily be good for man to eat. A single example should suffice to illustrate this point: hot red chili peppers (raw) per 100 grams contain 21,600 units of Vitamin A as compared to a luscious ripe peach of similar weight which yields only 1,330 units.

Vitamins are found in all vegetables and fruits that serve as food for humankind and in adequate quantities. The amounts are small by our way of thinking. But nature seldom errs, we can reasonably infer from this fact that the human body's systemic need for vitamins is probably "very small." This concept, of course, has been borne out by considerable research using radioactive additives in cell studies, these being traced in their progress and utilization by means of high-powered electronic microscopes. Additionally, the theory seems reasonable also by virtue of the fact that the role played by vitamins in the living body, while essential, is still limited to that of being regulators of activity and also because they share this responsibility with the hormones.

We, the authors, have not used manmade vitamins for many years now but our health continues to improve and our energy flow does not seem to be disrupted by our abstention. An overkill of any single nutrient factor can destroy the delicate relationship among and between all nutrients and, it might well be disruptive of endocrine performance.

2.15 Overkill

Let us postulate what overkill may do. We have established the symbiotic companion action of hormones, enzymes and vitamins. Whenever hormones are not present, the production is shut off. This is known as hormonal feedback. The danger of disturbing hormonal feedback is always present when vitamins are introduced in excess of systemic need because of the stimulating effect they are known to have.

There is a precise relationship among and between the various endocrine glands under the planned instigative control of the hypothalamus-pituitary twin glands. An intelligent dictatorship determines the outflow of hormonal secretion and the stoppage of same according to the need to instigate some kind of action within the body (to use a common example, flight in time of danger) or to stop an operation in progress (for example, insulin production). The possibility arises that the presence of an excess of vitamin input which also serves, we must remember, as a regulator could disrupt the precise management of metabolic activity and perhaps even overstimulate, producing undesirable effects, the so-called side-effects of drugs which are, after all, regular effects, always present but not always discernable. At the very least, any excess input can accelerate the biological clock.

As we have said many times, our knowledge of the biochemical goings-on within the human body are still in the pre-kindergarten stage and we place ourselves in jeopardy when we start tinkering with the body's finely tuned processes, when we pre-judge an unknown systemic need and ingest via the oral cavity or inject into the blood stream extraneous manmade substances of doubtful value, no matter if they are touted as being obtained from a natural source, they are not natural in the real sense.

In the light of our present lack of any accurate knowledge as to the exact dosages required (the government-recommended RDA's are, at best, an over-liberal (and over-lethal) guesstimate), the problem always remains as to exact need human organism can determine this with any degree of accuracy.

While minimum daily requirements for individual vitamins have been put forth, there has, to date, been no absolute test to evaluate relative vitamin needs; that is, we do not as yet have a reliable understanding of the proper proportionate values of one vitamin to another or of each to all and, again, to the hormones with which they share certain responsibilities. Surely, these values must change from, individual to individual according to metabolic efficiency. It appears all but impossible to predetermine the exact need of any one individual, let alone people in general, this certainly being a variable as metabolic circumstances fluctuate and change. Also, another point deserving our attention is that manufacturers of vitamins necessarily must use chemically pure vitamins for the most part. If they used only naturally derived vitamins, their pills would be too large for us to swallow. Natural foods contain too small amounts of vitamins to formulate heavy drugs. Additionally, they find it necessary to add a "carrier" to make their products more acceptable to the palate and to bring their product up to an exact pre-determined standard. We have no way of knowing the precise effect these chemical carriers may have on the system. It seems more in keeping with nature's plan for living to take vitamins as contained in nature's offerings where they are in organic context.

Since we know that the human body is a finely-tuned masterpiece and that simple maladjustments often present serious health hazards, this matter of vitamin proportions and relationships, as well as further consideration of carriers, could well be more important than has yet been realized. People have been dosing themselves and their children now for a considerable time with multitudinous kinds of vitamins and vitamin combinations, often in extremely large doses. If vitamins were the panacea to all health problems as they are so often represented to be, surely during the last half century we should have witnessed a phenomenal improvement in the health of the people but, unfortunately, the contrary appears to be true.

Arnold Fox, M.D., assistant professor of medicine at the University of California at Irvine Medical School and a lecturer at the Charles Drew Medical School, stated in an article published in *Let's Live* Magazine (June 1982) that he is now "treating the 20- and 30-year old children of my patients. These children are, on the average, as sick as their 50, 60 and 70-year-old parents..." To be sure, the deterioration in the health status of these children has been brought about by many factors but it is certain that the taking of multiple doses of vitamins, numerous vaccinations and other well publicized "preventive" measures has not prevented systemic deterioration; instead, it may well have accelerated it.

It would appear obvious to any discerning person that the answer to rapidly deteriorating health does not lie in taking pills, potions or injections. Most of the recommendations for supplementary vitamin usage have come about through experimentation on animals in a controlled environment situation. These experiments show results for a particular species of animal under the controlled circumstances, not as they might be in the wild.

Furthermore, the species of animal on which the tests were made may or may not bear great biological relationship to humankind and certainly the controls operational in a laboratory situation can bear little relationship, if any, to the stress-wracked frenzied, emotion-charged life of the average person today whose metabolic activity is being constantly monitored by the endocrine gland and nervous systems.

Additionally, the experiments, by and large, have been of too short a duration to be valid. Being scientific researchers ourselves, we can say that "they" assume too much on too little evidence. It has long been known that it takes four or five generations to evaluate a dietary change. Consequently, the tests, as Herbert M. Shelton so well points out, are applicable only to the animal in question (under precise circumstances and conditions, we might add) and are not "strictly and broadly applicable to man." They might not even be strictly and broadly applicable to the *same* animal under other circumstances.

Sylvester Graham in his *Lectures* pointed out that there is similarity of function and application of principles throughout the animal kingdom, but that there are also fundamental differences from species to species. These fundamental differences make all animal experimentation suspect. The assumption of an accurate response may not always be confirmed in the revealing light of subsequent reality.

Experiments can be designed in such a way that they will produce a desired or hoped-for result. Much of the research presently being conducted is subsidized research, paid for either by government, organized groups, or commercial companies having a vested interest in certain results. Persons receiving subsidized grants, many involving enormous sums, might possibly be inclined to slant the results of their research, even without their being consciously aware of their thrust, in order to please their sponsors and keep the money bank open.

2.16 The R.D.A.'s

The average man weighing 160 pounds contains within his entire body just about 1/4 ounce of vitamins. Now it takes approximately 28 grams to equal one ounce, so this means that, if we add up all the many different kinds of vitamins in the average man's entire body, we would have only about 7 grams total, including all the reserve supplies, those that are stored up in the tissues and organs for emergency purposes, particularly in the liver and kidneys.

The R.D.A.'s (The Recommended Daily Allowances) are about double (in some cases even more) the estimated minimum requirements, which many scientists admit are not easily determined. In other words, these figures are no more than guesstimates. In fact, some scientists contend that, while extra vitamins may be needed to correct certain deficiency diseases in extreme circumstances, normal persons do not require supplementation since a good diet provides amply for all such needs.

Certainly their ideas as to what constitutes a "good" diet may differ from our own, but even so, the Food and Nutrition Board, a division of the National Research Council (organized by the National Academy of Sciences) postulates that the average adult eating a well-balanced (comprised of the appropriate amounts from each of the four basic food groups) diet will receive 7,500 International Units of Vitamin A. The R.D.A. for Vitamin A is only 5,000 units.

There is no need whatever for any person on a Hygienic diet to harken to the siren call of the paid hawkers of commercial wares—synthetic vitamins. Nature has provided well for all of us. Many millions of people lived in health for centuries before Dr. King concluded his monumental experiments at the University of Pittsburgh and isolated Vitamin C from lemons. Any *real* student of health knows that the chemist and/or the manufacturer cannot put life and health into a bottle of pills. Neither can the life force resident within a plant be extracted and compressed into a capsule and still be viable.

If you eat fresh uncooked fruits and a limited amount of fresh leafy vegetables, a few nuts and edible seeds, you will take in *many times* the recommended amounts, not in synthetic isolated vitamins to stimulate and accelerate organic response beyond its norm, but rather in desirable metabolically correct combinations with other nutrients, nature's bio-chemical partners.

2.17 Vitamins and "Cures"

There are many so-called "cures" attributed to vitamin "therapy," just as there are many so-called "cures" attributed to this or that drug. To say that vitamins can "cure" an existing malfunctioning within a sick body is to admit ignorance of the nature of disease and is an admission of commonality with the drugging practices of the vast majority of medical practitioners.

The giving of vitamins "therapeutically" or the introduction of drugs orally or by injection in the hope of favorably influencing the progress of a certain disease is a serious error because, in reality, we do not cure but simply suppress the curative actions already in progress within the system, these having been initiated by the organism itself. The suppression of the symptoms is what is normally accepted as a "cure," but, unfortunately, the cure represents only a temporary surcease until utility is recovered.

Whenever any unwanted or foreign material is thrust into the system, all vital powers of the organism that can possibly be spared from vital processes must be employed in rendering it harmless. This effort, when continued for any length of time, actually results in changing an acute crisis of healing, one that is usually of a comparatively short duration, into a chronic disease which the body will conduct unceasingly. Chronic problems often result in acute crises that can even bring an end to life itself.

Drugs have been used for thousands of years of man's existence to relieve hurts and to "cure" diseases. Man has a tendency to hold fast to his habits even though they be destructive of his very life and it is this tendency that causes man to seek "cures" rather than to determine the root of his troubles and then change, discard, modify or remove that which tends to destroy him.

We are just now beginning to understand the dangers inherent in all drugging. And, make no mistake, the vitamins of commerce act in exactly the same manner as drugs. *They occasion body defensive actions*. The toll from iatrogenic diseases (drug-related) has gone beyond the point of toleration by an enlightened public.

The toll exacted from drugs often rears its ugly head in countless unnecessary deaths and in the form of mutations in infants which must be destroyed in utero at birth and relegated to the garbage heap; in cancerous tumors which come in second and third generations; as well as in numerous less distressful symptoms soon forgotten. What the effect of our present vitamin stimulation craze may yet prove to be is a total unknown. We have no way of following successive generations of long-living humans to make a liable assessment.

Vitamins are drugs. Using vitamins is similar to drugging. The body reacts to vitamins just as it does to any harmful substance: it goes into defensive action. The pills can do nothing except perhaps enter into a chemical action of some kind. We should remember that building health is harmonious body effort, not a defensive action. Life is either "cumulative or dissipative, never static." Simply taking this vitamin or that vitamin pill will never, by any stretch of the imagination, get at the root cause or causes of a deranged body. It will never render the thickened viscous fluids of the hypertensive patient (one who has high blood pressure) pure and free-flowing; it will never heal a damaged heart, gallbladder or spleen.

The system, of course, learns to tolerate the vitamins, and the stimulation they provide often makes the person taking them feel "good;" but the good they give wears a false fact, a facade that cheats, since it is the result of excitation, not health. Unfortunately, an excitation is gained at the expense of loss of vital power, power that, once lost, can never again be wholly retrieved. Only too soon, the false face fades, revealing the cruel reality of premature aging and its companion, ugly disease.

2.18 Life Science Is a Better Way

Life Science is a better way. Any person who desires the full joy of abundant health must either grow his own produce or have access to fresh fruit and vegetables, preferably organically grown, either by himself or available to him freshly picked from another source. Synthetic vitamins are divorced from their natural carriers and cannot be depended upon to build health. Life Scientists put their trust in

Nature's ways. Nature gives us a guarantee!

We can save on other things, if need be, but if we desire the best of health, we should have access to and use only the best quality of food. And, even better, we should plant our own garden of vegetables and a variety of fruit and nut trees. *We should become activists and encourage the public to plant fruit and nut trees to adorn our highways, parks and roads.* As Otto Carque said, "to provide food for generations to come."

As Life Scientists, we should feast on the fruits of our labor, harvesting beautiful vegetables, fruits and nuts at the peak of perfection, ready not only for our gustatory enjoyment and delight but also to provide amply the wherewithal for living always in a state of superb health, without our ever having to rely on synthetic man-made products, the effect of which we have no fool-proof way of evaluating. We should, above all, emphasize in our diet those most perfect of all foods, the luscious ripe fruits, fruits endowed with all the nutrients we could ever require to sustain us in perfect health throughout a lifetime of sickness-free living, always retaining a keen awareness of the universe around us and keeping in tune with the realities of life until the time comes when the life force gently slips away.

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3. Minerals

3.1 The Primary Role of Minerals

In spite of the fact that the role played by minerals in human ecology is a primary one, mineral nutrition is a relatively new field of interest. In 1904, Dr. Harvey W. Wiley wrote to Otto Carque, a celebrated biochemist of that era, as follows: "I regret to say that no one in this country has undertaken a complete analysis of all of the mineral constituents of foods." A German physician named Dr. H. Lahmann was perhaps the first scientist to direct his attention to the role played by food minerals in human nutrition. Dr. Lahmann wrote extensively on the subject in his book, "Natural Hygiene." He was rapidly followed in his work by Carque whose outstanding book, "Rational Diet," was printed in 1923 in this country and is still available in reprints.

Dr. Herbert M. Shelton has called minerals the real "building blocks" of the body. They are basic to the construction of bone, tissue, nerves and muscles; indeed, of every part of the body. Additionally, they are required to sustain every function of the organism. Without minerals we couldn't move or think. They constitute our main adaptive reserves, they provide us with the means to withstand the common stresses of the day and unanticipated trauma that may come. It would be impossible to recite their manifold functions and even so, there are, undoubtedly, functions innumerable which remain hidden in the closed recesses of the human labyrinth.

Even though minerals are manifestly of great importance to life, they are probably the most neglected area of concern in the scientific community, although in recent years more and more attention is being directed to them and to the role they play in the continuing life process. Dr. Roger J. Williams, a biochemist, in his book "Nutrition Against Disease," points out to his readers that the thesis of the work is "that the nutritional micro-environment of our body cells is crucially important to our health and deficiencies in this environment constitute a major cause of disease." The opening chapter in this work is well worth the student's attention. It presents an excellent *critique* of present medical thinking and training and the extent to which it is circumscribed by the standardization imposed upon physicians by the American Medical Association. At one point Dr. Williams points out that, "When science becomes orthodoxy, it ceases to be science." In his emphasis on the "Nutritional Chain of Life," Dr. Williams simply stresses what should be obvious to all: the cellular need for the entire spectrum of nutrients, known and unknown, including the primary actors in the drama of life, organic minerals.

3.2 Indoctrination of the Public

Because of the growing interest in the field of nutrition by a public disillusioned with the drug, cut, sew and stitch mentality of modern medical practice (as much as one-third being so disillusioned), certain commercial interests have issued a siren call extolling the virtues of adding minerals to a multi-vitamin intake. Such advice is forthcoming on the basis largely of animal experimentation which, as we have already observed, is usually conducted under strictly controlled circumstances on biologically unrelated test animals whose life spans are relatively short when compared to that of man. It is on the basis of this kind of encapsulated research that the public is being wooed to supplement its food intake with a varied assortment of bottled vitamins and minerals even though the experiments are obviously of too short a duration to be worthy of serious consideration.

3.3 Minerals for Humankind

The human body must obtain its minerals in the form of organic salts which are present in all foods. But not all plants are fit for human food. Food is any substance which can be used by the organism, in this case man, to make blood, formulate secretions, construct bones and ligaments and build tissues and nerves without adding anything that might prove overstimulating, exciting, irritating to the cells or destructive thereof, or obstructive to function.

Man eats his food in the form of fruits and certain vegetables which contain the necessary organic salts and then, by the sequential processes of digestion, absorption, transportation and cellular assimilation is able to reorganize them into his own organic substance suitable for growth, repair, healing and for whatever function may be in order to meet the precise needs of the moment. These complex processes are concluded with drainage whereby the metabolic waste byproducts are removed and returned to their point of origin, the soil. All of those complex processes represent the internal cycles of life, which when total and kept in proper balance are capable of maintaining cellular (and thus body) health theoretically for an indefinite period of time.

3.4 The Bio-Ecosystems

All life is divided into three biologically distinct groupings: the Animal Kingdom, the Plant Kingdom and that "in-between" grouping known as the Saprophytes which, properly, do not belong in either of the two familiar Kingdoms.

The Saprophytes take the organic refuse of the world, dead plants and animals made up of organic molecules and, by the process of metabolism, disorganize it into simpler inorganic mineral elements which are then yielded up again to the soil, thereby becoming available, in an aqueus solution, to the plant where it is processed, reorganized once again into organic molecules suitable for the maintenance of the health of the plant. Suitable warmth, mineralized water and a friendly environment are essential to the efficient performance of this part of the plant cycle.

The inorganic minerals derived from decaying dead organic life, both plant and animal, thus become once again endowed with the life element, they become once again a part of a living structure, in this case of a plant, and are assigned various positions and duties within the plant organic community. Every plant has its own special design and structure, its own peculiar assortment of organized organic molecules.

Roots have their own exact array within the organized mineral community, leaves another, the fruits still another and so on. Seeds contain the force of life, the ability to reproduce. Together, all the parts of the plant represent the food bank of all the world's living organisms, from the largest to the smallest, both plant and animal.

In the earth's carefully programmed ecological sequence, animals are not designed to utilize inorganic minerals. Nor do they have the ability to utilize them in the life processes of building, repairing, healing, replication or in any function of any kind. To the contrary, animals are able to use only organic minerals as food and each species has food which is set apart for its use. Grains keep birds in, perfect health. Each morning here at the ranch we feed the many species of birds that live here: red-breasted finches and the desert owls of little size and haunting cry. They get plump and fat on our seeds and on native plants.

Man, not being a bird and lacking both a beak and a craw, cannot obtain adequate nourishment from grains (seeds). A turkey has a large gizzard and can process and then utilize enormous amounts of seeds, including nuts and the hard shells thereof. Man, on the other hand, is structurally designed to eat abundantly of ripe fruits, plus a few leafy green vegetables and perhaps some few nuts and edible seeds. Such food is suitable for humankind and all these foods are well supplied with all the minerals required to sustain him in superb health.

3.5 Inorganic Salts and Man

Inorganic minerals will be rejected by the human body and, if they cannot be, removed from the body in some way, will remain in the fluids or be deposited as a precipitate wherever convenient, thereby proving to be an impediment to efficient function. Common table salt is such an inorganic salt.

Potassium salts are sometimes prescribed for heart patients, to raise the potassium level of the blood. A temporary elevation is often obtained but, upon discontinuance of the potassium pill, the level soon falls again. Last year we had a dramatic example of the folly of taking inorganic potassium. A client came to us with a potassium blood reading of 2.0, dangerously low (5 being optimum). She had taken an inorganic potassium supplement for many months but, whenever the medication was suspended, her potassium level rapidly fell. At the time she first came to us, she was fainting six and seven times a day. She was fed properly, mainly on fruits, leafy green vegetables, plus a few nuts and an occasional baked potato (not necessary but enjoyed by this particular client) and, within a very few weeks, her potassium level rose to 4.5 and has remained there ever since without benefit of any medication of any kind. She no longer faints and has shown a remarkable resurgence of energy.

If a sufficient amount of inorganic material is taken into the system, it may settle out adding to the viscosity, the thickness, of the fluids to such an extent that, in time, the body will simply have to deposit the "sludge" wherever convenient, in arteries, in joints, around nerve synapses, in muscles causing an imbalance in the solid-fluid ratio, with a gradual stiffening and rigidity of muscles and brittleness of the bones taking place.

Table salt is inorganic. If we add table salt to our food as a condiment and then ingest that food, we may find it to be highly toxic and destructive, especially of nerve tissue.

However, as, an organic component of a healthful food such as Romaine lettuce, produced for our sustenance by the combined efforts of bacteria, soil, air, sun and the plant itself, it will be put to good use within our body. For example, organic salt could be united with free-floating acid radicals which, if left alone to do their mischief, could tear the tissues apart but, when united with sodium, contained in the food salt, are simply eliminated from the body or perhaps just rendered harmless. The salt contained in food, being an organic salt, can be used. It can help keep the body fluids clean and pure. It also forms an important component of many body secretions, the tears and gastric juices among others.

Suffice it to say that to live we require a wide variety of minerals for all kinds of purposes. We require them for all the vital processes but we must remember that the body will reject inorganic salts because it has no mechanism to use them. Not that human design is faulty. It is just that a better arrangement has been made.

Nature has developed so that the human body depends upon only naturally chelated minerals, minerals organically organized within living food molecules. It will reject the inorganic molecules because they are unusable. They contain no life. Food molecules, and especially plant food molecules, have incorporated within their complex structures the very essence of life. Man, having his own niche in the bio-ecosystems, is required to eat of the foods specifically adapted to his needs.

3.6 Chelated Minerals

Laboratory-synthesized chelated minerals have become a big thing in recent years, their "virtues" being extolled in just about every popular health magazine on the market today. Chelated minerals are minerals that have been bound to or bonded with amino acids or to a more complex protein molecule. The idea seems to encourage people to "live symptom-free, but to keep the disease." The word is that if an individual will supplement his faulty diet with man-made chelated minerals, he will be free of his annoying symptoms.

3.7 Deficiencies and the Fallacy of Therapy by Supplementation

Hair analyses are routinely made to detect mineral "deficiencies," as are blood readings. Unfortunately, perhaps, neither the hair nor blood is static. Their composition is always in a state of flux. But, be that as it may, many such "deficiencies" are attributed to poor digestion which, in turn, is simplistically ascribed to a lack of sufficient hydrochloric acid in the stomach. When this latter is suspected, it is the modern practice to perform the Heidelberg Gastric Analysis, a means of determining how much acid is secreted in the stomach via evaluation of radio signals sent out from a small capsule which has been swallowed, these radio signals being recorded by a special sensing device contained in a belt wrapped around the abdomen. In the event that a deficiency is recorded, the common practice is to provide in a little capsule the missing amount of hydrochloric acid. This "therapy" is intended to improve the digestion of protein and, thus, in due course, the mineral availability to the body. To ensure that the patient secures an adequate mineral intake in the interim, he continues to pop his chelated pills.

The basic fallacy of this type of "therapy" is that a lack of sufficient hydrocholoric acid in the stomach indicates a deterioration in the health of the stomach acid-producing glands, these having been enervated by multiple errors in eating and living. As a result they may be burdened down with catarrh and be incapable of efficient production. Not only are the stomach glands affected by enervation but the entire system suffers. When any part of the body is tired, overburdened with toxic waste, efficiency of function is lowered.

3.8 A Better Way

Hydrochloric acid capsules and chelated pills are not usable. They further cripple the body. Swallowing acid and popping pills is anti-health. The better way is to begin to cleanse the body, to get rid of the morbid wastes, to disorganize and remove the fat, to autolyze the cysts and the tumors and then to rebuild a healthier body, a superbly functioning organism, using all the fundamental requisites of organic existence. When this has once been accomplished, the symptoms will long since have departed, the blood and fluids will no longer be deranged or scant in supply, and they will be abundant and free-flowing, pure, and will run in their channels carrying mineral and other nutrients to service the needs of the cells.

3.9 The Law of Economy

The Law of Economy states that where there is no demand for the production of a product (secretion, etc.), the body will not produce said product. If supplements are substituted for a product which is normally the result of a life process within the body, the time will soon come when the supplemented individual will become supplement-dependent, no longer able to manufacture the product so vital to his life. Without the supplement, his health will rapidly deteriorate. No "cure" has been affected, therefore the lack will reassert itself.

When supplements are taken, the body is and will continue to be stimulated while the dosing continues. Supplement-taking cripples the system's powers of synthesis while the internal deterioration proceeds unabated. The process can be somewhat compared to the addiction that results when so-called "hard" drugs become a way of life. After a time, the individual more often than not finds that he must have recourse to an increased mineral intake in order to obtain the same feeling of well-being. But dosing, of course, has its limits since no healing has taken place.

3.10 Imbalances Within The Body

Another point illustrates how futile it is to dose the body with this, that or the other mineral pill, chelated or not, and that is the fact that the human being must have all the nutrients present as and when required but, more than that, it must have them in their proper synergistic organization, proportions, if you will, one to another and each to all. The body will simply not put up with imbalances of any kind. In fact, when an imbalance exists, the body is in trouble and it will let us know by one method or another, by this symptom or that.

When an excess (or a deficiency) of any one material (or other nutrient) exists, an imbalance is present. Such an imbalance may cause the nutrient in question, mineral or other, to be worthless or, what is even worse, *it may prove to be a handicap to the proper utilization of all the other nutrients*! This is the Law of the Minimum.

Minerals are required by the living system; vitamins and enzymes are required, all the nutrients are essential to support the life systems but they must be present in a balanced synergized organic context as contained in the various food packages designed for man's use or they are worthless. Not only worthless, in and of themselves, but the imbalance created because the system cannot fully utilize isolated man-made minerals, chelated or not, reduces the effectiveness of all of the other nutrients, including perhaps even the organic minerals that are present in the dietary intake perhaps by as much as one-half and, if other deleterious factors are also present, possibly even more.

3.11 Selenium—To Illustrate a Point

Selenium is a mineral that has come into prominence especially since the publication of *Selenium, As Food and Medicine* written by Dr. Richard Pass water, Ph.D., and published by Keats Publishing, Inc.

Dr. Passwater relates how important selenium is in maintaining health. The inference is certainly given that adding a little selenium to the diet may just help prevent a person's coming down with serious diseases. Following the publicity on the attributes of selenium, health food stores were invaded by persons eager to escape all the ills of the world's sick simply by adding a little pill containing this trace mineral.

Selenium is now included in most multivitamin and multimineral supplements. Oddly enough nothing is said about selenium's toxicity as added to supplements in an inorganic state. And even more, little is said about how the roots of certain plants, like the many fruit trees and the alfalfa plants, have roots which penetrate down through the surface oil deep into the sub-soil where they seek out and take up dissolved minerals of all kinds, gross and trace, these to be reorganized into plant substance to sustain the plant's specific needs. When man eats the fruit of such plants or parts thereof which are adapted to his body design, he receives all the minerals he can use, including the trace mineral selenium.

Fruits, the product of trees and vines, are the best of all foods just because their root systems are far-reaching and deep-searching. When fruits are formulated they contain within their rich goodness, all that man requires to live in health. Fed by the soil and air, they are man's finest food. When vegetables and a limited amount of nuts or edible seeds are also occasionally eaten, fruits will amply fulfill man's nutrient needs.

3.12 Minerals as a Nutrient

As we have previously noted, minerals are one of a group of nutrients. They are a part of every cell, tissue, organ and system of the body. They are especially concentrated in the bones, teeth, hair and nails. Without minerals, the alkalinity of the blood and other fluids of the body would be in extreme jeopardy because a correct mineral presence is required not only to sustain this alkalinity but also the viscosity (the stickiness, fluidity) and the salinity (saltiness) of all systemic fluids.

Minerals serve to detoxify the system whenever solid wastes threaten it. Therefore, whenever the human organism has a full complement of minerals, all readily available at the required time, it is protected against decay and rot. The proper concentration of mineral salts in the interstitial fluids keeps cellular membranes from bursting and spilling forth cellular contents. The proper proportion of mineral to mineral keeps the plasma membranes and cell walls intact with full selective power, the ability to accept or reject nutritive material as it passes by in smorgasbord style, offered up by the fluids as they journey on their course to every cell within the organic domain. These membranes also retain the ability to pass all obstructive debris which by its presence could disrupt cellular activity through and out of the cell.

Let us briefly explore another aspect of mineral balance. We have already pointed out that the blood and other fluids must keep a rather carefully prescribed quota of minerals at all times to maintain rather narrow parameters of pH (alkalinity). If the pH varies even minutely, sickness and even death can follow, and quite rapidly. In order to keep the pH stable, the homeostatic mechanisms of the body will take from those organs which are adequately provided with the minerals the system requires to perform specific duties and to take whatever amount is needed to continue the life process. The body makes the best use of its resources.

The mineral selected most often is calcium, this being in time of grave need, rudely obtained from the teeth (producing caries) bones (leading to sponging, osteoporosis). That mineral deficiencies are widespread is evidenced by the fact that over 99 percent of Americans have one or more dental caries and most persons over the age of 50 give evidence of osteoporosis. Taking calcium supplements which are inorganic cannot solve this problem. Rather, supplements may lead to faulty systemic managements, not only of calcium but also of other minerals according to the Law of the Minimum, demonstrating again how poorly the body can tolerate imbalances of any kind.

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4. Enzymes

4.1 A Question Answered

"Wouldn't it be wonderful if our scientists could come up with a substance which could assure digestion of our foods, clean our dirty sores, reduce inflammations, promote healing, liquefy the thick mucous discharges emanating from our many diverse serous and other membranes within the body cavity; in short, work all manner of miracles?" Well, they haven't, but Nature has! In fact, Nature has produced a whole family of such miracle workers and they are known as enzymes.

The human organism contains countless millions of enzymes. They are contained in the food we eat and in every cell of the body. Enzymes are very specialized organic compounds of polymers of amino acids. A polymer is a larger molecule or compound formed by the union of two or more smaller identical molecules. Enzymes are formulated when two or more identical amino acids are united in a chemical union.

Polymers are never found in the inorganic world. Therefore, enzymes are found only in living plants and animals. They are proteinaceous catalysts of biological activities. Since this statement is quite a mouthful, let us probe a little further to get a greater understanding of the specific role played by enzymes.

4.2 A Catalyst

The word catalyst is defined in the Thorndyke-Barnhart Advanced Junior Dictionary as "a substance that causes catalysis" with catalysis then being interpreted to mean "the causing or speeding up of a chemical reaction by the presence of a substance that itself remains practically unchanged," this last in our frame of reference referring, of course, to an enzyme.

The New American Encyclopedia (1939 Revised Edition) defines catalysis as a "chemical process by which the reaction of substances is quickened by an added substance which does not itself undergo a change. The added substance is called a catalytic agent or a catalyst. An example is platinum, the catalyst used in mfg. sulphuric acid."

4.3 Enzymes as Catalysts

Enzymes serve as catalysts to metabolic activity. They act to assist the speed of the many chemical actions and reactions involved in the metabolic process and also help these activities to be brought to a successful conclusion. As catalysts, enzymes are capable of increasing the rate and effectiveness of a reaction without being consumed in the process.

Many of the processes which go on in the human body at normal temperatures would require in a laboratory situation hundreds and even perhaps thousands of degrees of temperature and perhaps even the presence of a strong violent reagent for their accomplishment. These same reactions are accomplished by means of the enzymatic presence almost instantaneously in the calm peaceful environment of a healthy body.

4.4 Classifying Enzymes

Enzymes come in many sizes and vary as to their specific duties. At present over 700 different enzymes have been identified but so many millions of these miracle workers are known to exist that they have simply been grouped in three general categories, as follows:

1. hydrolytic (water-absorbing);
2. oxidizing (uniting with oxygen to supply heat and/or energy; as in a combustion);
3. Reducing (subtracting from a particular complex molecule certain elements, groups of elements or electrical charge).

These names are applied according to the type of process the enzymes control.

Individual enzymes are named by adding "ase" to the name of the substance on which they work, scientifically referred to as the substrate as, for example, the starch-digesting enzyme ptyalin or amylase. Trypsin is sometimes referred to as Trypsinogenase or proteinase because it assists in the resolution of protein (splitting the complex protein molecule into smaller chemical units or molecules). Lactase assists in the resolution of lactose, or milk sugar. And so on.

4.5 Enzyme Activation

Most enzymes actually exist in an inactive form until such time as their catalytic talents are called upon by the organisms. It is interesting in light of the fact that many people are taking enzymes regularly as supplements to realize that, in order to initiate the action by an enzyme, that is, to activate it, some metal ion (an electrically charged particle) or some simpler organic molecule or co-enzyme(s) must also be present.

As we have previously noted, vitamins serve as activators as well as regulators. They can serve as activators of enzymes and, at the same time, as regulators of enzymatic activity; again, a very good example of synergism within the system and, also, a very good reason taking isolated enzyme factors may be disruptive of normal enzymatic activity causing fluctuations of precise temperature ranges necessary to conclude successfully an important metabolic process.

Enzymes act only within very limited temperature ranges, this being true also of catalysts used in certain laboratory situations and industrial processes. At about 94 degrees, food enzymes start to lose their effectiveness, their ability to fulfill their catalytic duties and at about 118 degrees, they are no longer of any use. At the other end of the scale, they start to become inactive at about 32 degrees and seem to be totally destroyed at minus 104 degrees Fahrenheit. Thus it is that baking, boiling, frying, stewing, roasting, heating of any kind, dehydrating and freezing will either reduce or completely destroy the enzymatic presence in food.

When it became known that some enzymes were contained in food and that they probably helped in the digestion thereof, many people began talking about "live" food, but this was a misnomer since enzymes are in no sense "alive," as we think of the meaning of this word. However, the concept of "life" in food led to many foolish ideas and fads in eating, some persons going so far as to eat nothing except what they were able to pull off a tree or pick from a vine or bush and pop immediately into their mouths, as if to catch the life element before it escaped. By this practice they hoped to live forever.

Certain supplement-happy practitioners go so far as to have blood tests made in order to evaluate the adequacy of pancreatic enzyme production, the same pancreatic enzyme which functions in the disorganization of carbohydrates in the small intestine. Since some of these enzymes are known to be absorbed from the GI tract into the blood stream, it is postulated that we can assess the amount of enzyme production by noting their presence in the blood.

Other methods are also used, such as the indican test which measures the amount of unused breakdown products which result in the absence of sufficient pancreatic enzyme to digest protein, these being directed to and collected in the urine. When such deficiencies are found to exist, supplements of pancreatic enzymes and perhaps even of hydrochloric acid are given to correct the situation instead of either reducing drastically the protein intake of the patient to one more in balance with normal enzyme production or fasting him to remove the toxic wastes that now burden his body preventing efficiency of production at the cellular level, a condition which probably exists throughout the body. In other words, an attempt to restore the enervated system to a condition capable of more efficient production on all levels, including the synthesis and utilization of enzymes, would be a more sensible way to approach the problem.

4.6 Research

The enzyme ribonuclease was first discovered in 1938 by the bacteriologist Rene Dubos. (Ribonuclease acts as a catalyst in the hydrolysis of ribonucleic acid.) Eight years later Moses Kunitz, an American chemist, isolated this same enzyme and 23 years after that, in 1969, by two teams of researchers from Merck, Sharp and Dohme, the pharmaceutical company, and from Rockefeller University, this enzyme was finally synthesized. Since that time research has continued in many areas with the hope that enzymes can be manufactured and adminstered in the form of pills or by injection as agents in the prevention of disease or as a curative agent should disease exist.

Researchers are persistent. They have been hard at work learning about the chemistry of enzymes and how they work, trying to solve the mystery of how they can accomplish so much at such low temperatures. There is no doubt that much will be revealed in future years but, to date, we work on the fringes and have failed to solve the mystery.

4.7 Other Roles

Enzymes not only help to affect the marvelous processes of life but they also assist in death. Every minute millions of our body cells conclude their duties and die. Whenever cells die within the living body, they must be disposed of very quickly else the metabolic processes might soon be overwhelmed by the dead and dying cells and all life would necessarily come to a halt. This is where enzymes function in another capacity.

The dead cells are immediately set upon by the enzymes assigned to this specific type of cleanup duty. They are lysosomes. They disintegrate the clutter before it can obstruct normal function. Interestingly enough, there are no enzymes other than rigidly controlled lysosomes that can digest a living cell! Since enzymes lack this power, life is protected from destructive catalytic action and living cells just go on about their business.

Enzymes usually work at their point of synthesis within the cell where they are formulated. Their chief duty appears to be the building of proteins which are suitable for the particular host cell where they reside. Man is truly "fearsomely and wondrously made." And we labor under the delusion that supplementary enzymes can substitute for innate intelligence.

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5. Other Supplements

Man has been very ingenious in attempting to find ways to make up for or compensate for his own shortcomings as to diet and lifestyle. We find persons who take yeast regularly. At first, they experience stomach pains which are early warning signs that the body is rejecting this vile substance but, as is usual, as the individual persists in ingesting it, the system soon accommodates to the poison, giving up vital force in doing so.

Anemic people religiously take their iron pills hoping to "cure" their anemia. While they may experience stimulation, they "cure" nothing. Their bodies continue to deteriorate both in structure and function. We know one woman who stoutly maintains that her anemic condition was "cured" by taking iron pills as prescribed by her physician. She has been taking these iron pills for over fifteen years. We look at her and wonder to what purpose as we see the pasty complexion, the curving spine and the appearance of premature wrinkles on her face. We ask, "But where is your health?"

Still others sprinkle bran on their morning cereal (cereals are not fit foods.) They add it to their salads and have cheer in the thought that they will be sure to have their morning BM. And yet, examination of raw bran under a microscope reveals jagged sharp edges which, in due time, will lacerate and tear away at the mucosal linings of the digestive canal and bring future sorrow and pain.

We know that substituting extraneously produced insulin for glandular insulin (produced by the Islets of Langerhans (located in, the pancreas) will, in time, about two years as a matter of fact, lead to the atrophy of that gland; and that using thyroxin as an aid or substitute for thyroid function will eventually deactivate the thyroid. We could recite a whole array of such supplementary "aids" to this, that or the other natural biological process, but one we wish to address at this time is the so-called "Starch Blocker."

The manager of one of our local supermarkets told us recently that he has never witnessed anything like it. People are buying this new fad supplement so fast that his store has difficulty in keeping up with the demand. Fat, people are lured into believing that they can lose weight rapidly while continuing to eat in a manner contrary to health.

The usual starch blocker is a legume derivative, high in protein. If the student will refer back to Lesson 23 in this course, he will understand why the starch blocker will do what it promises—namely, permit the person to eat extensively of carbohydrate foods and not gain weight, even to lose pounds. What the ads do not tell is that the Starch Blocker will prohibit enzymatic action on the sugar and starch goodies because the high protein presence provokes the normal acidic gastric response which, of course, more or less instantly stops carbohydrate digestion activated by ptyalin and other starch-digesting amylases.

This is anti-health self management of the worst kind, one that will lead inevitably to fermentation and putrefaction throughout the entire alimentary canal of all food eaten, not only of the carbohydrates; certainly an unhappy circumstances at best, one that, if continued, can be highly destructive of health. While the early prognosis may be favorable to immediate weight loss, the long-term prognosis for persons who continue to use a starch blocker instead of common sense, is bleak indeed. Life Scientists know that beauty, health fitness and a sickness-free extended life span can only follow in the wake of a lifetime of correct eating and living, not through the use of supplements or substitutes for reason.

Article #1: Disease, Stimulation and Therapeutics—A Question of Consistency

In the field of nonmedical care of the ill, a current topic concerns the use of "natural" treatments.

Treatments, therapies are artificial. "Natural therapy" is a contradiction.

The following is a Hygienist's view. There are some basic Hygienic principles which are frequently accepted in general discussion by proponents of Osteopathy, Naturopathy and Chiropractic. In practice these principles are often not merely neglected, but flouted. It is not the primary intention here, to present the proof-ramifications of these basics, but to make them clear, relate them to therapeutics and so show the incompatibility of therapeutic philosophies with Natural Hygiene.

Health and disease have a common ground—the living organism. Without life, there is no health; no disease. Disease is the expression of life in response to unfavorable circumstances. Health is the expression of life in response to favorable circumstances.

Toxemia is a poisoned condition of the organism. In toxemia, there is an accumulation of poisons, inhibiting efficient, normal function.

Enervation is a state of lowered nerve action, in which the nerve tissue's energy reserve is depleted; depleted through excessive nerve activity; activity necessitated by stimulation. Tired, exhausted nerves cannot adequately direct elimination. Reduced elimination increases toxemia. Toxemia stimulates. Toxemia compounds enervation and enervation compounds toxemia.

To break this vicious cycle and so overcome toxemia, the body suspends or reduces certain activities such as digestion and muscular effort. Thus the body conserves energy and nerve function which it redirects to make quantitative changes in its activities—to produce such actions as fever, diarrhea, polyuria, hyperhidrosis, vomiting—to remove irritating agents; that is, to eliminate. Such actions reflect the coordinated irritability of a complex organism. Irritability may be defined as that ability to take self preservative action in the face of adverse influences. Such actions are often labelled "disease."

Therapeutics is the art of altering the expression of the organism's irritability. We do not die from disease (our body's functioning) but from toxemia; from the causes of toxemia. To a large extent the body protects itself—but constant dripping wears away the stone. Any program of care that does not remove the causes of toxemia is not rewarded with health, for the body by virtue of its irritability will not cease to be "sick," to be "diseased," to remove, or to accomodate to toxemia until success or death. If the need for disease is not removed, health will not ensue. This is another Hygienic principle. To seek, identify and remove the causes of toxemia is the constant aim of the Hygienist. The causes of toxemia and enervation are largely exogenous (i.e., from outside the body). The toxemia may be due to the accumulation of metabolic wastes or intermediary products of metabolism as a result of enervation, or to the absorption from the external environment of commonly recognized poisons such as drugs, preservatives, metals, poisonous gases, insecticides. In this article we are concerned with endogenous (internally) produced toxemia generated as a result of enervation; enervation due to exogenous influences—stimulants. The athlete who "runs" on a full stomach probably will not perform well—he certainly will not assimilate his food well; he will not do so because the resources of his body are directed to the performance of his athletic "feat." Digestion and alimentary assimilation are suspended because his body cannot perform all of its activities at a high rate, all at once. So when the body exerts itself in specific directions as it may do in response to the presence of drugs or other stimulants in order to remove them, normal routine elimination (the elimination of endogenous toxins) is reduced. Elimination is normally increased during rest and sleep, partly because of the relative reduction in stimulation at these times. So a stimulant, that is anything—physical, chemical, spiritual, mental—you name it—that necessitates body action which would otherwise be functionally, physiologically unnecessary and unrewarding to the organism results in toxemia and enervation. If we waste our vitality, our energies, our resources—in short, our life—then the level of toxemia remaining after rest and sleep is greater than it otherwise would be. So if there is a progressive waste of function and lack of rest and sleep, there is a progressive increase in the level of toxemia. This toxemia, the endogenous toxemia of stimulation is that which makes drugs (apart from their chemical toxicity) and therapeutic modalities whether "natural" or medical, objectionable to a Hygienist. The "Natural Therapeutists" agents may be different to those of the medics but the effects are similar—stimulation, enervation, toxemia, disease...

By Ian Fowler, A.A.I.M.L.T. reprinted from the June, 1973 Newsletter of the Australian Natural Hygiene Society in the June, 1977 issue of Dr. Shelton's Hygienic Review.

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Article #2: The Law of Stimulation

The body "sounds an alarm," in times of danger and immediately accelerates body action. Such is the effect whenever any toxic or irritating substance or influence is introduced into or upon the body. The system, under the controlled guidance of the brain and via the autonomic nervous network, then evaluates the situation and reacts with a suitable increased action, this action being impaired to an extent appropriate to the obstruction which is present. In other words, the amount of the impairment will be in direct proportion to the degree to which the action is accelerated.

All such increased action occasions an extra expenditure of the energy reserves ordinarily maintained by the body to cope with undue stress of any kind; for example, such increased action might be an extraordinarily high pulse rate. The result of this unusual expenditure, of course, is to lessen the availability of reserve power and, hence, of the ability of the individual adequately to meet challenges and stresses as they may arise at some future time.

We call anything which causes this increased action on the part of the body, a "stimulant." Of course, the immediate effect of the stimulant is that which is most, evident, that the stimulant is working and doing "good". This feeling of well-being is only temporary, however, since while the stimulant appears to do good, it is actually doing harm, the extent of the harm done being dependent upon, and in a precise ratio to, the amount of power called into play to produce the accelerated response, the feeling of well-being, of euphoria.

This is the Law of Stimulation. It reveals the physiological consequences of false deception. It pertains to all stimulants: drugs (vitamins, etc.), coffee, tea, cocoa, alcohol, nicotine, even to snake venom which is currently being extolled as a "miracle" treatment in the care of victims of muscular dystrophy, the effect of many of these stimulants being extremely exciting; and also to lesser ones such as the various herbs, onions, garlic and the like. All *appear* to do good, but all perform a disservice to the body in that they do lasting harm, the harm being due to the fact that they reach into the body's energy reserves to accomplish the good they appear to do and *offer nothing in return which is of lasting value*. Their efforts are cumulative and remain with the person who employs them. The sense of euphoria occasioned by their use is *always* followed, in time, by a depression due to the expenditure of power required, as we have seen, to bring about the exhilaration in the first instance.

Certain stimulants are said to "act" on certain parts of the body as, for example, digitalis is said to "act" on the heart. The exact opposite is true. In this case, the heart is already weak and the digitalis only serves to weaken it further. All stimulants are useless to the body. They cannot become a part of the body; they cannot be turned into blood, flesh, or bone. They present an encumbrance to body action and, for this reason, a threat to efficiency and a hindrance to perfection.

The human body is designed for efficiency and for perfect performance. Accordingly, whenever it is threatened even in a miniscule way, it makes operational its defensive measures in an effort to eradicate from the system the threatening substance or influence. Thus, it will expend power *beyond the norm* to cleanse the body of the offensive substance and to prevent the resulting raid on the banked energy reserves.

Let us emphasize also that stimulants do far more than speed up the vital organs and related parts. They do far more than waste the vital reserves. In addition, and most importantly, stimulants such as tea, coffee, horseradish, alcohol, mustard and the like actually inflict an injury of some magnitude upon the very tissues with which they come in contact. In other words, their use wounds and hardens the cells and it is because of this wounding and the necessity thus imposed upon them by the danger to protect themselves from further injury, that the cells begin their defensive action, whatever it may be.

This defense may take place in degrees, the first amounting to little more than a mild exaltation, or increase, of cellular function. The milder the stimulant, the milder the irritation and the less the speeding up of cellular activity. This kind of stimulation, the kind that threatens cellular integrity, must always be differentiated from the stimulation and revitalization which are observed following proper nutrition which serves to renew body reserves. (Compensatory Stimulation.)

No tonic or drug will have an effect on a single tissue or on a single organ of the body, nor on just a few isolated tissues, organs or cells. The very physiology of the body, the fact that the blood flows freely to every unit of life within the total physical structure underscores the reality that such is impossible. The effects of any drug, of any tonic, of any other irritant are wholly systemic; that is, they are unlimited insofar as their area of involvement is concerned. The extent of systemic undermining, the damage done, is an individual affair, some persons being affected more, others less; but all being reduced to an extent in keeping with their individual strengths and weaknesses, simply because, for an immediate effect, they have sacrificed some unknown amount of the essentials of life: perhaps and surely, some irretrievable loss of energy plus an undeterminable amount of tissue damage which will remain as a handicap throughout life to efficiency of function, even though it be only in the form of weak scar tissue.

There is, of course, always the danger of pushing beyond the powers of life, as many a drug user has found out, too late. It is now simple for us to understand how and why this can occur when we realize that any stimulant which is uncompensated brings about the expenditure for the vital living power of the body, the force that sustains life. Stimulants do not and cannot supply this power. Once the power has been used, the person so depleted has lost it forever, and this is why the feeling of exhilaration induced by drugs is always followed by increased weakness. With the constant use of uncompensated stimulants, the force of life is gradually tapped and drained away. The lesson should be plain. The constant use of coffee, drugs, vitamins, even herbs, will slowly, or rapidly, destroy the essence of life as they are used and according to the inherited constitution of the user.

Let us make a further point. The action by the body is *always* forthcoming, always there, the extent to which it is exhibited being wholly dependent upon the power which is available. In other words, loss of vital power will be experienced by *every* person; the stronger the person, the stronger the response; the weaker the individual, the weaker will be the response.

We, of course, cannot see this expenditure of the body's life immediately. We cannot watch an alcoholic, for example, and say, "Ah! Ha! There it goes!" Certainly not, but we do notice it as we are using it because in the using lies the stimulated euphoria. One moment the alcoholic's hand may be trembling but give him a drink and he will soon be "on top of the world," as we say, with all trembling gone. His euphoric state came from increased vital action which yielded up part of his "bank account."

We only become conscious of our lack of energy after the bank account has been raided too often—when our power supply is too low. We can observe a similar circumstance in our car battery. When it has power in reserve, we are pleased with its performance but the very use of that power depletes its reserves and the time comes when the source of energy fails us to the extent, perhaps, that the lights no longer glow and the car will not start. We are not able to see the energy stored within the battery, we could only observe it at work—when the lights glowed and the motor hummed. The same is true of the human body. In sleep, we display no sign of the power gathering in the slumbering body. The stimulant causes the power to be used and brings no power with it to replace that which is expanded. Sound nutrition, on the other hand, always replaces the reserves which are expended in the performance of all of life's activities. Sleep restores the energy bank.

Herbert M. Shelton states the Law of Stimulation as follows: "Under all circumstances, vitality or energy of any character whatever is invariably manifested or noticed by us, as energy, in its expenditure, never in its accumulation." Herein, of course, lies the fallacy of modern medical practice as it pertains to the use of drugs to "cure." We seem stronger when we use drugs (commercial vitamins and minerals are drugs) only by the expenditure of our vital force, but we grow weaker as we steadily draw upon the reserve energy supply of the body. Unfortunately, in today's medical practice, the weaker the person is, the more it is thought that he must be propped up or goaded into a false sense of well-being by applying some drug or other means of "support" (as, for example, vitamins, mineral and other supplements).

The exact opposite, of course, should be the practice! The weaker the individual, the more he must be left alone to husband his resources, he must be left alone so that the pendulum of energy can swing once more in the opposite direction. Efforts to stimulate, sustain, and invigorate the tired, sick body by the use of any kind of tonic—the whipping effect—always produces an equal and opposite reaction—depression of both vigor and function. This is the Law of Stimulation and it is always in effect under all circumstances, in sickness and in health. False stimulation can produce no fruit of lasting value.

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Article #3: Patients Dilemma: Who's Taking Care of Them? by Mrs. Elizabeth McCarter

Current articles and editorials on medical malpractice suits and the physicians dilemma are most interesting, but one aspect of the situation has escaped attention—the patient's dilemma.

Not many doctors are aware that many of their patients, particularly the elderly, live in a state of quiet desperation and fear, afraid of the very persons on whom they must rely for healing.

Older people, for various socio-economic reasons, tend to live in communities with their peers, and they are acutely aware of what occurs daily among their neighbors.

Mrs. X has an eye infection. Her trusted doctor informs her she has a severe condition and that he will use a new drug. Two days later her pain is intense, her face swollen.

Now her doctor informs her she is allergic to this new drug and takes her off all medication. The condition heals itself.

However, damage has been done and she will never see quite so well again. Mrs. X has a dilemma, to be sure. She has impaired vision.

Mrs. Y has been seeing her doctor regularly for 25 years having a thorough examination every six months. She has been a good wife, mother, never smoke or drank or indulged in any degenerative practice. "Suddenly" she has a heart attack.

After several weeks she recovers sufficiently to return home from the hospital. Three weeks later, in self-examination, she discovers a lump in her breast, whereupon a massive mastectomy is performed. Discharged after what is termed "successful" surgery, she has another heart attack, more hospitalization, followed by two years of semi-invalidism with many angina attacks.

Perhaps rightfully, she wonders "why?" Why hasn't she, in all these years, received some counsel from her physician in preventive methods?

Mr. Z goes to the hospital, a victim of drug overdose. He was taking a prescribed heart medication in the prescribed dosage.

He almost joins the "up to 140,000" who die each year in hospitals as a result of *drug overdose* under the "care" of licensed nurses and physicians, a fact reported by a spokesman for the American Medical Association (AMA) last year before a Senate committee. The committee also heard testimony that *80 percent* of the deaths were preventable.

Even more shocking was the article in the Washington Post on May 24, 1974, which cited evidence indicating that 30 to 40 percent of all hospital patients suffer from adverse drug reactions.

In Los Angeles County a study showed that, of 50,000 prescriptions written, 13 percent were in amounts in excess of the maximum amount needed for ordinary therapy. The computer revealed that one patient had been given 54 prescription drugs in 112 days!

I have before me a copy of the Merck Index of drugs and it is a formidable volume containing more than 10,000 drug formulations to choose from.

The thought occurs to me that no one person could conceivably know all there is to know about these drugs. Furthermore, as a graduate chemist, I wonder how it would be possible even to predict what certain combinations of drugs would do within the the human body.

And yet, I know of a patient who received 26 different drugs in a single day! The potential in this chemical madhouse would confound the most learned biochemist, to say nothing of the human body thus impregnated!

The indiscriminate giving of drugs and combinations of drugs by anyone is tragic in the light of the accepted fact that the biochemical knowledge at our disposal today is rudimentary. The stupidity, thus, of giving numerous drugs in unproven combinations is enormous.

Is it any wonder so many elderly and less elderly patients succumb in a hospital? Such a situation poses an interesting problem for the legal mind. Are such deaths murder or manslaughter?

When and at what point does ignorance cease and responsibility begin? Should the physician be required by law to inform his patients that a particular drug has been known to cause death in other patients under similar circumstances? Should the physician be limited only to those drugs that have been shown in double-blind tests on a sufficient number of patients to be instrumental in cure and not in death?

When one adds to the drugged victims the startling reports published recently in the San Diego Union that as much as 20 percent of the surgery performed in this country is done by incompetent doctors, the tragedy mounts in its implications as does the fear among patients.

Dr. Jean Mayer of Harvard cites figures from the World Health Organization which show that the U.S. has dropped from 11th place—just 25 years ago—to 37th place in health care standards among the civilized nations in the world. Roger Rappaport in his article, "It's Enough To Make You Sick," states that our vaunted medical know-how has "failed to keep our male life expectancy rate equal with that of nations that have considerably lower per capita incomes."

Other evidence shows we have more heart trouble, more cancer, more diabetes and other so-called degenerative diseases than in any other country where statistics are available. Cancer is the number one killer of our children. As a nation we cannot afford this tragedy.

The facts suggest that the medical fraternity may have failed in its sacred trust. It may be that this period in time will become known as the Dark Age of Medicine.

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Lesson 40 - The Dangers Of Drug Medication: Over-the-Counter And Prescription Drugs

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1. Introduction

Since early Egyptian times, it has been recognized that obedience to physiological law is a prerequisite for maintaining health. Hippocrates is supposed to have said that the physician should have two special objectives regarding disease, namely, to do good or to do no harm. According to the Hippocratic concept, the doctor is the servant, the "helper" of pthisis (nature). He said, "It is important to help, or at least not to harm."

The very early physicians knew of the importance of obeying these natural laws and their practices evolved around this concept. Today there is an increasing body of scientific evidence which supports these concepts and more attention is now being devoted to diet, exercise and the other natural essentials of health.

During the very early years when man was evolving into the being we know today, he knew nothing about science and medicine yet his bones healed, his wounds healed and life went on. Primitives, like animals, instinctively relied upon their own intrinsic powers of healing.

During the 19th century, medical sects arose out of opposition to the so-called "heroic" treatment of their day and they shared some success. When we study each of these sects which arose during that time, we begin to see certain patterns emerging. The highest success rate was among those practitioners who did the least harm and allowed "nature's healing powers" to work unhampered.

By "nature's healing power" I do not mean a specific entity for healing but a capacity which resides in all living animals to heal themselves and to maintain a steady state. The goal of life is to maintain life and the body always strives toward a healthy state. Problems arise when too many obstacles are thrown in the path of this effort. The role of the Hygienic practitioner is to remove those obstacles by teaching his students how to correct those errors in living which caused his illness and making sure that all of the conditions for health are supplied in the proper quantity and quality. It is important that all of these conditions are present at the same time as health cannot be achieved if any of them are missing or lacking. These conditions include proper food, pure air, pure water, sunshine, rest and sleep, exercise and emotional poise. The body then becomes the healing force. This is demonstrated in wound healing, healing of broken bones, in self-limited diseases such as colds, flu, etc.

When we consume such unnatural and unwholesome foods as the highly refined products which are so popular today, we build disease. We inflict our illnesses upon ourselves by poor dietary habits, lack of sleep, a sedentary lifestyle and other unhealthy habits. We then develop atherosclerosis, cancer, kidney stones, or ulcers from our own wrong actions. We cannot eliminate these errors in living by taking a drug. We must look amongst our practices for the "cure."

The cell is a homeostatic mechanism requiring precise entry of nutrients and elimination of wastes. These wastes result from ongoing metabolic activity and the deterioration of structural elements. With proper nutrition and detoxification, the cell is programmed for specific functions. Assuming these functions are healthy cells and tissue that lead to healthy organs that lead to a healthy organism.

Since illness is the result of unhealthful practices, then health should be restored by removing these causes and supplying the conditions for health. This is the philosophy of the drugless practitioners. They do not add further contaminants to an already toxic organism by dispensing drugs but rely on natural means which depend upon the body's own ability to heal.

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2. History Of Drugs

The oldest known written record of drug use is a clay tablet from the ancient Sumerian civilization of the Middle East. This tablet, made in the 2000's B.C., lists about a dozen drug prescriptions. An Egyptian scroll from about 1550 B.C. names more than 800 prescriptions containing about 700 drugs.

Ancient peoples used many drugs. An Egyptian physician, for example, tried to cure blindness by pouring a mixture of honey, pig's eye, and other ingredients into the patient's ear. But occasionally people who had taken drugs as remedies would recover naturally. As a result, they credited the drugs for their healing.

Throughout the Middle Ages, the demand for drugs remained high and pharmacies became increasingly common in Europe and the Arab world.

In the early 1500s, the Swiss physician Philippus Paracelsus pioneered the use of minerals as drugs. He introduced many compounds of lead, mercury, and other minerals in the treatment of various diseases.

The drug revolution began about 1800 and has continued up to the present. During this period, scientists have discovered hundreds of drugs. Scientists learned how to isolate drugs from plants in the early 1800s. In 1806, morphine became the first plant drug to be isolated. Within a few years scientists had isolated quinine and several other plant drugs.

The pace of the drug revolution quickened in the 1900s. In fact, most of the major drugs used today have been discovered since 1900, such as hormones, antibiotics, and sulfa drugs.

2.1 Herbal Medicines

Since early Neanderthal man, plants have been used as drugs for "healing" purposes. Even as modes of medicine changed throughout the centuries, plants continued to be the mainstay of country medicine as methods and ideas on plant healing were passed down from family to family and within communities. Thus tribes, clans, villages, towns, sometimes entire countries, tended to have similar styles in "healing." Most of these plant remedies were based on local discoveries and pass-along uses, so many plants are used in exactly the same way.

For several thousands years the Chinese physicians used the Ma Huang plant. Later researchers extracted an alkaloid, ephedrine, from this plant.

Willow bark was used for thousands of years, even by American Indian tribes. Unfortunately, consistent use of the bark affected the digestive system, and it became imperative to find a substitute, or chemical version. This duplication took over fifty years of investigation, and was solved when a German scientist broke the chemical code by using the spirea plant family, instead of willow bark. He called his result aspirin, now one of the most used drugs on earth (resulting in much distress and iatrogenic diseases).

Curare arrow poison, another tropical discovery, is now used to control breathing during some surgery.

Digitalis was extracted from the foxglove plant, an herb, and is still prescribed by physicians for those with heart problems.

2.2 Shamen and Witch Doctors

In his book, *The History of Medicine*, the British physician and surgeon, Kenneth Walker says, "Thanks to the extraordinary recuperative powers of the human body and the resilience of the human mind, the patient generally managed throughout the ages to recover health in spite of the vicissitudes of treatment to which he had been subjected."

During the early days of civilization, there were many types of 'cures' that were associated with various cults. If the patient recovered his health, it was attributed to the healing ritual. If recovery did not occur, the disease was blamed. However, in all cases, it becomes evident that it was 'vis Medicatrix Naturae' which effected the recovery.

There was always a common denominator involved in all of these 'cures.' This is the force active in the organism in which healing takes place *in spite of* what was done and not *because of* what was done.

The Indians had their shamen and medicine men. The Hindus worshipped many gods and believed that illness was the work of demons. Therefore, rituals were performed to rid the sick individual of these demons and witches. The African bushman performed a symbolic dance which was supposed to "cure." The Chinese used acupuncture, herbs and moxibustion. (This is the burning of powered leaves of the moxa plant on the skin of the patient).

All of the therapies differed widely—from magic and witches to acupuncture. The modes of treatment were varied and often bizarre but they all had "success." Patients overcame their illnesses in most cases. How can a superstitious ceremony overcome a disease? The answer is that it cannot. First of all, most diseases are self-limited and the patient becomes well in spite of the treatment. But there was always this common denominator present in all of the recoveries and that is the vital faculty within each of us which is called upon when needed to re-establish equilibrium within our body and to heal. It is this vital power which we call 'nature' that healed the Indian after the witch doctor performed his magical ritual and it was this same force which manifested itself after the Chinese doctor administered herbs. The highest success rate came after those ceremonies or rituals or treatments which did the least harm and interfered least with the body's innate ability to heal itself.

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3. What Are Drugs?

Pharmacologists consider all chemicals that affect living things to be drugs. Stedman's Medical Dictionary defines a drug as "A therapeutic agent; any substance, other than food, used in the prevention, diagnosis, alleviation, treatment, or cure of disease in man and animal."

The truth is that all drugs are poisons and always do much harm, even when taken in small quantities. The body reacts defensively to all foreign substances which are introduced. This response is mistakenly attributed to the action of me drug when in fact the drugs do not act mechanically to produce any response. It is the body which acts upon the drugs in its efforts to dispose of this dangerous substance as quickly and efficiently as possible.

Hygienists know that the living organism is dynamic and full of energy. Its self-reparative and restorative ability remains intact as long as energy is abundant. Over 100 years ago Dr. R.T. Trall demonstrated the difference between lifeless matter and the living organism. He said that the living organism is active and the lifeless matter is passive.

Drugs are passive inert substances which have no magical powers to impart life and health to a living organism. Drugs combine chemically with the chemical constituents of the body where they do much harm by interfering with normal life processes.

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4. What Do Drugs Do

4.1 Drugs Produce Disease

People take so-called headache remedies, stimulants, anesthetics, pain killers, sleeping pills and narcotics for the temporary relief they afford. As a direct consequence of drug poisoning, gastric ulcer, anemia, kidney disease or any of many other ailments many develop. The pathologies these poisons occasion are added to the disease for which they are given. This is to say, physician-made diseases are worse than the natural disease.

It has been said that drug-treated patients have to recover twice—first, they have to recover from the original disease and, second, they have to recover from the drug-induced disease. The fact is that every drug is a poison and every drug produces disease. All too often patients are killed by the drug and, in an even greater number of cases, where the drug does not kill, it produces permanent harm. In fact, the most common cause of chronic disease is drug treatment for acute disease.

There are no harmless drugs; there are no safe drugs. All of them, even the least toxic, result in the production of pathologies, if they are repeatedly administered, even in small doses. It is certainly unwise to continue drug practices, especially in the face of the fact that they produce only ills. For example, what good comes from the administration of cortisone for arthritis? The symptoms are temporarily suppressed; the patient may be provided a certain measure of relief from pain, but the sufferer's condition inevitably becomes worse and recovery is more difficult. The ultimate result is increased suffering for a brief respite from pain. This is true of all suppressive measures. Both physician and patient are deluded into believing that some suffering is being saved, but the later increased suffering outweighs the brief periods of freedom from pain. In fact, the increased suffering is usually of longer duration than the periods of comfort and is far more acute than the periods of "relief."

There are no drugs now used by the medical profession and there were no drugs used by any of the schools of medicine in the past that did not and do not produce disease.

4.2 Side Effects

If a drug, which is a chemical substance, unites with the protein of the cell, it destroys the cell. It is precisely to prevent this union and thus to save the life of the cell that the drug is resisted, rejected and expelled. All the action that is mistaken for drug action is cellular or organic action designed to protect and preserve life.

When a drug is picked up by the blood, either from the digestive tract or from the site of the injection, it is carried by this medium throughout the body, so that it comes in contact with tissues everywhere. The so-called side effects of drugs are the actions of the different tissues with which the drug comes in contact in rejecting, resisting and expelling the drug. So-called drug effects are not drug actions but vital actions.

If a drug may be employed and it suppresses symptoms, it is said to be good. That the drug may produce unwanted effects at the same time it suppresses the symptoms is, of course, unfortunate and the physician hopes that the "side" effects will not be too great or that he can stop the drug if the "side" effects threaten to become formidable.

Hygienists know how to avoid these poisonous effects. They simply avoid all drugs. We cannot be poisoned into health.

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5. Law Of Dual Effect

The *Law of Duel Effect* states that all substances which are taken into the body, or which come in contact with it from without, occasion a twofold and contrary action— the secondary action being the opposite of the primary action, and the more lasting.

Therefore, the primary action (reaction) from taking a stimulant would be stimulating but the secondary and longer lasting effect would be depression. Likewise, the primary reaction from taking a pain-suppressant would be relief from pain but the secondary, longer-lasting effect would be increased pain. If the immediate and temporary effect of a dose of digitalis is to stimulate the heart, the secondary and permanent effect is to depress the heart.

Why would this be so? The body marshalls its available forces to handle the situation at hand which at that moment might be an abnormal substance in the form of a pain-suppressant. This toxin which has been so introduced has to be dealt with and eliminated as quickly as possible. During this time, the organism halts reparative and healing processes which are felt as symptoms, thus temporary relief.

However, as soon as the foreign substance is disposed of, the body reinitiates its healing processes with the return of the old symptoms. However, due to the tremendous expenditure of vital energy and the added toxins from the drugs, greater harm has been done. The heart becomes weaker after its stimulation due to exhaustion and added toxins. Likewise affected are all bodily organs.

6. What Drugs Cannot Do

Obviously, drugs cannot heal disease. There are no healing powers or intelligence outside of the human body. One should dismiss this notion of "cure" forever from their thoughts. It is only the body which possesses this potential to heal itself and will do so when favorable conditions are provided.

People take drugs for relief of their symptoms but often find that the drugs are ineffective even for this. People who take sleeping pills are more tired than ever. Dieters who take diet pills remain overweight.

The individual who has arthritis still has pain after ingesting enormous quantities of aspirin.

7. Why Drugs Are Used

Since 2000 B.C. man has sought that magical formula which would "cure" him of all his illnesses. Man sought an easy way out of his problems which he created for himself. "One pill and I will feel great once again!" Unfortunately, there are no magical formulas that will overcome our ills and still allow us to transgress all the laws of physiology.

Drugs are used to suppress symptoms. That is, to relieve pain, relieve insomnia, skin eruptions, constipation, etc. But are symptoms the disease? No, they are just evidences of it. They are a sign from our body telling us that the body has closed shop for cleansing and repairs. If one were to listen to the innate intelligence of his body instead of immediately suppressing these warning signs, many chronic diseases would not occur. Drugs suppress but never solve the problem of ill health (toxicosis). In fact, drugs cause more ill health (toxicosis).

It is commonly thought that every so-called disease is a distinct entity, requiring a specific remedy. Throughout all systems and methods of therapeutics, there runs a basic error that they call the therapeutic actions of their various procedures. The truth is that these so-called "therapeutic actions" or "remedies" are reactions of the body against the "remedies." The living organism reacts to everything within its environment—to assimilate useful agents and influences; to eject nonusuable and destructive things. The defensive reactions against harmful substances and influences is proportionate to their harmfulness and commensurate with the vital energy possessed by the affected organism. These two factors—the amount and destructive-ness of the agent or influence, and the vital energy of the organism—are the determining factors in every reaction.

In reality the therapeutic effects are among drugs' evil effects. They are classed as therapeutic effects only because they are the effects the physician wishes to produce when he prescribes the drug. He assumes that something constructive and beneficial is accomplished when a symptom is temporarily suppressed.

When one uses drugs, one endeavors to provide the sick body with means of carrying on its healing efforts. By sending into it or applying to it, exotic and poisonous substances that it cannot use in a state of health, the body is actually further debilitated. In short, the effort to cure disease has been by producing additional disease.

Medical men employ poisons because they believe that poisons are the proper things with which to restore health. They attempt to prevent disease by the employments of poisons because they believe that poisons can prevent disease. It never enters their minds that the elements of health are essentials to both preserving and restoring health.

Poisons are used because there is an effort to kill something—germs, parasites, viruses. This war is nominally on disease, but the warfare actually devolves upon the human constitution.

Should the sick be poisoned? One might also ask, should the well be poisoned? Is there any more reason the sick should be poisoned than there is that the well should be poisoned? If poisons are not the proper things with which to preserve health, why should they be thought of as the proper things with which to restore health? If poisons make the well man sick, what do they do for the sick man?

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8. Why Drugs Should Not Be Used

As you have learned from previous lessons, disease is a body-conducted remedial process. It is an effort on the part of the organism to repair and heal itself. You have also learned that disease is not something lurking in the bushes ready to attack the first person who passes by it. Rather it is occasioned by our own transgressions of life's laws.

Drugs cause disease and only disease. They do not prevent or eradicate it. Ingestion of drugs adds further toxins to an already toxic organism. Further, it is very enervating for the body to deal with drugs. The less vital energy the body has, the less equipped it will be to initiate healing.

Further, taking drugs does not solve the problem. One cannot attain health by suppressing symptoms. The problems of ill health still remain and the person is usually worse off than before he or she began taking the drugs. We are, in effect, telling our body a lie when we take drugs. We attempt to deceive it into thinking that this or that drug will be the "miracle cure." But in reality, we are hurting our body more by taking these poisonous substances.

Healing powers are possessed solely by the living organism. It is always in force and is forever functioning in the body in sickness or health. Hygienists cannot "cure"; they have no "cures." Neither has anyone else.

Outside of the human body, man cannot make blood; he cannot produce a cell; he cannot mend a broken bone; he cannot repair a wound. All that he may do is to remove all interfering factors, whether internal or external, and supply the normal conditions for life. After that, the organs and processes of life do the work of healing.

People do not become well if the causes of their illnesses are not discontinued and their modes of living are not corrected. Enervating habits cripple their functioning powers so that they remain toxic. They can get well as soon as they cease to build disease.

A toxic state of the body develops and slowly devitalizes the tissues for years, resulting in delayed healing and degeneration in injured or devitalized parts. When men live in a manner to maintain a continuous toxin saturation, they are in line for the development of any disease to which diathesis or environment determines them.

It is foolish to suppress symptoms. Let us consider a cough. It is a vigorous, forceful and dramatic expulsion of air from the lungs and is accomplished by sudden contractions of the walls of the chest and of the diaphragm. It is intended to force obstructing and irritating matter (mucus, blood, water, particles of dust, smoke, gas, etc.) from the air passages. In pneumonia, coughing keeps the lungs cleared of exudate so that breathing remains possible. The cough is part of the remedial effort, not an attack upon the body from without. If the cough is checked or suppressed by drug devitalization, passages tend to fill with exudate. Checking the cough definitely, reduces the patient's chances of recovery.

Analogous to coughing is diarrhea. Like coughing, diarrhea is a dramatic acceleration of a normal physiological action. It is a bowel action and is, designed to free the colon, perhaps even the small intestines, of unwanted material. The unwanted substance may be unsuitable, or decaying food or drugs, or it may be a mineral water. In any case, the diarrhea is a remedial effort. To check the diarrhea while there is a need for it is to lock up, as it were, in the food tube the unsuitable material the diarrhea is intended to remove. The diarrhea automatically ends when its purpose is served and no suppression is necessary.

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9. What The Body Does When Drugs Are Taken

The first thing the body does when drugs are taken is to make an attempt at their removal through the bowels, the skin, the kidneys, the liver, the lungs, the mucous membranes, by vomiting or by other means.

Noxious materials within are either rejected or, failing that, shunted aside where they offer the least harm. Resistance and expulsion are self-preservative efforts on the part of the living organism. Sometimes due to lowered vitality, it is very difficult to expel certain toxic substances and may even be too difficult. Then the body adopts another technique for self-preservation—it stores them away in the bones' fatty tissues or even creates sacs called cysts or tumors for this purpose.

The poisonous quality of drugs that occasion vital defensive actions are termed the "medicinal action" of the drug.

Pharmacologists mistakenly believe that drugs have specific relations to various parts, organs, or structures of the organism, although they have never been able to verify it. Hence their belief in selective affinity, i.e. certain drugs act on one part of the body, and others act on other parts. Thus they classify drugs as cathartics, emetics, purgatives, diaphoretics, etc.

It is the body, the living organism, which chooses the way it can best expel drugs. Some drugs will be thrown out of the body via kidney excretion, which the pharmacologist will call diuretics, another by vomiting, and yet another by expectoration. Some drugs, because of their more poisonous nature, will be ejected by the body through as many channels as possible. Hence, its alleged "multiple actions."

Healing is a normal physiological or biological process. It results from the orderly operations of the ordinary and regular forces and processes of life, working with agents and substances that bear a normal relation to the living organism. Success of the body's efforts at self-healing depends absolutely upon removal of the cause of its ills. This is to say, the body mends itself when causes are removed. No healing can take place without removal of cause.

The force that is in any "medicinal action" is really vital power, that is, the power of the body itself. Understanding this property of living matter, we can clearly see that medicines do not at all act; do not furnish power for action; and do not in any mysterious way impart power to the body for its own action. The action occurring between the body and drugs is exclusively vital action, power being expended, not generated.

The organized body has remarkable powers of self-regulation, adjustment and distribution. When unhampered, it distributes its available energy to the various organs and tissues in proportion to their importance and needs.

Easily shown is that disease is a process of repair, renovation or healing; and that "cure" in the proper sense is nothing more nor less than the correction of those basic causes which necessitated, in the first place, the institution of disease. All disease phenomena exhibit vital action.

There is this relationship: unhygienic conditions of life give rise to a toxic state of the body. Toxicosis (or toxin saturation) develops beyond a point of vital toleration and evokes special eliminative efforts. These special efforts are the process called disease. Disease tends to free the body of its toxic overload. Disease is, itself, the healing process. Recognizing disease as the "cure," why employ drugs to stop it? Does that make sense? Is it working against the body's efforts to heal an exhibition of wisdom or ignorance?

Constructive disease is evidence of vitality. It is obvious, therefore, that therapy is anti-vital—destructive of the vital faculties of the body. Treatment by means of drugs is in reality directed against a beneficial, curative process. The remedy actually subdues vitality and with it physiological activity called "disease." This is harmful inasmuch as vitality is wasted, the restorative process is arrested, and poisonous substances are introduced into the system to lay the basis for further toxemic crises when vitality shall have been summoned to eject the "medicinal" accumulation. Thus the drug-treated body has a double liability: (1) The poisons introduced and (2) the continued retention of noxious materials because of suppressed remedial efforts.

To the extent that the body diverts energy to drug expulsion, to that extent a reduction in vital activities elsewhere in the body is occasioned. This usually results in the reduction of the remedial- process, or illness, not by removing its needs, but by a reduction of the vital power whereby it is conducted. Such a reduction comprises suppression.

It becomes apparent that you cannot indulge in the causes of disease and expect to be made free of its consequences. Physiology does not work that way. We cannot be made exempt from violations of Nature's laws.

The medical profession no longer advocates bloodletting, leeching, purging, puking, mercury treatments, tobacco and alcohol treatments, or a long list of other injurious and deadly practices of the past.

The medical profession, however, continues to defend drugging, vaccination, blood transfusion and a whole host of injurious and deadly practices. How long will it take them to admit the fact that these practices also require condemnation?

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10. Some Specifics

We know that all drugs are bad without exception. But to cite some specific examples, I will mention a few of the most commonly used drugs.

10.1 Acne Nostrums

Acne most often appears on the face and causes much discomfort and embarassment to sufferers because of its unsightly appearance. It is the result of accumulated toxins in the body which are being discharged via the sebaceous glands of the skin. This condition results mainly from wrong diet and if this were to be corrected, the acne would disappear for the body would no longer need this outlet. However, many people attempt to suppress this cleansing effort by using acne preparations.

Acne products most often come in the forms of lotions or creams which are applied topically. The claim is that these lotions help heal and prevent acne pimples and absorb excess oil. As Hygienists, we know that nothing outside of the human body has the ability to heal and that, therefore, these claims are quite false. However, much harm can be done. One common ingredient in most acne preparations is benzoyl peroxide. This chemical is used on colored or dyed fabrics to bleach them white. When applied to the skin the body responds to the poison with reactions of itching, redness, burning, swelling or excessive dryness.

10.2 Allergy Relief Tablets

Allergy is also due to toxicosis. Allergy relief preparations are highly poisonous substances. The following warning is contained on Dristan Analgesic Tablets: "Warning: may cause drowsiness. May cause excitability especially in children. Do not take this product if you have asthma, glaucoma, difficulty in urination due to enlargement of prostate gland, high blood pressure, heart disease, diabetes, or thyroid disease."

Clearly, the body recognizes this as a poison and attempts to rid itself of it as quickly as possible. However, this requires a great deal of energy to deal with the poison and anyone who is so toxic as to display the symptoms of "allergy" would be particularly harmed to have an additional flood of highly poisonous toxins put into their systems.

10.3 Analgesics

Clearly, the most common analgesic taken today is aspirin. The first report of the therapeutic properties of the salicylates was by the Rev. Edward Stone in 1763. Today, world production of aspirin has been estimated to be around 100,000 tons per year with an average consumption of about 100 tablets per head per year. A large survey, as reported in the *Journal of Allergy in Clinical Immunology*, listed aspirin among ten drugs most frequently involved in adverse reactions. The first death attributed to aspirin ingestion per se, as distinguished from aspirin poisoning by overdose, was described in Germany in 1902. In 1933, Dr. B.R. Dysart published an article in the *Journal of The American Medical Association* describing death following ingestion of five grains of acetylsalicylic acid. Most aspirin tablets contain 400-500 mg. or about 7 grains. Recommended dosage is usually two tablets 4 times a day. This is quite a toxic load to deal with!

By 1970, Dr. R.S. Farr, in his presidential address before the American Academy of Allergy, was citing "the need to reevaluate acetylsalicylic acid" and suggested that, because of the risk to a substantial number of people, aspirin and aspirin-containing compounds should become prescription rather than over-the-counter drugs. Hygienists know that they are poisonous and should never be taken. They have no power to heal and cannot be used by our cells for any constructive purposes whatsoever.

In an article in the *Journal of Allergy in Clinical Immunology* in December 1976, J.R. Vane demonstrated that nonsteroid, anti-inflammatory drugs such as aspirin inhibit prostaglandin biosynthesis.

Interference with the biosynthesis of prostaglandins could have very grave effects on our health since this compound, which is present in all body tissues, plays a very important part in many physiologic activities. This includes, but is not limited to:

1. Facilitation of parturition by stimulating the contractions of the uterus.
2. Homeostatic regulation of blood pressure.
3. Regulation of exocrine as well as endocrine secretions.
4. Plays an important role in the negative feedback control of impulse transmission in the

sympathetic nervous system.

Also, prostaglandins inhibit secretion of pepsin as well as hydrochloric acid by the gastric mucosa by a direct action on the parietal cells of the gastric glands. (Parietal cells secrete hydrochloric acid.) This is one of the body's homeostatic devices.

Prostaglandins, then, are a control mechanism for secretion. As ulceration is believed to result from erosion of the mucosa by excessive quantities of gastric juice, the physiologic synthesis of prostaglandins by the stomach may protect the mucosa against ulceration by regulating its secretion.

If aspirin interferes with the biosynthesis of prostaglandins, then ulcers could more readily occur and this accounts for a common side effect of aspirin therapy.

So aspirin not only results in a great energy depletion within our body in its attempt to deal with it, its presence also interferes with many normal physiological functions. People create more harm than they realize when they ingest this commonly prescribed tablet.

10.4 Antacids

An antacid is an agent given to neutralize acidity in the stomach. It interferes with the body's homeostatic attempts to maintain acid-alkaline balance, adds toxins to the body and never promotes health. The cause of acid indigestion must not be indulged. Here again, faulty diet must be corrected. If a person were to fast and then go on an all-raw food program of fruits, vegetables, nuts and seeds, all bodily functions would return to a healthy state.

Dr. Kiki Sidhwa says, "Milk and antacids, the mainstays of therapy for peptic ulcers, may led to metabolic alterations potentially more serious than the primary disease being treated." He further says that such treatment might produce many changes in the system, including the development of gout. Explanation of the trouble was that this treatment upset the acid-alkaline balance in the system and led to alkalosis if long continued.

Antacids containing aluminum hydroxide inhibit the absorption of dietary phosphate since it binds this mineral in the lumen of the gut. Along with calcium, phosphorus contributes to mineralization of bones and teeth and' is intimately involved in human metabolism. There is an important ratio between calcium and phosphorus which must be maintained. Great harm can result if any interference with this ratio occurs such as the binding of phosphorus when drugs are taken. A certain drug taken for a particular reason always has systemic effect.

10.5 Antibiotics

Antibiotics mean anti-life and indeed they are against life. They are administered to kill life in the form of microorganisms. Since disease is incorrectly thought of as an attack by bacteria, germs, etc., the antibiotic is given to kill these "invaders." Instead they poison vital cells, that is, the body itself is killed to some degree. The body's efforts must then be redirected toward eliminating this new poison.

The cause of disease is not the germ that is present, but the mental and physical habits that have broken down the body. Let the office of the germs be what it may, they cannot cause disease. The theory that germs and parasites have to be destroyed in order to "cure" disease is a delusion.

Respiratory distress has been associated with ampicillin administration. Researchers have also demonstrated that several other widely employed drugs including isoniazid (an antibiotic) have produced clinical patterns of chronic (active hepatitis, resulting in cirrhosis. The scientists have found that drug reactions involving the liver result in liver toxicosis from the drug itself. In patients with drug-induced acute hepatitis, the incidence of bridging necrosis was increased. (Bridging necrosis is death of the threads of protoplasm which pass from one cell to another in the liver.)

The use of antibiotics has also been proven to result in many blood disorders including leukemia.

10.6 Antidiarrheals

Diarrhea is not in itself a disease but an action of the body against some form of toxic irritation, mainly from unsuitable or unhygienic foodstuffs. Dr. Sidhwa says that antidiarrhea drugs can result in kidney and liver disorders, skin and sight defects and even death.

Why should we poison ourselves and risk the chance of possible kidney or liver disease when all we have to do is simply provide the conditions for health and allow our body to repair itself? In this way we may be sure that we are not doing harm.

10.7 Cough and Cold Preparations

It is foolish to take any medication whatsoever when one manifests symptoms of a cold. From the Hygienic point of view, the cold is the "cure." The cold is the result of systemic poisoning and it is the body's effort to rid itself of some of its toxic overload. Any preparation taken to suppress these symptoms will only add to the toxins and will create another obstacle for our body to overcome while it is doing its "housecleaning" of toxic debris.

All drugs, including laxatives, sleep aids, stimulants, depressants, diet pills, etc., are aimed at treating symptoms. Hygienists do not treat symptoms but work at removing the cause of toxicosis which occasioned the disease in the first place.

As a student of Life Science you should always keep in mind that the body does not work in separate independent ways but it is a unified whole. The body performs all of its functions as a whole and even though a certain symptom of disease may manifest itself in a particular part of the body it does not mean that the whole system is not involved.

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11. What To Do Instead Of Taking Drugs

The Hygienist does not accept "cures." What are we trying to "cure?" Attempts to "cure" actually suppress or stop the body's defensive and remedial processes. As the body is attempting to get well, we are trying to prevent it from getting well. This is the essence of cures.

What we're concerned about then, in health and disease, is removing the causes of disease, supplying the body with its basic needs so it may build health. Health is the organism's natural tendency toward the ideal and everything in the moral organism works toward health. We don't have to make the body healthy; we only have to live healthfully.

An obese person does not become healthy by taking diet pills. He must examine his diet and lifestyle and remove the causes of his obesity in order to attain health. We have to stop people from making themselves sick.

We must examine the person's way of life: what it is they're doing that they shouldn't be doing, the things they're not doing that they should be doing, and attempt to discover the causes of their trouble.

When we investigate these factors and remove the causes of disease, then we outline a program which will provide the conditions and circumstances necessary for health. The organism will restore itself to normal providing, of course, that it hasn't been irreversibly damaged.

It may be helpful to ask yourself the following questions:

1. **Am I eating the proper diet?**
   By "proper diet" we mean one which we are biologically meant to eat. That is, fruits, vegetables, nuts and seeds—all eaten in their raw state. This is very important. Of equal importance is the amount that we are consuming. Not only the quality of our food is important but also the quantity. Ask yourself, am I overeating or eating when I am not really hungry? Eating food in the absence of hunger or consuming more food than our body can handle will lead to toxemia as sure as if we were subsisting on a diet of refined foods. So keep in mind quantity and quality when examining your lifestyle.
2. **Do I consume the purest water available?**
   By this we mean only pure H2O and this is not available from your kitchen sink. Pure distilled water is the only kind that we should drink and then only when we are thirsty. Some people have the mistaken idea that drinking excessive amounts of water will "flush" the kidneys and "clean out" our systems. This is nonsense! Water is inert and has no such cleansing powers. However, when consumed to excess, there can result a great energy drain on the eliminative organs. So, here again, keep the quantity and quality idea in your mind. Distilled water is best in the amounts compatible with your needs.
3. **Is the air I breathe fresh and clean?**
   This is a tough one. Living and working in our polluted cities makes it next to impossible to breathe really pure air. However, there are some things that we can do. If it is possible to move to the country, do so. If not, at least try to stay away from smoke filled working situations (or look into purchasing an electronic air purifier for your office). It helps to live where the house is set at least a little way back from the road and trees between the house and the road will help block and absorb some of the pollution from the cars and purify the air.
4. **Do I get sufficient rest and sleep?**
   Sleep requirements vary from person to person but generally if you wake up without the aid of an alarm clock and feel rested and energetic, then you have obtained enough sleep. If not, you had better go to bed a little earlier or take a nap during the day.
5. **Do I get enough exercise?**
   Daily exercise is a must to maintain health. Set aside a certain lime every day for exercise. About 30 minutes to one hour a day should be sufficient.
6. **Am I exposed to the sunlight at least a few minutes each day?**
   Sunlight is beneficial and the main source for Vitamin D, but be careful and don't overdo it as excessive sunbathing can be harmful. Remember the quantity and quality.
7. **Am I constantly under stress?**
   It is not always possible to avoid stressful situations but it is possible to learn how to deal with stress. Stress and emotions are a physiological occurrence and can result in many types of disorders.

Now that you have run through your little questionnaire and have determined the cause of your disease, every effort must be made to remove those causes. When the conditions of health are provided in the proper quantity and quality, the body will immediately begin its remedial processes.

12. What To Do When Acute Symptoms Manifest Themselves

First of all, do not take drugs of any kind and this includes the herbal remedies. The best thing to do when symptoms of a cold or flu, pain, skin eruptions, hay fever, headache, stomach ache, or any disease symptom arises is to rest.

The body needs rest. That is, physiological rest. By this we mean rest of the entire body, of the muscles, organs, glands and digestive organs. How can we provide the body with such a rest? Through a fast. By this we mean no food—only pure water and rest in bed. This will provide the ideal conditions for the body to redirect its energies to the reparative process. It may be advisable to fast at a Hygienic fasting institute where you will be supervised by a competent Hygienic practitioner. After the fast is broken, eat only those foods that we are physiologically suited to eat—raw fruits, vegetables, nuts and seeds in compatible combinations. In addition, follow all the other requirements of health and you will find freedom from disease.

For example, the Hygienic care of the pneumonia sufferer is the acme of simplicity. It is not designed to "cure" anything. It does not reduce fever, check coughing, suppress pain, or force further exudate into the lungs. Hygiene does not seek to suppress or palliate symptoms. The death rate is reduced to almost nil. Rest in bed in a well-vented room, warmth, all the water thirst demands, no food of any kind until all acute symptoms have subsided, constitute the essentials of proper care. Thus cared for, the person with pneumonia will recover mote certainly, more speedily and more satisfactorily. Nobody will prove to be allergic to Hygienic care nor have bad reactions, as many have when penicillin is administered. By the employment of healthful measures.

You have done your body a favor. You have built health with proper rest, food, etc. You have not destroyed health with pills and potions. The aim of life is to maintain life. This is the goal of every cell in your body. When you take drugs you throw road blocks in the path of the cells in their efforts to live and support your existence. Don't sabotage your body. Instead, assist life by providing the conditions for health.

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13. Questions & Answers

My doctor says that all cases of arthritis are incurable. He also says that I must take 10 tablets of aspirin every day to alleviate the inflammation and that I may have to eventually increase that dosage. Will this much aspirin be harmful?

> Your doctor is correct when he says that he cannot cure arthritis. Hygienists know that only the body has the ability to heal. However, there have been many cases of arthritis which have completely recovered following a fast and a Hygienic lifestyle. Aspirin is a poison and the body will treat it as such. A small amount of aspirin will result in a certain amount of damage to the human organism but such large amounts will do much greater damage. The wisest thing to do would be to consult with a Hygienic practitioner and arrange to go on a fast. After that, adhere strictly to the Hygienic lifestyle and health will be realized.

I have been on the 'pill' for a number of years since I do not want to have any more children. Am I doing any harm through this practice?

> Your body cannot condone the pill. It contains substances which suppress the normal hormone secretions. To be effective, the product must be taken regularly throughout a woman's reproductive life, and the method is attended by a multitude of ill effects besides being entirely contrary to the principles of natural, healthful living. Evidence has built up that the use of the pill carries with it may dangers. There is a liability

for strokes or cerebral hemorrhage and other conditions involving blood clotting. Reports of eye troubles following their use were reported in the United States, Canada, Australia and Great Britain. Numerous other "side effects" have been established.

Yes, this is a very harmful practice and should be discontinued immediately. If you are interested in a natural birth control method which is safe, read the book "Creation of Life" by Terrie Guay.

When my doctor prescribes a drug for me, I presume he knows what he is doing and wouldn't dispense drugs which were not scientifically tested before they were placed on the market. Am I correct in my assumptions?

Because poison effects always follow drugging, physicians must be regarded as a class of voodooists. Dr. Sidhwa states a case where it was found that a woman was given a drug for arthritis which resulted in degeneration of cells in the retina of the eyes. This eventually resulted in loss of 80 percent of her vision. Reporting on this case, the Washington Post said that "drugs potent enough to injure and kill are often prescribed casually and even carelessly because of excessive reliance upon drug salesmen."

The so-called scientific training concerning the drug apparently came from the salesman's touting of the drug.

We should simply keep in mind that all drugs are poisons and there are no safe ones.

It seems that every time I take my medication I get drowsy. Why would this occur?

The nervous system of man is highly complex. It is very sensitive and delicate in its structure and function. This highly-specialized system reacts very quickly and shows immediate and marked changes if substances inimical to its well-being are taken. Drugs can and do influence the structure and functions of the whole nervous system. Drugs interfere with the nervous system, hence functions are depressed and drowsiness occurs.

Since digitalis is derived from a plant, wouldn't it be alright to take?

There are many poisons in the plant kingdom and digitalis is one of them. Furthermore, even though digitalis was originally derived from foxglove, it is now made synthetically. Although digitalis is one of the most commonly-used drugs for treating heart failure, it causes noticeable poisoning in an unbelievably high proportion of patients who take it. When a drug is given to a man suffering from a weak heart, it weakens the heart still more. The impaired heart must now pump more blood with each beat to help get the drug out of the system. But the heart, in doing so, will exhaust itself more quickly than if intelligently left alone and the patient allowed to rest. The heart needs rest, not stimulation. Exhaustion of all the vital organs is the common result of such stimulation.

This lesson has discussed the harmful practice of drug medication. All such agents are harmful even in small quantities. They are anti-vital and cause disease. They have no power or intelligence to effect healing.

All disease is the result of systemic poisoning and one cannot achieve health by ingesting poisons. The cause of disease must be removed before healing can be realized. When drugs suppress symptoms they also suppress the body's healing process. Only the body can heal and will do so when the proper conditions are provided. These conditions include proper food, fresh air, pure water, sunshine, rest and sleep, exercise and emotional poise.

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Article #1: The Poisoning Practice by Virginia Vetrano, B.S., D.C.

Beginning about twenty-five hundred years ago and making but little headway in public patronage until the time of the renaissance, the drug system has now completely blanketed the earth. So great has grown popular reliance upon the drug practice and so thoroughly have the people been indoctrinated in the belief in drugs, that the practice has become a greater threat to mankind than the nuclear bomb. The drug system is filling the land with side effects of drugs, filling hospitals with iatrogenic diseases, the jails with drug addicts, the mental institutions with drug-induced psychoses and the graveyards with the premature dead.

In the great main the drug system is a system of spectacular palliation. Physicians are for the most part engaged in providing the sick with temporary and doubtful relief from their discomforts. Instead of seeking for and removing the causes of suffering, physicians seem to be content to provide questionable and evanescent respite from pain and discomfort.

A patient says to a physician, "I have a headache, what should I do?" The physician is likely to reply, "Here, take this aspirin."

As an outstanding example of this kind of practice and its results, let me briefly go over a case history that I recently received from a guest of the Health School.

A young girl, age 21, arrived at the Health School with the following story: at the age of thirteen she developed severe abdominal pains and was taken to the hospital and operated on for appendicitis. Later it was discovered that this was not her trouble as she still suffered with the same pains after the operation. Her parents reentered her in the hospital for an exploratory operation, during which the physician found lymphatic tumors in the abdominal cavity. Soon after this operation she developed epilepsy, and had to make frequent trips to the hospital for tests. She had all the diagnostic X rays known and many other diagnostic procedures for epilepsy. There were an array of diagnoses, first hypoglycemia, then hyperglycemia, then high blood pressure, then low blood pressure. One diagnosis contradicted another, and there was no end to the diagnoses, but they never could ascertain the reason for her epilepsy. Her brain waves appeared normal on the electroencephalogram .

Every known drug for epilepsy was given her, but she said that they only made her worse. Her physician insisted that she continue taking the drug despite the increased incidence of her convulsions. In desperation he finally decided to use new experimental drugs, but with the same results—no decrease in her epileptic fits. Is it any wonder that she developed kidney trouble, after this treatment? Soon she couldn't have normal micturition but required a catheter. For five weeks straight, she was forced to have the catheter in place. During this time, she complained that 'they injected drugs through the catheter into the bladder in an effort to reach an infection. It was during this period in the hospital that she began losing the ability to walk. After this her sight and hearing became impaired. It was then that her physician told her parents that she wouldn't live and sent her home to die.

She was indeed a victim of the *curing* practice. There is no wonder that at the hospital she lost her ability to walk, see and hear, as she said she had to take 200 pills a day, every day. Furthermore, she was force fed, and had seven shots a day. Despite her continual complaint of lack of appetite, they made her eat.

Her parents took their dying child home. Here she became more a master of herself. She was disgusted with having to take so many drugs that were apparently making her worse. She said no one but a blind person could fail to see that she was steadily growing worse under this treatment.

When she arrived home, she had to be carried to bed. Sensing that the drugs were making her worse, and with the permission of her father, she quit 90% of them. She was afraid to quit all of them at once. Disgusted with the encumbering and uncomfortable catheter, she took it out. She noticed immediate improvement in her health. Her eyesight improved, her impaired hearing became normal and almost overnight she found that she could walk again. Within five hours her bladder was functioning satisfactorily.

When it was lime to make her regular trip to the epileptic clinic, she walked in unaided. Her M.D. marveled at her improvement and called in other practitioners to show off the miracle. The girl that couldn't walk, that was dying just a few weeks before, walked in unaided! Her drugs were indeed miracle workers! He immediately prescribed more of the same. He never learned that she had quit taking most of her drugs. It was after this that she presented herself to the Hygienist.

Can she regain the high level health she had at birth? How much recovery can she make after being subjected to such treatment? It is doubtful that she can regain the high level health of which her pristine organism was capable. Drugs and surgery have made of her a cripple. This girl has adamantine determination, however, and I'm sure that she will recover as much health as is possible.

The Hygienist has little to work with when a patient comes to him machine gunned with X rays, vandalized by the surgeon's knife and enervated by the drugging practice. Can you imagine a family afraid to try natural and harmless methods after subjecting their daughter to all the most pernicious practices of our times? Her family was against her from the start and she had to plead, beg and cajole them into letting her stay long enough to take a lengthy fast. Because of her medical abuse, I was fearful of taking her as anything may happen on a fast after such treatment, and her parents would have been the first to point an accusing finger.

At the end of 18 days of fasting they told her she would have to come home soon. I immediately broke her fast in order that she would be able to travel. She began having mild convulsions soon after taking juices, and developed a slight fever and symptoms of acute distress. There was nothing to do but place her back on the fast and let nature continue the healing process. Somehow she persuaded her parents to let her stay longer. They were very apprehensive and couldn't believe that she could live through 18 days of fasting. When she continued on through 58 days of fasting, they were sure she could not even walk down to the phone and talk to them. During the second fast she passed kidney stones. During her second fast and subsequently she had no convulsions and has not reported any since leaving here.

How soon she will reach positive and top level health depends upon how well she carries out her Hygienic living. But as mentioned at the beginning of this article, she will have her limitations because of medical bungling.

It is unfortunate but most everyone coming to the Health School has his limitations in recovery because of his prior use of drugs, X rays and surgery. It is not only the elderly, whose health has been wrecked by drugs and surgery, but younger and younger person's, organisms are impaired because of their physicians' poisons and their surgeons' knives.

Daily we receive clippings in the mail from Canada and the United States describing the evils attributed to drugs, but the drugging continues. Neither patients nor physicians lose their faith in magic potions. It seems that very few people ever lose their faith in the physician with his armamentarium of poisons. Despite all the enlightenment of hazardous effects of drugs in the papers today, physicians and their patrons cling to the belief in their efficacy and harmlessness. The drugging continues.

The title of an article received recently, is "No Drugs During Pregnancy," then in small letters "unless absolutely necessary." These were the words of Dr. Benirschlese, research pathologist of animal pregnancies. To prevent pregnant mothers from refusing drugs a loop hole is always left for the physician to deem the taking of a drug absolutely necessary. Intelligent mothers, fearing it may hurt their baby, may balk at taking their physicians' prescriptions and ruffle their physicians' pride. He can then assure them that he is giving the drug only because it is "absolutely necessary" in each instance.

Dr. Benirshchlese said "even such simple drugs as sleeping pills have unknown effects on unborn children." He continues, "We don't really know what effect different drugs have on the human fetus but we do know they bring about changes in animals."

Are we not of the animal kingdom? Are we intangible angels? We are of the animal kingdom and we have the most complex and differentiated organism of any animal on earth. Because of this complexity, many more things can go wrong with human physiology than with the physiology of a lower animal. We can also enjoy greater functioning capacity than the lower animals because of our increased complexity of structure.

A simple machine has fewer things to go wrong than a more complex one. The slightest change in complex machine will immediately upset its workings, whereas a little flaw in a simple machine may not result in any modification of the machine until the damage becomes immense, then it is easily fixed.

Being the most complex living organism, man is more sensitive to inimical agents and influences than are the lower animals. It has been shown that man is more sensitive to radiation than the mouse, so also is he more sensitive to drug poisons.

A significant remark made by Benirschlese was exactly what Dr. Shelton has been saying for years, that a "nine-month gestation period in humans makes research difficult and *long-term effects of drug use should be studied until a child is twenty years old.*" Minute impairments of vital organs from drugging may not manifest until a child has reached maturity. The increase in microcephaly, liver damage, heart trouble, kidney trouble, diabetes, and cancer in younger and younger people makes us wonder just how many of these young people would not have suffered if their parents had not taken drugs while these children were in utero.

The vigor that was manifested in our pioneers and in the Amerinds is not seen today in our youth and middle aged. This is certainly due in part to our greater dependence upon the medical profession to care for the slightest bruise, cut or headache, and the prescriptions of drug poisons given for these mild afflictions.

Recently a jury awarded a child $500,000 because her mother was given demerol, a drug used to lessen pain during labor, and the child failed to develop mentally. The child was chronologically seven but had the mind of a three-year old. The drug was not supposed to be given to mothers of premature babies. Despite the prematurity of her baby, this woman's physician gave her the drug.

Another clipping received by mail stated "digitalis drug poisons many patients." The article states , "digitalis, one of the most commonly-used drugs for treating heart failure, causes some form of poisoning in an unbelievably unusually high proportion of the patients who take it." John Ruedy of the McGill University said this is happening because of "improper" use of the drug.

I should like to point out that there is no such thing as the proper use of a drug poison. They are poison no matter how given. They never prolong life but always shorten it, and make more uncomfortable whatever life is left in the patient. Drugs greatly lessen the person's ability to get well Hygienically. They damage and lessen the vitality of every organ and organ system in the body.

When a drug is given to a man suffering with a weak heart, it weakens the heart still more. It is like whipping a tired horse to make him go. He expands more vital energy to get away from the whip, but he wears out quicker. The impaired heart must now pump more blood with each beat to help get the drug out of the system by increasing circulation. But the heart, in doing this, will wear out quicker than if left alone and patient rests. The heart needs rest not *stimulation*. Exhaustion of all the vital organs is the common result of such *stimulation*. Premature death is the result of *stimulating* people into such good "health."

With 5,000 new drugs being created each year, we should all remain healthy until the age of 140. We actually see more and more of the crippling disease, that people can't get well of (even by Hygienic means). All drugging impairs the organism's ability to function.

Instead of removing the causes of the impairment, people are drugged into insensibility in order that they may continue in their disease-producing ways until there are so many organic or morbid changes in the tissues that full recovery is impossible. The *Tribune* medical reporter states that this is creating one of the most pressing challenges in medical history; that of how to prevent the new drugs from causing other illnesses or side effects. This has led to the development of a new science, *pharmacokinetics*.

The very name of their "new" science indicates that they do not yet know the relation between lifeless and living matter—the former being passive and the latter active, always. Kinetics indicates movement and drugs do not move but are moved by the body to various parts of the body.

Pharmacologists freely admit that they don't know how their drugs act, or how the drugs achieve their therapeutic effect or that they act at all. They don't even bother to try to prove that drugs act.

If physicians, pharmacokineticists and pharmacologists could begin with a valid premise, their conclusions would be more likely to be correct. They would soon learn that all drugs are as inert in the living organism as in the pill bottle, and that all action attributed to the drug is *body action*. They would soon realize that these actions, occasioned by the drug, are the actions of the living organism expelling the drug because it is not useful, hence poisonous. As long as they attribute action to inanimate substances, they will continue to confuse themselves about the true nature of the drugging practice, and fail to see the destructiveness of their poisons.

Because of our self-preservative instincts, if a substance is introduced into the organic domain that it can't use, the cells in immediate contact with the drug, via our magnificent complex nervous system, alert the entire organism to the threat to its integrity. It is not one part of the body that resists a drug but many parts acting as a whole. It is the integral organism which acts to expel the drug before ii damages any one part too greatly.

Digitalis may be given to a man with a feeble heart and there is an immediate pick-up in the pumping ability of the heart, not because the drug acts on the heart but because the heart has to pump blood faster to the emunctory organs in order to save the whole from succumbing to the drug. The digitalis didn't stay in the heart; it didn't even have to be near the heart, for it to know that something poisonous was in the system and that it had to .step up its activities in order to do its share in the expulsion and rejection of the nonusable toxic substance.

Because the living organism has done all the acting, its energy is depleted in exact proportion to the amount of work it has had to do to eliminate the poison. His functioning power is permanently lowered, and much rest is needed to recover from the depletion. The already weak heart is more feeble than before the digitalis was taken.

Trall frequently clarified the explanation of the fact that it is the living system that acts and not the drug, by the following example: if you introduce a drug into a dead person, there will be no action whereas there should be more action if the drug acted, because there would be less resistance from a dead person's tissues than a live one. But the dead body cannot vomit it, it cannot develop diarrhea, nor do its kidneys function to expel it. The drug does nothing to a dead body, except chemically combine with the constituents of its tissues.

This is the difference between drugging a live person and a dead one. The live person resists the chemical union, and as long as it is alive it will continue to do so. For the chemical to combine with the constituents of the cell would mean death of the cell, and the formation of a third substance unlike the two which combined to form it. The living organism fights with herculean force to prevent the chemical union, and in doing so sometimes dies in the struggle. The cells had to die first before the chemical could combine with their constituents.

A debilitated old person cannot resist a drug as well as a healthy young person, for the same reason that a dead person can't act. The debilitated person has less energy to expend in eliminating the drug. Trail points out that if the drug acted, it should act with more force in a weak person because of less resistance from the weak organs, but we see the opposite.

I cannot repeat too often that anything that the living organism cannot make into living tissue or use in any of its metabolic processes is a poison. Drugs cannot fit this qualification, and hence are all poisons. Some are more virulent than others, depending upon their chemical compositions, but they all cripple the organism to a greater or lesser degree, depending upon how much ability a particular organism has to eliminate them.

Cells, tissues and organs are damaged in resisting and expelling drugs. This results in impaired function. Because much of the damage to the organism from drugs is permanent, complete recovery is impossible in those who have been drugged for years.

The damages of drugs are legion and we could fill many volumes with their evil effects, but I shall end this article by stating that if you desire to recover your health drugging is definitely not the answer. Drugs hinder the healing process and occasion diseases of their own.

The causes of disease must be removed. Then, the primordial requisites of life must be supplied in keeping with the living organism's ability to use them. Then and then only will the living organism be able to return to health. It will make as full recovery as is possible, depending upon how much previous damage has been done by the drugs. The fewer the drugs taken, the speedier and more complete the recovery.

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Article #2: Principles of The Hygienic System by R.T. Trall

The Hygienic System, or the treatment of disease by Hygienic agencies, is based on the following propositions:

1. All healing or remedial power is inherent in the living system. The "properties" of drug-medicines, as they are called, are simply *morbific effects*.
2. There is no curative "virtue" in medicines, nor in anything outside of the vital organism.
3. Nature has not provided remedies for disease. She has only provided consequences or penalties for taking or doing those things which occasion disease, the disease itself being an effort to remove those causes.
4. Health is found only in obedience to the laws of the vital organism. Disease is the result of disobedience.
5. Health is normal vital action, or action in relation to things usable. Disease is abnormal vital action, or *action in relation to things nonusable*.
6. There is no "law of cure" in the universe; the condition of cure is obedience to physiological law.
7. There is one universal rule applicable to the treatment of all disease by Hygienic remedies, and that is to balance functional action. If this is done, no disease, however violent, will prove fatal.
8. Remedial agents do not act on the living system, as is taught in medical books and schools, but are ACTED on by the vital powers.
9. Disease is not, as is commonly supposed, an enemy at war with the vital powers, but a remedial effort—a process of purification and reparation. It is not a THING to be destroyed, subdued, or suppressed, but an ACTION to be REGULATED and DIRECTED.

10. Diseases should not be "cured." So long as the causes exist, the disease should continue. But the causes of disease should be removed and the *patient* cured.
11. Truly remedial agents are materials and influences which have NORMAL relations to the vital organs, and not drugs, or poisons, whose relations are ABNORMAL and ANTI-VITAL.
12. Nature's materia medica consists of *Air, Light, Temperature, Exercise, Rest, Food, Drink, Bathing, Sleep, Clothing, Mental Influences*.
13. The true Healing Art consists in supplying the living system with whatever of the above it can USE under circumstances, and not in the administration, of poisons which it must RESIST and EXPEL.
14. Drug remedies are themselves CAUSES of disease. Every dose diminishes the vitality of the patient.
15. DRUGOPATHY endeavors to restore health by administering the poisons which produce disease.
16. The Hygienic System on the contrary, restores the sick to health by the means which preserve health in well persons.
17. Diseases are caused by obstructions, the obstructing materials being poisons or impurities of some kind.
18. The Hygienic System removes these obstructions, and leaves the body sound.
19. Drug medicines add to the causes of obstructions, and change acute into chronic diseases.
20. To attempt to cure diseases by adding to the causes of disease, is irrational and absurd.

Lesson 41 - Thanks For Not Smoking

- 1. History
- 2. The Tobacco Plant
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- 5. Cigarette Smoking And Chronic Disease
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- Article #1: A Small Fire at One End and a Big Fool at the Other By Dr. Keki R. Sidhwa, N.D., D.O.

1. History

American Indians smoked tobacco in pipes long before Christopher Columbus sailed to the New World in 1492. Columbus brought some tobacco seeds back to Europe, where farmers began to grow the plant for use as a medicine that supposedly helped people relax. In 1560, a French diplomat named Jean Nicot—from whom tobacco receives its botanical name, "Nicotiana"—introduced the use of tobacco in France.

Commercial production of tobacco began in North America in 1612, after an English colonist named John Rolfe brought some tobacco seeds from South Carolina to Virginia. The Virginia soil and climate were excellent for tobacco, and it became an important crop there and in other parts of the South.

Most of the tobacco grown in the American Colonies was exported to England until the Revolutionary War began in 1775. Manufacturers in the United States then began to produce smoking tobacco, chewing tobacco, and snuff for domestic use. Cigars were first manufactured in the United States in the early 1800s.

Spaniards and some other Europeans began to smoke hand-rolled cigarettes in the 1600s, but few people in the United States used them until the 1850s. Cigarette smoking became increasingly popular after the first practical cigarette-making machine was invented in the early 1880s.

Hand-rolled cigarettes achieved limited popularity in the United States between 1855 and 1885. They contained either straight Turkish tobacco, straight flue-cured tobacco, or a blend of the two. The first practical cigarette-making machine was invented in the early 1880s. Cigarette companies introduced domestic blends about 30 years later.

2. The Tobacco Plant

Tobacco is a plant whose leaves are used chiefly in making cigarettes and cigars. Other tobacco products include smoking tobacco for pipes, chewing tobacco, and snuff.

Tobacco ranks as a major crop in more than 60 countries. During the late 1970s, the annual worldwide production of tobacco totaled about six-million tons. Farmers in the United States produce about 705 million cigarettes and about 3 1/2 million cigars yearly. About 160 million pounds of tobacco are manufactured annually for smoking tobacco, chewing tobacco, and snuff. The annual value of tobacco products amounts to about $19 billion. Most of this income comes from domestic sales of the products. As you can see, many people are getting rich at the expense of the nation's health.

The government encourages and supports the growth and manufacture of tobacco and its products since it receives a large income through taxes on tobacco. Tobacco products are also taxed by all the state governments and some local governments. Taxes on tobacco total about three times the amount that the growers receive for their crops. The officials of our government are well aware of the health dangers of tobacco, yet they continue to support this industry.

Once tobacco is harvested, it goes through a curing process. This process produces various chemical changes in the tobacco that supposedly improve its flavor and aroma. There are three methods of curing tobacco: (1) air curing, (2) fire curing, and (3) flue curing. Each type of tobacco responds differently to each of these methods.

Air curing uses natural weather conditions to dry tobacco. Air-curing barns have ventilators that can be opened and closed to control the temperatures and humidity. This process takes from four to eight weeks.

Fire curing dries tobacco with low-burning fires. The smoke gives fire-cured tobacco its distinctive taste and aroma. Farmers regulate the heat, humidity, and ventilation in the curing barns so the leaves will not be scalded. Fire curing takes from three days to six weeks. This smoking process adds more toxins to the already toxic tobacco. It has been proven that anything that has been smoked is carcinogenic when ingested (as in cigarette smoking when smoke enters the lungs).

Flue curing dries tobacco by heat from flues (pipes) connected to furnaces. The temperature is gradually raised from 90°F. to 160°F. until the leaves are completely dry. The flue-curing method takes about a week.

Freshly-cured tobacco has a sharp aroma and bitter taste as would any poison. Therefore, most tobacco is put into storage and allowed to age before being used in manufacturing tobacco products.

Prior to storage, most tobacco goes through a redrying process, during which it is completely dried and cooled. Manufacturers then restore some water throughout the leaves to ensure uniform moisture content. This practice prevents the leaves from breaking.

Next, tobacco is stored for two or three years in barrel-like containers. During storage, it ages and undergoes a chemical change called fermentation (fermentation is decomposition of sugar and starch and their conversion by microorganisms to carbon dioxide, alcohol and acetic acid—poisonous by-products). This fermentation is said to give tobacco a sweeter, milder flavor and aroma and reduce its nicotine content. They are, in effect, exchanging poison for poison. Tobacco also loses moisture and becomes darker during aging.

A somewhat different procedure is used to age cigar leaf tobacco, which does not require redrying. Bales of this tobacco are placed in heated rooms or are simply hung up to ferment before storage.

If you were to take any healthful food (which tobacco is not) like romaine lettuce, and submit it to the same processing as tobacco goes through, you would end up with a toxic poison. With tobacco, you begin with a poisonous plant and render it more poisonous through this manufacturing process.

Most tobacco grows best in a warm climate and in carefully drained and fertilized soil. Growers and consumers would greatly benefit by utilizing these ideal growing conditions for fruit and nut trees. Pecan trees, for example, produce abundantly, require little maintenance, and their produce is easily harvested. Pecans are in high demand for their superior flavor and nutrient value. They also bring a good price on the market. Tobacco is also heavily sprayed with expensive insecticides but this is not necessary (or desirable) with pecan trees. Tobacco has no nutritional or other benefits and its only effects are bad ones. On the other hand, pecans are high in protein of the best biological order and contain oils that are easily digested and utilized, thus making them useful dietary items. In addition, there are no harmful toxins.

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3. The Dangers Are Realized

The use of tobacco products has been controversial for many years. During the 1500s, European physicians declared that tobacco should be used only for medicinal purposes. The Puritans in America considered it a dangerous narcotic. During the 1960s, scientists established that smoking tobacco products—especially cigarettes—could result in lung cancer, heart disease, and other illnesses.

Some cigarette manufacturers reacted to the medical findings by reducing the tar and nicotine content of cigarettes. However, doctors state that these measures have not eliminated the dangers of smoking.

Various federal laws have been passed in the United States regarding the sale of tobacco products. Since 1966, manufacturers have been required to include a health warning on all packages and cartons of cigarettes. Another law, which went into effect in 1971, banned radio and television commercials advertising cigarettes. In 1972, manufacturers agreed to include a health warning in all cigarette advertising. Some states have laws that prohibit smoking in various public places. Yet the sale of cigarettes continues to increase.

In 1978, about 38 percent of the adult men and 30 percent of the adult women in the United States smoked cigarettes. Cigarette smoking had been increasing rapidly in the United States until 1964, when 52 percent of the men and 32 percent of the women 21 years old and older smoked. That year, the United States surgeon general first officially warned of the health hazards of smoking. In 1979, the surgeon general issued another report strongly linking cigarette smoking to heart disease, lung cancer, and other ailments. In spite of knowledge about the dangers, many young people became smokers. In the late 1970s, about 19 percent of the boys and 26 percent of the girls in the 17- to 18-year-old group smoked regularly.

Three quarters of adults who smoke took up the habit before age 21. One hundred thousand children under the age of 13 are smokers. A government survey for 1979 showed there are 1.7 million teenage girls and 1.6 million boys who are regular smokers. Many more women are smoking today than they did 20 years ago. Correspondingly, the lung cancer rate for women has increased 500 percent during the past 20 years. Women who smoke more than a pack and a half a day run a significantly higher risk of a heart attack than women who do not smoke. And women who smoke and use oral contraceptives containing estrogen have ten times the chance of having a heart attack and of damaging blood vessels, compared with women who do not smoke and do not use oral contraceptives.

4. Tobacco Toxins

Cigarette smoke contains more than 3,000 chemical substances, and several of them have been linked to the development pf diseases. The most dangerous substances are (1) carbon monoxide, (2) nicotine, (3) tars, and (4) smoke particles.

4.1 Carbon Monoxide

Carbon monoxide is a poisonous gas that interferes with the blood's ability to carry oxygen. It also contributes to heart disease and lung disorders and results in changes in the blood vessels that may lead to hardening of the arteries.

Symptoms of carbon monoxide poisoning include headache, vertigo, dyspnea, confusion, dilated pupils, convulsions and coma.

Carbon monoxide has long been recognized as a dangerous gas. It is present in concentrations of 1 to 5 percent of the gaseous phase of cigarette smoke. The amount of carbon monoxide produced increases as the cigarette burns down. Carboxyhemoglobin (union of carbon monoxide with the hemoglobin of the blood) levels in smokers vary from 2 to 15 percent depending on the amount smoked, degree of inhalation, and the time elapsed since smoking the last cigarette.

Carbon monoxide, which has 230 times the affinity of oxygen for hemoglobin, impairs oxygen transportation in at least two ways. First, it competes with oxygen for hemoglobin binding sites. Second, it increases the affinity of the remaining hemoglobin for oxygen, therefore requiring a larger amount of potential oxygen between the blood and tissues to deliver a given amount of oxygen. This situation usually results in a lower amount of oxygen in the tissues. It should be understood that oxygen is essential for most cellular activities and even a slight decrease can impair all bodily functions.

Carbon monoxide also binds to other iron-containing pigments, most notably myoglobin (a protein molecule found in muscle tissue), for which it has even a greater affinity than for hemoglobin under conditions of low oxygen. Researchers have not yet determined the exact significance of this binding but they do know that it is important in tissues such as the heart muscle, that has both high oxygen requirements and requires large amounts of myoglobin.

Carbon monoxide, at levels of exposure commonly reached by cigarette smokers, has been shown to decrease cardiac contractibility in persons with coronary heart disease. It has also been shown to produce changes like those of early atherosclerosis in the aortas of rabbits.

4.2 Nicotine

Nicotine results in stimulation of the nervous system and the heart and other internal organs. The effect on the nervous system is one of the reasons why people have such a hard time giving up smoking. Nicotine is poisonous. When any poison enters an organism, the body is stimulated to eliminate that poison. This condition soon leads to exhaustion and depression of all bodily organs. Nicotine may be a factor behind the many heart attacks and other conditions, including stomach and intestinal ulcers, that are related to smoking.

Nicotine is a colorless, oily, transparent vegetable chemical compound of the type called an alkaloid. It has a hot and bitter taste. It is found in small quantities in the leaves, roots, and seeds of the tobacco plant. It can also be made synthetically.

The quantity of nicotine in most tobacco ranges from 2 to 7 percent. It is most abundant in cheaper and domestic varieties. Nicotine, as mentioned, is exceedingly poisonous. In a pure state, even a small quantity will result in vomiting, great weakness, rapid but weak pulse, and possibly collapse or even death.

Nicotine indirectly affects circulation by provoking catecholamine release. Catecholamide refers to active hormones, epinephrine and norepinephrine which are derived from the amino acid tryosine.

They have a marked effect on the nervous system, cardiovascular system, metabolic rate, temperature, and smooth muscle. The ingestion of nicotine induces a bodily response to rid itself of this poison. Thus, the body is stimulated and more catecholamines are released than would normally be the case. Heart rate increases and blood flow through the heart is also increased. The blood vessels going to the heart are constricted (due to the catecholamines) and this increases blood pressure. The presence of nicotine in the blood also results in an increase of serum fatty acids and creates the tendency for blood platelets to stick together. Nicotine also inhibits pancreatic bicarbonate secretions, resulting in a more acid condition in the body. This situation produces adverse systemic consequences.

4.3 Tars

Tars contain small quantities of carcinogenic substances. They are believed to be one of the major factors that lead to lung cancer and other types of cancer among smokers.

The tar from cigarette smoke has been found to result in malignant changes in the skin and respiratory tract of experimental animals, and a number of specific chemical compounds contained in cigarette smoke were established as potent carcinogens or co-carcinogens. Malignant changes including carcinoma are found in the larynx.

4.4 Smoke Particles

Smoke particles are as small as 1/70,000 inch. A smoker exhales most of the particles, but as many as 25 percent of them may be trapped on the lining of the lungs. The particles are later absorbed by cells in the lining. This absorption may cause the cells to function improperly and damage the lining of the lung. The particles can also cause excessive scar tissue within the walls of the lungs. Smoke particles probably help cause progressive destruction of the walls of the air sacs in the lungs of long-term smokers.

These, irritants cause immediate coughing and broncho-constriction after smoke inhalation; inhibit cilial action of the bronchial epithelium; stimulate bronchial mucous secretion; suppress protease inhibition; and impair alveolar macrophage function.

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5. Cigarette Smoking And Chronic Disease

5.1 Lung Cancer

Studies have shown that men who smoke more than one pack per day are about 20 times more at risk Of developing lung cancer than are nonsmokers. Laboratory experiments show that tobacco smoke condensate can produce skin cancer in animals and that animals inhaling cigarette smoke may develop cancer of the larynx or lung.

Based on evaluations of detailed clinical and experimental data accumulated over the last 30 years, cigarette smoking has been clearly identified as a causative factor in lung cancer. The risk of developing lung cancer increases directly with increasing cigarette smoke exposure as measured by the number of cigarettes smoked per day, total lifetime number of cigarettes smoked, number of years of smoking, age at initiation of smoking, and depth of inhalation. Lung cancer death rates for women are lower than for men but have increased dramatically over the last 15 years, coinciding with the increasing number of women smokers. This increase has occurred in spite of the fact that women smokers use fewer cigarettes per day, more frequently choose cigarettes with filter tips and low tar and nicotine delivery, and tend to inhale less than men.

A person who stops smoking has a decreased risk of developing lung cancer compared to the continuing smoker, but the risk remains greater than the nonsmokers for as long as 10 to 15 years after the person stops smoking. The toxic residues from the cigarette smoke remain in the lungs for a long time but the body will eliminate them as quickly as possible. This depends upon the amount of vital energy that a person has. Elimination can be speeded up if the individual adopts a generally more healthful lifestyle in regard to diet, exercise, sleep and rest, etc. Also of great benefit would be a long fast. This speeds up elimination of toxins most of all, because energy is conserved during this physiological rest and redirected from digestion to healing.

Pipe and cigar smokers experience mortality rates from cancer of the oral cavity, larynx, pharynx, and esophagus approximately equal to those of cigarette smokers. The risk of developing cancer of the lung is lower than the risk of cigarette smokers, but it is significantly above that of nonsmokers. This is probably due to the fact that pipe, cigar, and cigarette smokers experience similar smoke exposure of the upper respiratory tract, while cigarette smokers (due to their greater tendency to inhale) have a greater exposure of their lungs to smoke than pipe or cigar smokers.

5.2 Chronic Bronchitis and Emphysema

Chronic bronchitis and emphysema deaths are also about 20 times more frequent in people who smoke heavily. Both diseases can be produced in animals exposed to cigarette smoke. Pulmonary function tests often show airflow obstruction in the small airways even before chronic expectoration develops.

Toxins accumulate up to a saturation or "tolerance" point and then the body initiates a "housecleaning." At this point expectoration is seen. This is a sign of bodily healing and should not be suppressed. If you discontinue smoking at this point, the body will heal.

The adverse effect of smoking on mucociliary (hairlike processes on the mucous membrane that function to move excess mucus out of the lungs) clearance and on the normal balance between lung proteases (protein-splitting enzymes) and their inhibitors predisposes smokers to bronchopulmonary disorders and emphysema. As you can see, toxins from cigarette smoke interfere with many physiological activities. This situation always leads to acute, and finally chronic, illnesses.

5.3 Cardiovascular Diseases

Cigarette smoking accelerates atherosclerosis and may double the risk of myocardial infarction. Smoking may precipitate a heart attack. The risk of developing cerebrovascular disease, peripheral vascular disease, or aortic blood clots is also increased in smokers.

Coronary heart disease is the most frequent cause of death in the United States and is the most important single cause of excess mortality among cigarette smokers.

Cigarette smoking and hypertension and elevated serum cholesterol are the major risk factors for myocardial infarction and death from coronary heart disease. The cause behind hypertension and elevated serum cholesterol would include accumulated toxins due to wrong diet and enervating habits along with cigarette smoking. Cigarette smoking acts both independently as a risk factor and synergistically with the other coronary heart disease factors. The magnitude of the risk increases directly with the amount smoked.

The formation of carbon monoxide from cigarette smoke with hemoglobin in the blood to carboxyhemoglobin; release of catecholamines—epinephrine and norepinephrine; creation of an imbalance between myocardial oxygen supply and demand; and increased platelet adhesiveness leading to blood clot formation have all been demonstrated in smokers and are proposed as explanations for the excess coronary heart disease mortality and morbidity among smokers.

5.4 Peptic Ulceration

Peptic ulceration occurs more frequently and has a higher mortality rate in cigarette smokers than in non-smokers. In addition, the rate of ulcer healing is slowed.

When an organism is enervated due to bombardment of toxins from cigarette smoke, it is less capable of healing. Vital energy is so depleted that normal functions slow or are halted completely. Adverse effects will be seen throughout the entire body as all poisons induce systemic responses.

5.5 Premature Deaths From Conditions Caused By Smoking

Number of Deaths	Immediate Cause of Death
80,000	Lung Cancer
22,000	Other cancers (oral, larynx, esophagus, urinary, bladder, kidney, pancreas)
225,000	Cardiovascular disease
19,000	Chronic pulmonary disease

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6. Added Industrial Pollutants

It has been estimated that every year 15.5 million people risk exposure to pollutants at the workplace and 400,000 people develop illnesses induced by the job. Tobacco smoke may transform workplace chemicals into much more harmful agents.

There are 15,000 toxic chemicals in U.S. industry today; each year about 400 new substances are introduced. But safety levels have been established for only a small fraction of the chemicals. The results of the interactions among these substances are incalculable. Some of the many toxic agents identified that can contaminate tobacco products are lead, inorganic mercury, inorganic fluorides, boron trifluorides, formaldehyde and cabaryl.

Some toxic agents in tobacco smoke may also occur in the workplace, thus increasing the smoker's exposure to that substance. For example, over 20,000 workers in 75 different occupational groups have potential occupational exposure to cyanide, which can form a complex that results in the disruption of the function of the thyroid. Hydrogen cyanide is one of the toxic compounds in tobacco smoke. In a study of workers in electroplating exposed to cyanide, the majority complained of fatigue, headache, tremors of the hands and feet, pain, and nausea.

Studies with other toxic agents, such as carbon monoxide, have shown similar results. Among blast furnace workers, it has been found that the levels of carbon monoxide in the blood of smokers is double that found in smokers not similarly exposed. Levels of carbon monoxide were 7.5 percent; levels in excess of 5 percent can result in cardiovascular alterations.

Among other chemical agents found in tobacco smoke as well as the workplace are acetone, acrolein, aldehydes, arsenic, cadmium, ketones, lead, polycyclic compounds. Workers in such places who smoke are twice exposed to toxic substances: textiles, coal mining, uranium and gold mining, paint spraying, welding, firefighting, cooking kitchens and rubber. Workers exposed to radioactive gas, chlorine and coke ovens face similar dangers.

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7. Tobacco Subsidies

At the same time HEW had increased its budget to $29.8 million for 1979 efforts to combat smoking, the Department of Agriculture ran a loan program to guarantee the tobacco farmer a fixed and high-support price. If the farmer's tobacco crop cannot be sold on the market at the fixed price, a federally-supervised stabilization corporation buys the tobacco with funds borrowed from the government. The low-interest rate for the loan is, to an extent, subsidized by the taxpayer.

The corporation holds the tobacco crop and can sell it later when the price is better. In fiscal 1979, the government loaned $227 million for such programs and spent another $9 million on tobacco research, grading, marketing news, and administration. More than half the loan monies were paid back within a few months.

In 1975 and again in 1979, the Surgeon General issued an official government document warning the U.S. citizens about the dangers of smoking. In these books (published by the U.S. Department of Health, Education and Welfare), extensive scientific evidence supports the fact that cigarette smoking is a life-threatening habit. Yet, the government continues to support this poison habit.

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8. Effects On Fetus And Children

If a pregnant woman smokes, it has adverse effects upon her unborn baby. There is abundant evidence that maternal smoking directly retards the rate of fetal growth and increases the risk of spontaneous abortion, of fetal death, and of infant death in otherwise normal babies. There is also some evidence that children of some smokers are more likely to have measurable deficiencies in physical growth and development.

When the mother smokes, some of the harmful gases and poisonous substances in the smoke actually pass from her blood through the placenta and into the fetal bloodstream. One of these gases is carbon monoxide, which forces oxygen out of the red blood cells. Another powerful poison, nicotine, adds to the damage by narrowing blood vessels, including those in the placenta itself. This decreases the amount of oxygen and food delivered to the unborn baby.

Although the fetus does not breathe before the moment of birth, it nevertheless practices some motions of breathing by exercising certain chest muscles. These movements slow down after the mother inhales just two cigarettes. Even when women quit smoking before pregnancy, their earlier smoking may still result in damage to the fetus, according to one extensive study.

Several researchers have investigated the effects of parental smoking on the health of children. One group of researchers conducted two telephone surveys of Detroit families to determine the relationship between children's respiratory illnesses and parental smoking habits. In both surveys, they found statistically significant relationships between the prevalence of children's respiratory inflammation and parental smoking habits. The body must rid itself of the toxins accumulated from the cigarette smoke. Respiratory inflammation, formation of mucus, etc., is one way of eliminating these toxins. This situation would become chronic if the parents continued to smoke in the child's presence.

Two researchers studied infant admissions to Hadassah Hospital in West Jerusalem and found a relationship between admissions for bronchitis and pneumonia in the first year of life and maternal smoking habits during pregnancy. A relationship between infant admissions and maternal smoking habits was demonstrable between the sixth and ninth months of infant life and was more pronounced during the winter months (when the effect of cigarette smoke on the indoor environment would be greatest).

The health of the fetus depends upon the health of the mother both during pregnancy and before conception. No one (not child or adult) can maintain health in a polluted environment.

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9. Involuntary Smoking

The effects of smoking on the smoker has been extensively studied, but the effects of tobacco smoke on nonsmokers has only recently received much attention. The chemical constituents found in an atmosphere filled with tobacco smoke are derived from two sources—mainstream and sidestream smoke. Mainstream smoke emerges from the tobacco product after being drawn through the tobacco during puffing. Sidestream smoke rises from the burning cone of tobacco. Mainstream and sidestream smoke contribute different concentrations of many substances to the atmosphere for several reasons. Different amounts of tobacco are consumed in the production of mainstream and sidestream smoke; the temperature of combustion differs for tobacco during puffing or while smouldering; and certain substances are partially absorbed from the mainstream smoke by the smoker.

A major concern about atmospheric contamination by cigarette smoke has been due to the production of significant levels of carbon monoxide. Cigarette smoking in poorly-ventilated, enclosed spaces may generate carbon monoxide levels above the acceptable 8-hour industrial exposure limits of 50 parts per million. Exposure to this level of carbon monoxide even for short periods of time has been shown to reduce significantly the exercise tolerance of some persons with symptomatic cardiovascular disease. There is also some evidence that prolonged exposure to this level of carbon monoxide in combination with a high-cholesterol diet can enhance experimental atherosclerosis in animals.

Sitting next to a smoker, a nonsmoker can be exposed to carbon monoxide levels more than twice as high as the maximum set for industry exposure. When nonsmokers leave a smoky environment, it takes hours for the carbon monoxide to leave their bodies. Unlike oxygen, which is breathed in and then out again in minutes, carbon monoxide in the blood lasts for hours. After three or four hours, half of the excess carbon monoxide is still in the bloodstream. Not enough research has been done on other toxic substances inhaled by nonsmokers in the presence of smoke: formaldehyde, oxides of nitrogen, ammonia, cadmium, hydrogen cyanide, pyrene, and hundreds more.

In a room filled with tobacco smoke, people experience eye irritations and distress. Contamination and odors are immediately created by such elements in tobacco smoke as ammonia and pyridine. (Pyridine is a strong irritant produced when nicotine burns).

The contamination in smoky rooms is so intense that when someone lights a cigarette, cigar, or pipe in an air-conditioned place, the air-conditioning demands can jump as much as 600 percent. Another finding from air-conditioning research is that the human body attracts tobacco smoke. Burning tobacco creates a high-electrical potential, whereas the water-filled body has a low one; so smoke in a room gravitates and clings to people.

The effect of involuntary smoking on an individual is determined not only by the quantity and toxicity of the smoke-filled environment, but also largely by the characteristics of the individual. This does not mean that all are not poisoned by this smoke but the more toxic that an individual is, the more pronounced his symptoms will be upon being exposed to this smoke. The severity of possible effects range from minor eye and throat irritations experienced by most people in smoke-filled rooms, to the anginal attacks of some persons with cardiovascular disease.

A substantial proportion of the U.S. population suffers from chronic cardiovascular and pulmonary diseases due to generally unhealthful diet and other poor living habits. It is this segment of the population most seriously jeopardized by conditions found in involuntary smoking situations. It may be "the last straw that broke the camel's back." The body could not tolerate the extra toxins that were being imposed upon it.

Persons with chronic bronchitis and emphysema nave considerable excess mortality under conditions of severe air pollution. In smoke-filled environments, levels of carbon monoxide and several other pollutants may be as high or higher than occur during air pollution emergencies. The effects of short-term exposure of persons with chronic obstructive bronchopulmonary disease to these conditions have not been evaluated.

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10. Live Healthfully

It is best to avoid smoke-filled rooms but it is not always possible. If you do occasionally find yourself in a situation where you must spend some time in smoky rooms, your body will be better able to eliminate the poisons encountered when you have been living healthfully. A vital, healthy body can deal with these situations as they arise as long as they are not on a daily basis. When you do not follow the laws of life and eat wrong food, get insufficient exercise and sleep, etc., the organism will be in a toxic and therefore weakened condition. It will be less able to eliminate added toxins and these new poisons will be added to those already present. Ill health will quickly follow.

A pure and healthy body is also quicker to detect unhealthful environments, and you will be much sooner aware of a dangerous situation. Electronic air purifiers are useful as they help eliminate the pollution from the air and therefore maintain a purer environment.

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11. Eliminating The Smoking Habit

The safest, quickest, and surest way to eliminate the cigarette habit is through a fast. Many people have had great success through this method. A fast will enable your body to purify itself of much of the accumulated toxins from smoking and your health will greatly improve overall. This will be noticeable physically and mentally.

After the fast, your body will be so pure that the sight, smell, and taste of cigarettes will be repulsive to you. The next step is to begin a more healthful eating program. After you quit smoking, all your food will taste wonderful. When you break your fast on a nice juicy piece of watermelon or a delicious sweet orange, it will be the best food you have ever tasted! Now continue on a diet of mostly fruits with some vegetables and a small amount of nuts or seeds. Ideally, all of these foods should be eaten raw. You will feel so great that you will never want to smoke again!

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12. Questions & Answers

Does a filter on the tip of a cigarette make them safer?

> No, there are no safe cigarettes. One study suggests that a smoker who switches from nonfilter to filter cigarettes may actually face an increased risk of coronary heart disease, primarily because of the higher carbon monoxide levels in smoke inhaled through filters. The paper surrounding the filter is relatively nonporous, and thus more carbon monoxide is passed on to the smoker than if no filter were present.

Have cigarettes with reduced tar and nicotine made any impact on the deleterious effects of smoking?

> Before the 1960s, many cigarettes contained 42 milligrams (mg.) of tar and 3 mg. of nicotine. By 1977, the average cigarette produced 16.6 mg. of tar and 1.09 mg. of nicotine. In a study of more than a million men and women, total death rates for those smoking cigarettes with reduced levels of tar and nicotine were lower than for those smoking brands with higher levels. However, death rates for those who smoked lower levels were still 30 to 75 percent above the rates for nonsmokers.

Do the harmful effects from cigarette smoking disappear immediately after quitting this habit?

> Many toxic substances from smoking accumulate in the blood and tissues. It lakes a long time for the body to eliminate all of these harmful residues and much vital energy is required for this eliminative process. You can greatly assist this process, however, by going on a fast. Energy normally diverted into the digestive process can then be used for healing and repair.

What country produces the most tobacco?

> China is the leading tobacco-growing country producing 1,064,000 tons annually. The United States is second with 788,200 tons. It is sad to think that so much good land and energy is going into such a worthless crop. This same land could produce enough fruits and nuts to feed millions of people and the results would be beneficial, not harmful as they are

with the tobacco industry.

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Article #1: "A Small Fire at One End and a Big Fool at the Other" by Dr. Keki R. Sidhwa, N.D., D.O.

The title of this article, a quotation by G. B. Shaw, is an apt one for those who are slaves to smoking, for there is not a single thing about smoking in itself that is attractive, and many smokers actually dislike tobacco.

The man or woman who takes it up for one or the other reason, mainly psychological, soon acquires a mental habit which, in time, becomes a purely physical addiction. To say that the body craves the tobacco in any form is a gross insult to the inherent intelligence of the body cells. Tobacco contains 19 poisons, each one of them more damaging than the others, to the living cells. The body repels and abhors tobacco, as it does all poisons. The first puff of a cigarette by a nonsmoker shows how alert the body is in its defensive capacity. An all-out defensive action is started at the first contact of these poisons with the living organism and continues throughout the life of the smoker.

With each succeeding smoke, the defensive action of the living cells gets less and less until all vital activity of the ells concerned is reduced, and the organism is prostrated with exhaustion in deep stupor. The so-called "tolerance" of the smoker to his particular brand, like the pet sedative of the drug addict is but a mask hiding the true state of the living organism—complete enervation and exhaustion.

The natural resistance of the body is lowered and the body compensates by not reacting violently as when it was vital and vigorous. In other words, in precisely the proportion to which one becomes accustomed to the use of any poison, is his system depraved and his defensive powers reduced. The ability to smoke like a "man" without being sick is an evidence of cell weakness and physiological depravity. Hence the reason why a stronger and stronger dose is required before an addict actually gets acutely ill. To deprive him of his smoking means resting his system which as it gets stronger and stronger asserts its power in the form of active symptoms, in resistance against the cumulation of the drug, and this being disturbing and distressing like the usual fever or running nose, the smoker seems to crave his smoke, this hubby-bubby so that he can silence the waking sentinel again. The real effect of the next smoke is to renarcotize his nerves which can only cry out and reveal his true condition when they are no longer under the influence of the drug.

Some of the 19 poisons are the deadliest in their toxic effect, e.g. pyridine, nicotine, prussic acid, and carbon monoxide. Here is a short list of some of the most poisonous matter present in your particular manna from heaven.

Each one vies with another to be the first to show you the portals of the post-mortem existence somewhere beyond the clouds:

1. Carbon monoxide - prevents oxidation of blood.
2. Nicotine - half a drop is fatal.
3. Formic aldehyde - a strong irritant.
4. Carbolic acid - burns your throat.
5. Pyridine.
6. Furfural - responsible for "short windedness" and tremors.
7. Acrolein - degenerates the brain cells.

8. Saltpetre in the paper keeps the cigarette burning.

One cigarette causes a rise of 10-15 points in your blood pressure, i.e., increasing the work of your heart by 10%. Let alone its connection with lung cancers and hardening of the arteries (arteriosclerosis) smoking destroys inclination for marital embrace and the ability to copulate and to reproduce. Children of habitual smokers die early, are prematurely born, are stillborn, or are miscarriages.

Dr. Lucas, physician at Guy's Hospital, London, observed that testes dried up, atrophied, and shrunk to the size of a pea and sometimes also the sex organ. Tobacco impotence is steadily rising in the middle ages and 30% of women are frigid due to the tobacco habit. Women working in tobacco factories seldom have children. Yes, don't believe it now, but every smoke is a tiny drop of old age creeping on you unnoticed.

Fully three quarters of the cigarette smokers begin with the resolution of controlling their indulgence. But how many succeed? The answer is practically none of them, because poison demands more poison. Compromise plans won't work. All sorts are tried. A friend of mine conceived the idea of smoking so much a day and no more. It didn't work a week with him. Another wanted to smoke only in the evening after dinner and work. He stuck to it for a month and then gave it up as he was smoking more per evening than in the whole day previous to his embarking on this new compromise.

Yes, dear reader, they all fail, these so-called half measures. A few that succeed in rationing themselves thus, are relatively few and mostly those who "smoke" in order not to offend the boss or the company director—as if he really cared. And even if you are one of them, the difference between you and the smoker who goes the whole hog is only a matter of degree—the effect is still harmful and never beneficial, and it always will be.

Stand firm in an unqualified refusal to indulge in this bad habit! That is the only plan that will succeed. If you smoke to please, what about your nonsmoking friends! Keep your self-respect and your health at the same time.

Even the "tapering-off" plan when a smoker decides to quit, nearly always fails. There are two ways of getting into cold water for a swim—a headlong dive or a gradual wade in. Similarly, there are two ways of quitting tobacco— sudden stoppage and the tapering-off plan. If your heart is sound, the dive is your better course at the pool. The same applies for the tobacco—and especially if your heart is a bit *wanky.*

The wade-in system is an acceptance of failure, of self-doubt, and this attitude is really what defeats the one who wants to quit tobacco. Decision, not doubt, is what you need most. Why prolong the misery and play with temptation. "DIVE IN." It is the easier of the two in the long run. Your friends can't get at you with "have you had your quota today?" "One more today, two less tomorrow," etc.

Be firm and active—that's the only plan with smoking. Burn the bridges behind you; solemnly declare to yourself and others that you have quit once and for all and see the strain lift from you. See the relief, both mental and physical, in your eyes. Stick to it and a time will come when you will be proud of such an achievement. If you don't do it this way and now, you'll never be really free from it with (any other plans, because the desire to quit is not strong enough.

An uncompromising decision, as above, will establish self-confidence and self-respect. The inconvenience will be much briefer and maybe a little more keener than on the one-by-one plan.

So there you have it all. Health for all is there for you too. So light your match and burn the cigarette at both ends. Then the fire burns and the fool with it too. The wise one stands back and smiles.

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Lesson 42 - Why Herbs Should Not Be Used

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1. Introduction

1.1 The Myth Of Herbs

The woman was proudly showing me the inside of her medicine cabinet: "See? No pills, bottles of medicine, drugs or anything! I got rid of them all. I don't trust doctors or prescription medicines. I take only natural things."

She reached inside the cabinet and started pulling out capsules, tinctures, and powders. "This is peppermint oil," she told me. "I use it instead of an antacid for stomach upset. I've got these white willow bark pills for headaches so I won't need aspirin. I used to take tranquilizers, but now I can use these valerian root extracts to make me relaxed. I just use herbs now when I'm sick. I don't buy anything from a drugstore."

"That's too bad," I said.

She looked shocked. "Why? Because I don't buy drugs anymore?"

"No," I replied, "it's too bad you're still poisoning yourself with drugs—that's what all these herbs are. They may grow wild and naturally, but they're just as deadly as those pills with the unpronounceable names that the pharmacist sells you."

Many people can be convinced about the danger of prescription and over-the-counter drugs. They, or people they know, have often suffered side effects from drugs sold as cures. Yet these same people are often amazed that herbs too are equally useless and dangerous in restoring health.

Herbs have an undeserved reputation as "natural," "organic," "powerful," and "ancient." They grow out of the earth—they must be okay, these people reason. Such people may violently distrust bottles of medicines and pills sold by drugstores, but they will dutifully swallow capsule after capsule that contains the powdered remains of some unfamilar plant.

This lesson is to help you explain to your friends and clients why herbs are *not* harmless; why they are *not* safe; why they should *not* be used. So many myths surround herbs, herb taking, and herbalists that the air must be cleared.

1.2 What Is an Herb?

Most of us have a pretty good idea what an herb is. We generally think of some wild plant that tastes somewhat bad which is used in small amounts for some ailment or the other.

There may be some confusion, however, between herbs and vegetables, or other edible plants. For example, lettuce and salad vegetables are sometimes called "herbs." Parsley, which may be eaten occasionally with other vegetables, is classified as an herb. Animals, such as horses and cows, which eat primarily grass and greens are called herbivores or herb eaters.

Even the dictionary is no help in distinguishing herbs from vegetables. One definition of an herb is that it is a "seed plant which dies to the ground at the end of a season." This would mean that lettuce, cabbage, and indeed, almost all garden vegetables, could be classified as herbs. Another definition of an herb is that it's a "plant or plant part which is valued for its medicinal or savory properties."

Now we can see the two sides of an herb. It can either be a food (like a salad vegetable) or it can be a drug or a seasoning. For this lesson, an herb will not be considered as a food or as a salad vegetable. If it is safe to eat, a plant is classified as a food. If it has toxic, or "medicinal" properties, than it is classified as a drug.

This lesson is concerned chiefly with the herb as a drug. Mention will be made of herbs as foods, and whether they are proper nourishment for humans.

1.3 Warning: Herbs May Be Dangerous To Your Health!

Some people may not believe that herbs can have any effect in keeping us well and healthy, but few people actually consider herbs to be harmful. Herbs are plants and grow naturally, and it seems that only people like the FDA and AMA have anything "bad" to say about these substances. But herbs are not only ineffective in producing health, they poison the body and may create serious complications in the user of such plants.

All herbs contain poisonous volatile oils and alkaloids. All herbs are fatal when taken in large enough doses. Even moderate amounts of certain herbs can cause vomiting, diarrhea, fever, headaches, and spontaneous abortions.

Many people do not realize that the herbs they take are in fact poisoning them. The reason? Herbs are taken in small amounts—usually small enough not to occasion a serious and painful reaction, but still enough to cause the body to react radically and expeditiously to eliminate them. These reactions by the body to eliminate the toxic substances found in herbs are taken as "proof" by herbalists that their potions are doing their job. A job is being done, all right, but the results are not always as advertised.

If herbs are not harmful, why must they be taken in such small amounts? Like pepper, spices, and condiments, herbs cannot be ingested in amounts larger than a tablespoon or so. Even more telling is the taste of herbs themselves. Almost without exception, herbs are bitter, strong, and foul tasting. This is a warning to the body not to eat such substances.

Very few people would chew and swallow a mouthful of an herb. They couldn't choke such a strong and bad tasting substance down. Instead, they usually grind and powder the herb until it can be stuffed into a capsule and slipped past the sense of taste which is the body's guardian against poisons and drugs.

If a food or substance cannot be enjoyed—if it does not have a pleasant taste—then it should never be eaten or ingested. Even a perverted sense of taste can protect a person from the foul poisons found in herbs. Yet with pills, capsules, and infusions, the herbalists have found ways to sneak a plant into the body that it would never relish or desire normally.

Still, people who are attracted to a natural way of life and diet defend herbs and their use. Maybe we should ask the question:

1.4 Are Herbs "Natural"?

Of course herbs are natural. They grow in every part of the world without cultivation. Unlike most fruits and vegetables, herbs have not been altered through selective planting or breeding. The herbs growing today are much the same as those that grew five thousand years ago. No one can argue that herbs are not natural plants. But, are they natural for man to eat and use?

The argument for herbs has been that since they grow everywhere, they must be good for something. We should be able to use these wild plants since they must be provided for us by nature or by a divine being.

One of the best known herbalists in America answers the question "why use herbs?" as follows:

"Herbs are nature's remedies, and they have been put here by an all-wise Creator. There is an herb for every disease that a human body can be afflicted with. Herbs were mentioned in the Bible, and much has been written about them all through history."

In the words of Dr. Herbert M. Shelton: "Such an argument is specious, false, unscientific, and absurd. It is not sustained by theory nor by results, neither by logic, or analogy, nor by experiment or experience."

Simply because a plant grows naturally does not mean that it was intended or ordained by a divine being (or nature) for our use. A great many plants grow all around us that are rank poisons. The tobacco plant has large and lovely green leaves. It certainly looks as if it would make a wonderful salad food. If you ate a salad of tobacco leaves, you would not live to regret it.

Animals in the wild refuse to eat many of the plants growing around them. Toxins and poisons are to be found in plants, just as are vitamins, minerals, amino acids, and so on. As Dr. Shelton has observed, "Many of the products of nature are unfit for the entrance into the human body."

If so many herbs taste so foul and have such detrimental effects on the body, then we might ask how the herbal practice ever got started in the first place.

1.5 The Origins of Herbal Drugging Practices

The herbalists and the medical profession which also derives many of its drugs from herbs have justified the use of such poisons by pointing to the practices of antiquity and primitive tribes.

"For thousands of years," one herbalist writes in his correspondence course, "herbs have been used in the treatment of disease. From the time of King Solomon, who was reputed to be the wisest man of his time, on down to Hippocrates, Galen, and through the Middle Ages to the present time, there have always been great and famous herbologists or botanical physicians."

We could also add that there have also always been fools and unwitting dupes who have fallen prey to this mumbo-jumbo about the "glorious" history of herbs.

The romantic picture of remote and ancient men who searched the landscape for herbs to cure mankind is a popular, but false one. Always the herbalist is glorified as a wise magic man that could divine the true nature of the wild plants around him. Actually, nothing could be farther from the truth.

The first herbalists were superstitious witch doctors and shamans who used these plants not for any healing virtues, but for magic rituals and ceremonies for sex and power. The herbs were used right along with snake eyes and frog skins to make magic potions. They were not used as curative agents, but as magical talismans.

Medical historians and students of herbology, however, seek to justify their drugging practices by pointing to the past uses of herbs by primitives as an "instinctive" use of such plants. Neither man nor animals will "instinctively" eat a plant that is full of poisons and toxins. It is very doubtful that any person living in nature would desire to eat a foul, bitter plant that causes the body to react vigorously to eliminate it.

The truth is that herbology, like circumcision, is a dark age ritual that has unjustifiably survived. The primitives had no more success when they used herbs for medical curing than they did when they performed circumcision on their youths to prevent masturbation, or whatever. Both herbs and circumcision are barbaric practices that are still with us in spite of an "enlightened" twentieth century.

The romanticizing of herbs and their effects as being "natural" or "primitive" and therefore established and accepted is a dangerous lie. Herbs are drugs and poisons. They cure nothing.

1.6 Why Herbs Can't "Cure"

People who believe in the curative powers of herbs think that any disease or ailment can be relieved by the ingestion of the proper herbs in the correct amounts. Some herbs are to be boiled and steeped.

Others need grinding and powdering. Some herbs are to be taken in combination with other herbs.

Some herbs must be taken alone to "work" properly.

There are dozens and dozens of books that list herbal formulas for every conceivable illness. No matter what bothers us, the herbalists have a list of plants we can take to "cure" ourselves. So simple and so appealing.

Every herb has its own healing properties, its own virtues, its own potencies. Reading a book on herbs is like reading an encyclopedia of diseases and cures. No wonder herbology is so seductive. We need do nothing to change our living habits to regain our health; we only need to take this or that herb in some amount or combination.

There is no curing power in any herb. All healing power resides in the tissues of the individual. An herb can cure nothing. Herbs, like all drugs and poisons, are inert substances. They perform no actions. They stimulate no healing. They remove no cause of illness. They cannot rebuild the body. They are inactive and incapable of initiating any constructive action within the body.

But herbs do "work" in a certain way. When they are introduced into the body, the vital organism attempts to expel these poisons as quickly as possible. The body protects itself from drugging and poisoning, whether these poisons come from a pharmacist's shelf or from nature.

These protective efforts by the body are misinterpreted as beneficial actions of the herbs. For example, the herb called mandrake has long been used for liver ailments. When ingested, mandrake causes vomiting, purging, and griping. The herbalists view these reactions as beneficial; they say that the mandrake is causing the body to clean itself out.

What is actually occurring is that the body is making a heroic effort to expel the mandrake by any avenue possible. The purging and griping are signs of a vital organism trying to eject a poisonous substance. It is not a "curing crisis" brought on by the herb.

Different herbs may occasion different bodily reactions. Fevers, sweating, diarrhea, increased or decreased circulation are all signs of a body trying to eliminate herbal toxins and are not indications that an herb is working some cure or the other.

1.7 Can Herbs Help At All?

The use of herbs is often defended because they are not as strong as chemically-derived medicines. In other words, they seem to do less harm than prescription drugs. But is this really true? Are herbs the lesser of two evils? And is there ever any reason they should be employed?

Even if herbs possessed no toxic or poisonous properties, they would still be dangerous. Why? Because the use of herbs, or any "curing" agent, simply perpetuates the ignorance that enslaves so many people.

Herbology promotes the idea of a "cure." As such, it does nothing to remove the true causes of disease and illness. Herbs deceive people. Many people think that by swallowing some plant or the other, they can improve their health. Such thinking can be dangerous.

For example, high-blood pressure is a very common ailment among Americans because of the tremendous amounts of salt they eat in their heavy meat and processed food diet. A vegetable alkaloid found in certain herbs called *reserpine* has been used to reduce blood pressure. Garlic, long touted as a wonder herb, is also a supposedly effective agent in reducing blood pressure.

What sometimes occurs is that people with high-blood pressure ingest garlic and other herbs to correct this condition. At the same time, however, they continue with their old diet and eat large amounts of salt.

When this happens, the symptom of high-blood pressure is hidden by the symptoms of the herbal poisoning. At the same time, the old habits and diet that kept the blood pressure high are not modified. The high-blood pressure is simply a signal by the body that something is wrong—like diet or lifestyle. By taking an herb for this symptom, nothing positive is being done; indeed, a poison has just been added to the body which it now must eliminate.

Herb taking, then, is simply symptom masking. In other words, a symptom of a diseased or disordered body is hidden by the eliminative efforts of the body to rid itself of the herbal toxins. The causes of the initial symptom remain, and indeed, continue the destruction of the body.

Garlic and other herbs may mask *one* symptom of a high-salt diet, but they can do nothing about the kidney damage and cellular destruction that also accompanies salt eating.

All pill and drug taking is dangerously deceptive, whether the drug comes from a plant or from a factory. The symptom-ridding approach to health is a short-ended one, and the bills for a disease-producing lifestyle always come due. Herbs and the symptom-repressing attitude toward health only deceive and delude the true health seeker.

1.8 Are Herbs Good For Food Supplements?

Not only are herbs promoted as cures and remedies, but they are often given as dietary supplements. Herbs often have a high concentration of minerals (usually iron, calcium, and trace elements.) Some have a high vitamin C content as well.

Because of this concentration of nutrients, herbs are also used as nutritional supplements. For example, there are herbal formulas that are reputed to have the proper mineral combination for building bones or increasing the red corpuscle content of the blood. Many people who dislike supplements made in a laboratory will use these herbal formulas to "improve" their diet.

In this case, the herb is being used as a concentrated food instead of a "medicinal cure." But can such a practice be justified?

The human body can only utilize a certain amount of vitamins, minerals, and other nutrients during a given time period. Any excessive amounts of nutrients are eliminated by the body in the urine and feces. For example, brewer's yeast is sometimes used in the diet for a high B-vitamin supplement. The body can only use a limited amount of these B-vitamins; the rest comes out in the urine.

The high and concentrated amounts of nutrients in most herbs cannot be totally used by the body. Only so much of a mineral or vitamin can be used, and the excess in the herbs must be eliminated. Taking in nutrients in excess of the body's needs is not "insurance"; instead, the body is burdened by minerals which are in excess of its needs.

Fortunately, most natural foods suited to man's physiology (like fruits, vegetables, nuts, and seeds) are well-balanced nutritionally. Herbs, however, do not have a balanced array of nutrients for human needs because they are not properly a food for man to eat.

Our vitamin and mineral requirements can be more than met with a diet of natural and unprocessed fruits and vegetables. Herbs are not needed food supplements, and indeed, they may serve as a dangerous substitute for a proper diet of fresh and wholesome foods.

Then, too, you must remember that along with any minerals or vitamins the herb may possess are also alkaloids and poisons that the body cannot healthily metabolize. Herbs are not a safe supplement. In fact, no supplement is safe because all such unbalanced additions to the diet disrupt the body's metabolism arid force it to eliminate the unneeded substances and excesses.

1.9 Why Herbs Appear To Work

Even after people have been told about the harmful effects of herb taking, they often persist in the practice because they insist that the herbs are working and helping them. An elderly man of about ninety has dutifully swallowed a capsule containing an herbal laxative every day for the past several years. "It keeps me regular," is his only comment and justification for the herb-taking habit.

Herbs do have an *effect* on the human organism. There can be no question about that. When certain herbs are taken, headaches do disappear and constipation seems to vanish. Are the herbs "working" as the herbalists would have us believe?

In a discussion on herbs and their seeming ability to "cure," Dr. Shelton has stated:

"Only poisonous herbs are thought td have medicinal qualities. If an herbal substance does not occasion actions of expulsion and resistance when taken into the body or applied to it, it is not vested with any power to cure. If the body ejects the herb by vomiting, diarrhea, diuresis, or diaphoresis, and this is accompanied by some pain and discomfort, then the herb is regarded as beneficial and it is used to "work." If the patient then recovers in spite of the herb taking, full credit for recovery is given to the poisonous plant, and the *self-healing power of the body* is completely ignored.

Shelton and other Hygienists have stated that for any substance to have a so-called medicinal effect, like herbs do, it must be a poison. This is because the alleged medicinal effects of a substance are nothing more than the efforts of the body to expel and resist poisons. Herbs and other drugs, instead of being digested and utilized by the body, are expelled.

What does all of this mean? Let's take a simple case where an herb appears to do some work. Peppermint, a rather mild herb by most standards, is sometimes used to "cure" a headache by herbalists. Your head hurts, so you drink a cup of peppermint tea. Your head stops hurting. Did the peppermint work?

Yes and no. Most headaches are caused by swelling of the intracranial blood vessels around the scalp. These blood vessels swell because of toxic matter in the bloodstream and body, and they then press against sensitive nerves. When peppermint is taken, the body recognizes its oils as harmful. Circulation is rapidly increased by the body and the heart speeds up. At this point, the body is attempting to eliminate the peppermint toxins as quickly as possible by increasing circulation so elimination can proceed.

The increase in circulation, due to the toxic nature of the peppermint oils, has an effect on the swollen blood vessels in the head. The vessels are dilated so that the circulation can proceed rapidly and the peppermint poison can be eliminated. As a side result, the headache disappears temporarily.

So is the headache cured, and did the peppermint work? No, the body did all the work. It worked to eliminate a poison, and these efforts also masked the symptom of a toxic body—in this case, the headache.

The cause of the headache—toxicosis—was not removed by the peppermint. The conditions that brought on the toxicosis—poor diet and lifestyle habits—were not improved by the herb. The headache may have disappeared, but the underlying cause remains. This is the case with all herbs—symptoms are depressed by the eliminative actions of the body which are directed toward the herb.

1.10 Living an Herb-Free Life

Almost without exception, herbs have been used to treat the sick. They are rarely used as food, although occasionally herbs have been used as seasonings or condiments. A lifestyle without herbs is both easy and healthy.

First, you should realize that most people resort to herbs in an effort to cure themselves of some illness. As a student of Life Science, you already know that there can be no "cure" for any disease. Poor health can only be improved by healthful living practices—not through drugging, treatments, or cures. The proper response to an illness is a complete physiological rest—fasting, if possible. Following a complete or modified fasting regimen, the individual should adopt a healthy diet of primarily uncooked fruits and vegetables which are eaten in as whole a state as possible.

Herbs, and other drugging agents, are often used by people who desire a quick "fix" of their problems without any change in their lifestyle. Since it is an unhealthy lifestyle which created the disease in the first place, this approach always fails. The use of herbs may produce different symptoms or masked symptoms, but the herbs themselves cannot remove the underlying cause of the symptoms.

Therefore, to live a life without herbs, we must realize that their use in times of sickness is deceptive. We must understand that total health can only be regained by fasting, proper diet, and a healthy lifestyle. Herbs have no power and no capacity to effect these changes in our lives.

Swallowing herbs is like swallowing any other pill or drug. The fact that they grow naturally does not give them any extra or safe curative properties. Indeed, all curative properties reside within the human organism. No outside agent, *including herbs, can instigate any healing capabilities of the body.*

Besides medicine, then, what else are herbs used for? Some people use them as food supplements. But if you are following the biologically-correct diet of chiefly raw fruits, vegetables, nuts, seeds, and sprouts, then there is never a need for herbal supplements or any type of nutritive additive. Many people are wont to blame their health problems on some deficiency or the other, which they then seek to correct by herbal or chemical supplements.

In reality, most illnesses are not caused by any deficiency, but rather by a sufficiency, or excess, of toxic materials in the body. Taking supplements merely adds to this toxic level, and no causes of the illness are removed.

Finally, herbs are sometimes part of a meal. The culinary herbs, such as garlic, onion, parsley, rosemary, cumin seed, caraway seed, and so on are probably the most common herbs used in most diets. Let's look at these herbs and seasonings in closer detail to see how we can also live without them.

1.11 Herbs That Taste Good?

Herbs that are foul and bitter tasting, as are most of the medicinal herbs, can be easily explained as unsuitable for the human dietary. Who would want to eat them anyway? Other herbs, however, have enjoyed a reputation as seasonings and flavorings in cooking and food preparation. Since this is where herbs are often used in everyday living, we should understand their use better. First, almost every herb used as food in the diet is done so as a seasoning or flavoring for cooked food. Few people desire to eat rosemary or caraway seeds with their raw vegetables. Most such herbs, then, are used to season cooked foods.

Why are seasonings or herbs used in cooked foods? Because the natural flavors and taste have been destroyed in the cooking process. The aromatic herbs are simply used to disguise the insipid taste of the cooked foods.

A predominantly raw food diet does not need aromatic or culinary herbs to "spark" up the flavors. Only in cooking have these herbs gained a foothold. But are they harmless seasonings?

No, because many of the herbs used as seasonings have strong oils and alkaloids that disrupt digestion. Ginger, for example, causes the digestive system to hurry the food through before being completely digested. Thus, these seasoning herbs have gained an undeserved reputation as "digestive aids." Instead of aiding digestion, their use occasions the body to rapidly expel them along with the food they seasoned.

What about some herbs that are relished in a raw state, such as garlic, onions, parsley, and so on? In general, these types of herbs are not needed and may prove harmful to the organism. Garlic and onions, two of the most popular flavoring herbs, are full of noxious toxins, like mustard oil and allicin. Parsley is also a strong herb whose use can overstimulate the kidneys. It is a very concentrated green herb which should probably not be a part of the regular diet.

The cooking and seasoning herbs are not harmless additions to the diet as is popularly believed. Their use disrupts digestion and places an added load on the eliminative system. They are used chiefly to flavor and spice up foods that are probably best not eaten anyway (that is, overcooked foods, meats, and so forth). A diet of fresh fruits and vegetables require no seasonings, herbal or otherwise.

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2. Questions & Answers

Aren't herbs still better than taking prescription drugs? I used to take digitalis for my weak heart, and now I use a plant called foxglove.

> Many drugs sold by pharmaceutical companies are often nothing more than a laboratory extract from a plant or herb. The digitalis you used to take came from the foxglove plant you now use. What's the difference? Both still have the same sort of toxin that occasions an increase in circulation and a rapid heartbeat.
>
> Herbs are drugs. When you take an herb, it's like swallowing a pill or spoonful of medicine. The only difference is in the package they come in. Herbs come in familar, "organic" looking packages—the plant itself. Medicine comes in plastic bottles. The contents, as far as the toxic effects, are about identical.
>
> This is the most difficult point to get across to people that use herbs. Simply because something deadly comes in a form that looks organic and natural does not make it any less deadly.

Okay, you say herbs don't work. But when I take some white willow bark capsules for a headache, my head stops hurting and I can go about with my work. Sorry, but pain relief is where it's at as far as I'm concerned.

> All pain, including mild headache, is the body's signal that unhealthy living practices are being engaged in. For instance, in your case you get a headache at work, so you take some herb and go on with your work. That's the danger in herbs.
>
> Taking an herb may cause a painful symptom to disappear, but the cause of that symptom (perhaps in your case, your working conditions) will remain.
>
> Agreed, pain relief is "where, it's at," but you should ask yourself, why am I feeling pain? Pain is never a natural condition. Using unnatural methods, such as dosing yourself with herbs, is a dangerous response to the pain signal.

I agree with you about most herbs, like goldenseal and so on that just taste terrible. But some herbs taste good, and I don't see why we can eat them without food.

> Anything you take into your body, with the exception of water, is either a food or a poison. Either your body can use it as healthy nourishment, or it must try to eliminate it as a toxin. Herbs are often borderline cases between a food and a poison. The majority of herbs have so many harmful alkaloids that any nutritional benefit they might contain is negated.

> True, some herbs such as basil, comfrey, spearmint, and so on may taste pleasant. But in what amounts? Even the most dedicated basil or parsley or rosemary lover would not want to chew up a whole mouthful of their favorite herb. Why? Because even these "mild" herbs are extremely high in essential oils that can irritate the organism. While such herbs are not as dangerous as the stronger acting "medicinal" herbs, there is no need for them in the proper diet.

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Article #1: Why Herbs Are Harmful By Marti Fry

The term "herb" has two definitions. The first is simply a "seed-producing annual, biennial, or perennial that does not develop persistent woody tissue but dies down at the end of a growing season." According to this definition, the various vegetables used in moderation on a healthful diet are herbs—celery, lettuce, bok choy, kale and other greens; broccoli; cauliflower; etc.

While relatively wholesome vegetables are herbs, the term "herb" really refers to a plant and not to a food. Let me clarify: when you eat a "vegetable," you're eating the stems, leaves, or flowers of a plant. Those stems, leaves and flowers that contain only very minute amounts of toxins are consumed as vegetables on the healthful (Hygienic) diet. But the poisonous (toxic) parts of plants are not consumed. For example we do not eat tomato plants or cucumber plants. Being of the deadly nightshade family, tomato plants are highly toxic. But we do eat the fruits of some plants, even though the leaves, stems, and flowers of the plant itself may be toxic.

One final comment about the eating of the herbs we call vegetables: These should definitely not comprise a major portion of a healthful diet, partly because of the minute amounts of toxins they do contain, and partly because they do not adequately meet our need for carbohydrates (for energy). Vegetables do contain carbohydrates, but they are mostly in the form of the carbohydrate cellulose, which humans, as frugivores, are unable to digest. Herbivores, with their four stomachs and special enzymes for breaking down grasses and other herbs, are, of course, fully capable of obtaining ample energy (carbohydrates) from herbs. Horses and cows are two notable examples of herbivores.

Frugivores, such as humans, are equipped to obtain energy primarily from the sugars in fruits. Our physiology and anatomy is such that we are capable of picking fruits, as well as masticating, digesting, and appropriating them with ease and efficiency. They contain all the nutrients we need—from vitamins and minerals, to proteins, fats and, of course, carbohydrates.

But, like the other frugivores (monkeys, apes, orangutans, etc.) humans can add relatively small amounts of vegetables to their fruitarian diet with benefit. The indigestible cellulose is simply passed through in the same form as it was ingested, and nutrients are utilized from the fleshy portion that is extracted during the chewing process.

The cellulose from vegetables is not, however, essential for human health. If we eat a hygienic diet we do not need large amounts of fiber (roughage) to keep our colon healthy. The important consideration for colon health is the same as the consideration for the health of every other organ and part of the body—freedom from toxins and toxic buildup. A pure (toxin-free) body is the result of healthful living and eating practices and not from the ingestion of any particular food, herb, or class of foods. Enemas, juices, roughage, and other substances or practices do not result in a pure (unpolluted) healthy body. Health is the normal state unless toxicosis and disease are caused by anti-vital practices and foods.

The Second Definition of "Herb"

The second definition of "herb" is: "a plant or plant part valued for its medicinal, savory, or aromatic qualities." This means that an "herb" is used either as a "medicine" (drug), or as a seasoning, perfume, or insect repellent, etc. Herbs are used, not for their nutritional values (their vitamin, mineral, protein, fat, or carbohydrate content), but for their toxic ("medicinal") components. For example, onions and garlic are used for their mustard oil and allicin content. Both of these toxic substances are, indigestible and incapable of causing diseases to disappear or health to be restored. The toxic component of aloe vera is the glycoside aloin; in sassafras it's safrole; and in the Indian snake root, it's the alkaloid reserpine.

The poisonous substances in herbs are causes of body toxicity and diseases. Toxins or poisons are anti-health, no matter what their source. We cannot be drugged into health, whether the drug (toxin) is from herbs or from a pharmaceutical company—or even from cooked foods, processed foods, incompatible food combinations, or excess food, etc. Drugs, "medicines," and herbs are alike in that they all cause disease and are incapable of "curing." You may obtain a temporary feeling of well-being through their use, and disease symptoms may cease for a time. But appearances can be deceiving.

The human body is the only entity capable of healing, and no substance or procedure can speed up or assist healing in any way. There is no such thing as "curing" or "medicines." "Medical" interference in attempts at "curing" is just that—interference. The body heals itself, purifies itself, and repairs damages from injuries caused by toxins best under the condition of a fast, in which complete rest is obtained.

Rest is needed during healing because the body must recuperate as much nerve energy as possible, thus increasing its vitality, in order to have the energy it needs to conduct the disease process. Disease is a body process of toxin elimination. It is not caused by "germs" or viruses, but is necessitated by the accumulation of toxins within the body.

The body institutes the disease process, and drugs and herbs sabotage the body's efforts by posing another threat to the body besides the toxins it was eliminating through the disease process. Being capable of handling only a limited amount of toxic matters at a time, the body temporarily halts the disease process and devotes its energies to ejecting the new offending substance.

If the drug or herb is particularly toxic; if it's given in a large dose relative to the subject's vitality (supply of nerve energy); or if the subject is particularly low in vitality, the result of its administration may be almost complete cessation of the disease process. The body may be temporarily incapable of ejecting the toxins accumulated in the body or those in the drug or herb.

In this case, the body, though it may be showing no or few *symptoms* of disease, is more diseased than before the drug or herb was administered. That is, the body is more toxic—more diseased. When vitality is regained, in time, the organism will again institute the disease process in an effort to expel its toxic burden. If herbs or drugs are again administered, the body begins to suffer more and more from the injuries inflicted by the irritating poisonous toxins within. Various diseases, including arthritis, ulcers, cancers, and others, ensue.

Herbs Are Dangerous

No matter how herbs are used or what they're used as (expectorants, stimulants, astringents, etc.) they always, without exception, add to the body's toxic load, which is the real disease. The disease process is simply a body activity for expelling toxins so they will not injure the body and thus impede its functions.

In addition, herbs, like other drugs, temporarily, at least, give the *illusion* of health in some cases. Thus a person is not inclined to institute correct living practices so as to not cause further disease or to remove the practices and habits that cause disease. The result? More disease and continued disease, which is the opposite of the herbologist's intentions, if he is truly health-minded and not simply money-oriented.

What To Do

If you are an herb doctor, may I suggest you consider becoming a Natural Hygiene counselor instead. If you use herbs, I suggest you discontinue their use and, instead, institute healthful practices while simultaneously eliminating all unwholesome (drug) practices. My own experiences, as well as the experiences of many Natural Hygienists, verify the efficaciousness of this advice. If you are not yet willing to accept what I have said and what has been written elsewhere in the Life Science publications, study some more Hygienic literature.

And remember: health results only from healthful living. You cannot "make up for" any unhealthful practices by the use of herbs, or by the use of any other substances or practices. There are no magic potions and no shortcuts. And, after all, the path to health is *not* a hard road to follow anyway!

Lesson 43 - Cooking Our Food

- 1. A Statement Of Purpose
- 2. What is Cookery?
- 3. Consequences
- 4. Questions & Answers
- Article #1: Uncooked, Unmixed, Unseasoned Food by Dr. G.R. Clements
- Article #2: Excerpts From "Nutritional Methods Of Blood Regeneration, Part II" By Dr. R. W. Bernard
- Article #3: Excerpts From "Unfired Food And Tropho-Therapy" by Dr. George J. Drews, AI.D.
- Article #4: Excerpts From "Nature—The Healer" by John T. Richter, Vera M. Richter

1. A Statement Of Purpose

In the foreward to a popular book on cooking we find these words: "Cooking is not a particularly difficult art, and the more you cook and learn about cooking, the more sense it makes." It is the purpose of this lesson to show you that cooking makes no sense whatsoever in any lifestyle designed either to build health or to maintain it. In fact, to a hygienist, cooking is the way of the devil rather than the way of an intelligent person, one knowledgeable about the capacilities and limitations of the human body and of what is entailed in the proper preparation of food so that it will be capable of maintaining a high level of health throughout an extended life span.

By far the most important cause of ill health in man is his many and habitual dietetic errors of one kind or another, the immediate results of which are not felt and intelligently evaluated. We can abuse our digestive organs for years and feel no pain. We can create problems for our kidneys by overconsumption of protein for years and feel no pain. However, the time comes when these organs rebel and we become intelligently aware of a diseased condition which is manifested either in the damaged organ itself or in some other place remote from it which has been made diseased through malnutrition or by the presence of irritating toxic metabolic wastes accumulated beyond the body's overworked eliminative powers.

It is the gradual erosion of health by the more or less constant bombardment by erroneous eating practices which, in most cases, is responsible for the destruction of health. At the present time, after hundreds of generations of experiences with a diet of cooked breads, cooked meats and fats, in actual defiance of the body's inability to process or use them, we see refined white sugars and syrups used to sweeten just about all canned, frozen and cooked vegetables and fruits; in these "modern" times, we have badly prepared meals cooked to perfection but lacking all properties essential to life; we are confronted on all sides with malnutrition and disease as evidenced by the fact that over 99 percent of the populace has dental caries, 70 to 80 percent are overweight; spines curve and vitality weakens; more and more people wear eye glasses due to impaired vision; at least 70 percent of the people are constipated, and we witness a rising and alarming incidence of cancer and other horrendous degenerative diseases. We find ourselves fighting an almost hopeless war on misery and disease which we ourselves have created.

Here in Tucson we have recently been placed on notice that hospital "care" of the sick is expected to rise another twenty percent during the coming year. This is an age of despair and of fear, particularly among the elderly who are faced with a future which they believe they cannot control. We are convinced that this country could witness a metamorphosis in the health of its people if we could all adopt a manner of living and eating which is sane and biologically sound; if we could convince everyone to adopt a non-stimulating uncooked diet, one which contains the necessary life elements in the right quantity and in the correct proportions and in the highest degree of organization, these attributes being found only in nature's food packages, ready for our appropriation when eaten just as provided for our use, uncooked. Otto Carque tells us that we should always be guided in the selection and preparation of our foods by the fact that we cannot improve on nature, and that all foods which we enjoy in their natural state are the foods which are best adapted for maintaining health. We feel that what is most needed is self-control and knowledge of how to live according to biological need. The purpose of this lesson then is to enlarge our understanding of the benefits to be accrued by the consumption of uncooked food and to understand why health can be, so manifestly improved and in a relatively short time on an all-raw diet.

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2. What is Cookery?

Cookery is defined as the art and science of preparing food for eating by the application of heat. The various preliminary methods by means of which food is prepared for the particular recipe or procedure are also usually included in the term. We refer to such prior practices as cleaning and removing certain inedible portions. Other preparatory processes as cutting, shredding, salting, addition of spices, methods of mixing and shaping, and so on are also included. In this discussion we will concern ourselves mainly with the effects produced by the application of heat to foods with little consideration being given to preparation procedures and methods since most of these are commonly recognized as being destructive of nutrient values to some degree.

2.1 Historical Insights on Cooking

In the civilized world, after due consideration of the state of one's health, food is probably the single most factor of living that outranks all other aspects of living in commanding mankind's attention. The various methods of preparing and eating food are extolled as arts and can give one a cultural image of the peoples of the world. We can often get a better understanding of people when we understand their cookery. Epidemiological studies reveal that much can also be learned about the status of their health by studying what they eat and how their food is prepared.

As is stated in *Cuisines of the Western World* authored by Elizabeth Gordon and published by Golden Press (The Heart Corporation, N.Y., 1965), the cuisines of various cultures have been cross-pollinated by explorers, by wars, by colonization, by immigrants, by religious customs and, in more modern times, by tourism. Only a handful of cultures have remained isolated. Gordon reflects how what people eat and how they prepare it is often determined by their climate, their agriculture, their wealth, their social system, who they conquered or whom they were themselves conquered by. The cookery itself reflects both folk wisdom and the culture of the more affluent, past and present.

It is doubtful if we will ever be able to trace the origins of cooking fully and completely. We know that the practice is deeply rooted in ancient times. Probably as populations grew and tribes were compelled to seek nourishment in more remote and less populated areas, people were forced by hunger to eat quail, duck and other small birds, at first in the raw state, then later salted, and still later boiled or roasted over an open fire. Due to the fact that grains were easily grown, kept well and were easily transported, they were called into use early in history as human food. Herodotus records that the early Egyptians were among the first to till the soil and that they ate largely of fruits and vegetables, and these uncooked. It is said that they also were skilled in the baking of a great variety of breads. However, it appears that the early Romans were among the first really to popularize cooking food. They also were skilled bakers of bread. Onions, garlic and leeks were commonly in use in both countries as vegetables but the members of the priesthood were forbidden to use them. Legumes were also on the prohibited list.

The peoples living in those countries bordering on seas and oceans soon learned to fish and many varieties of fish became staple articles of foods among such peoples as the Greeks and Italians. Archestratus, a Greek poet of the 4th century, tells of boiling fish in a mixture of oil and wine and spicing it with fragrant herbs. The Greeks introduced other slaughtered animals to the bill of fare, including the ox, sheep, pigs, lambs and goats. Roast lamb was especially prized in Greece and in other Mediterranean cultures, just as it is now. The Greeks also used a wide variety of vegetables which grew in the friendly warm climate, vegetables such as cabbage, leeks, onions and lettuce. Sesame seeds, figs, olives and nuts grew in abundance and were eaten not only raw but also cooked in a wide variety of cakes and breads.

The early Romans had access to an even larger variety of food. The peasant classes subsisted largely on grains and lentils cooked with a few vegetables and on the wild fruit of the country. Lentil soup and stews are still popular in many parts of Italy today. After the conquest of Greece the wealthier class of Romans came to know and enjoy an elaborate array of foods well-cooked in olive oil and adorned with fancy gourmet sauces which were well-seasoned by spices, especially garlic. Because of the heat, foods, especially meats, were subject to rapid decay. The cooking sauces and the seasonings helped to disguise the foul odors and to make the repugnant taste of decayed meat more palatable, so their use rapidly became not only tolerated but actually prized.

In France and Italy and also in more northern countries, the milk provided by horse mares, goats and cows was allowed to sour and curdle and then often stored in caves during times of plenty and brought out for human consumption months and years later in times of scarcity. Thus, was born the fine art of cheese-making.

In the dawn of civilization the British and their Teutonic invaders apparently paid little attention to cooking but by the time the Middle Ages had arrived, cooking was considered a fine art. The same can also be said of France and Spain who early on adopted Italian methods with suitable variations developing according to climate and availability of materials. The French, of course, later became famous for their tantalizing sauces and their use of wines, and more delicate herbs than are commonly used in either Spain or Italy.

Many of the ancient cooking practices influence the "art" in Italy to this day. Just a few years ago we travelled on an Italian freighter from Long Beach Harbor in California to Trieste, Italy. Thanksgiving Day came while we were yet on the high seas and in honor of the only Americans on board, ourselves, the chef prepared a Thanksgiving turkey. He personally conducted the bird to the dining room. The chef, in typical chef's attire including his grand hat, laid it before us with a flourish and a magnificent bow. There the turkey lay, reposing on a huge platter, adorned with rosy tinted crabapples and smelling to the high heaven of garlic! In honor of the American holiday, Dr. Robert was asked to carve the bird and to serve the plates for the officers and other passengers on board. We all ate of the bird while the proud chef looked on eagerly noting our responses to his culinary efforts. Never have we eaten of such a bird and never will we again! It was stuffed with olives and spiced breads, it dripped with olive oil and reeked of garlic. The sharp spices burned the delicate linings of our alimentary tracts and we tasted that bird for hours after the feast. But, we never let on and the crew's joy was complete as they watched us eat of that unique product of the ship's culinary art.

In the Far East, rice, fish and wild fruits became staple articles of diet. It is said that Confucious (551-479 B.C.) was the first gourmet in China setting forth standards for ingredients and methods to be followed. These were, of course, changed as the population increased and wandered. Millet was the popular grain in northern China, With rice being the staple in most other parts of eastern and southern Asia. Spices were widely used, especially in the more southern regions where heat rapidly caused onset of decay.

Thus we can see that early cookery was more or less forced on the people both by the scarcity of food at certain times of the year and by the lack of refrigeration. As time went on, the palate became more and more accustomed to cooked foods and probably in direct proportion to the quantity of cooked food consumed, the health of the people deteriorated.

In America where the land was largely virgin and offered up a wide variety of foods of all kinds, the early settlers became accustomed to eating enormously of many dishes and courses. Graham relates how the dockworkers of Greece and Spain in the middle of the last century who ate simple fare consisting largely of coarse bread and raw fruits were able to outperform and outlast their American counterparts who ate more liberal fare. Graham also tells about native tribes living on remote Pacific Islands who lived long and healthy lives subsisting largely on coconuts and on wild fruits indigenous to the area. Biblical records also show that peoples in the early days of history often lived for many centuries on their very restricted fare. We know that most of the peoples living in and around the Mediterranean Sea ate largely of fresh fruits and nuts and we find even today that the people living in that area still eat and enjoy much more fruit than the average American does. We well remember another visit to Italy when we travelled on a train going into Rome. It was Christmas time and we were fortunate to share a compartment crowded with six Italian soldiers, just in their teens, who were going home for the holidays. They carried a variety of fruits in their packs and happily shared it with "the old ones," as they called us. Unhappily, as the years have passed, so have many of the fruit stands that formerly graced the back streets of Europe, these having been replaced in many instances by American-type supermarkets.

We think sadly of the little children growing up today in Europe and elsewhere remembering fondly a time some years ago when we spent a memorable and happy day with some 300 beautiful rosy-cheeked children from the countryside outside of Paris, marveling at their good looks and good manners and most of all their composed behavior. We contrast the memory of that day with what we observe in today's American children, many of whom are but hyperkinetic-charged caricatures of what truly healthy children can and should be. Today's sick children are largely the product of culinary "art," the art of making hot-dogs, potato and corn chips, pretzels and "Big Macs" oozing in mustard and relish, of doughnuts and carbonated chemicalized drinks, of sugar-ladened cereals that pop and make noises but offer little in the way of nourishment to growing bodies.

We look at our athletes today and see how the various sports are dominated by certain ethnic groups who, because they are not far enough removed from their native, more health-promoting, eating habits, retain a far greater measure of strength, endurance and agility than their Caucasian counterparts who are the products of many generations of gormandizing and a century or more of relative affluence. The peoples of the world cook their fancy dishes and civilizations fall apart while the peoples writhe in the agony of the catastrophic diseases that afflict them.

The dedicated Life Scientist knows that all cooking is folly because it has been shown to be destructive of health. He knows that by its very nature cooking is destructive of the forces that sustain life, that it produces certain adverse chemical changes in the food itself which renders it less capable of perfect digestion and assimilation at the cellular level; that instead of leading one into a world of "hidden delights," the practice of eating a preponderance of food spiced and cooked to "perfection" can, on the contrary, create a subtle erosion of wellness which will be ongoing while life continues and the practice persists; that it can result in tissue and organ degenerative changes upsetting homeostasis; that eating primarily of cooked food can bring upon us the curses of premature aging, disease and death.

2.2 What is Food?

Food consists of those substances which are useful in building the body (as in growth), in the healing and reparative processes which sustain life, and finally, as a source of sufficient energy for the performance of metabolic purposes, and for fuel to maintain body temperature. Seven million new blood cells must be produced every second we live. The material from which these must be manufactured is food.

Food comes to humankind from and is supplied by the vegetable kingdom. Plants and animals live their allotted time on earth and are then, in due course, returned once again to the earth from whence they came. Here they are set upon by the Saprophytes, members of the "in-between" group of living things which do not seem to fit well into either category, especially by members of the Monera Family, the bacteria and molds, who by their own simple metabolic processes disorganize the highly complex organic molecules into simpler inorganic wastes which are excreted back into the soil, there to be taken up as food by the plant and reorganized into widely diverse forms of vegetable matter which we recognize as different varieties and parts of vegetables, fruits, nuts and seeds, these being digestible to some extent by all animals, including man. The original inorganic elements as returned to the soil would poison man but, combined in certain new complex organic formulations and presented to us in food packages especially designed for us, they provide us with rich nutriment for the sustaining of life.

Not all plant products are acceptable but Man is biologically and physiologically structured to accept a wide variety of suitable plant products as his food and, if he sustains himself only with the kinds of food to which he is best adapted, he can maintain his health and experience no disease throughout his entire lifetime provided, of course, that he also provides himself with a suitable amount of all the other known requisites of his organic existence: warmth and sunshine, fresh air, pure water and a congenial (friendly, not hostile) environment, and avoids accidental injury.

Anthelme Brillat-Savarin, the 19th century gastronomist, said "Tell me what you eat; I will tell you what you are." Have you eaten too often and too well of sugared goodies? Have you overindulged in animal proteins even though cooked to perfection? If so, there are revealing signs to disclose your secrets. The well-trained and experienced hygienic practitioner doesn't even have to inquire of you as to your past eating practices and preferred foods. He can make a valid judgment of your past indulgences both as to lifestyle and food practices by a combination of careful visual examination and psychologically directed conversational give and take.

Man cannot eat of the soil and live. He cannot take into his system inorganic elements and build a healthy body. He cannot eat the products of decay and have a long and healthy life. He cannot eat of "foods" to which he is not well adapted, such as animal flesh and products derived from or yielded up by animal bodies, and have a long and healthy life. He must, on the contrary, eat foods designed specifically to answer his structural and functional requirements and to eat them without alteration of any kind. largely and primarily in fact as they are yielded up to him by field and orchard. This is food fit for peasant and for king, for child and for adult. Cooking food alters it, the application of heat makes all foods less acceptable, if not repugnant, to the digestive mechanisms provided. Such food is damaged, changed and man cannot fully adapt to it or profit from its use. When he consumes it in response to perversion of his palate, he is required to yield up some measure of his own well-being in exchange for momentary pleasure.

2.3 Cooking Processes

No sharp distinctions can be given to distinguish among the various cooking processes. They all involve heat, of course, and differ only in the degree of temperature applied and the method of applying the heat. The various methods can be categorized as follows:

1. The application of dry heat as in baking and roasting.
2. The maintenance of a constant wet heat as in boiling, simmering, steaming and poaching.
3. Braising or cooking at high temperatures in fat to retain flavor and juices, a method commonly used to sear meat which is then cooked, usually covered, in a pot with a small amount of liquid added, usually water, wine or beer.
4. Frying is used to indicate cooking in fat in a pan or on a griddle over direct heat. Sauteeing is a variation of this method as is deep frying in which the food is totally immersed in the hot fat as is done in the preparation of french-fried potatoes.
5. Broiling or grilling is a method by means of which the foods are exposed directly to heat either in

a broiler or over hot coals, as in barbecueing.

Microwave cooking has recently been introduced and has become exceedingly popular among women who work. Its long-term effects have yet to be evaluated. Slow cookers have also become popular in recent years among women who work all day and like to prepare one-dish meals. These devices cook foods at temperatures of about 200 degrees Fahrenheit and maintain them at these temperatures for eight hours or longer.

Food scientists have replaced many long familiar foods such as fresh orange and other fruit juices with chemical substitutes which compare favorably in taste but not in nutritive value with nature's product. These chemical products have become popular because of their lower price tags and availability requiring little, if any, preparation.

Industry has learned to fabricate many substances now offered to the public as substitutes for the real thing, such products as synthetic chocolate, calorie-controlled foods with low cholesterol and low saturated-fat content for the overweight, substitute eggs and substitute meats, made from textured vegetable proteins, and numerous other pseudo foods. It is projected that in tomorrow's world, the produce section of the supermarket will be hidden away in a corner, difficult to find, if it exists at all. This is why it is important for Life Scientists who value their own health and wish to keep the race viable, to become aware of today's real world and of what will be offered tomorrow, to learn what happens to food when subjected to man-instigated changes wrought by the application of heat, and to make their voices heard. We must learn to relate our knowledge of physiological reality both in the world of commerce and in the halls of government.

2.4 Cooking and Vitamins

Some vitamins are more resistant to high temperatures than others. However, the formulation, development, growth and vigor of an individual are dependent upon whether or not all of his basic organic requisites for living are met and the degree of perfection in all areas will be in a precise relationship to the extent to which each is provided.

Vitamins are one of these basic requirements for living. They are provided for him in man's food and, for man to live in a prime state of health, his needs in this respect must be amply supplied, according to his need. Without a sufficiency of all vitamins, body .synergism may be put off balance with the result that growth, development and vigor will be diminished to some extent and, when such sufficiency is long continued, certain deficiency diseases may arise.

The following possible deficiency conditions may be observed:

A. When Vitamin A is deficient:
   1. A failure of the bony structures to grow normally.
   2. Excessive dryness of the outer and inner skins.
   3. A lack of adequate mucous membrane secretions.
   4. Various eye diseases.

B. When Vitamin D is lacking:
   1. Abnormal bone and teeth formation.
      a. Rickets with malformed legs, spine, etc.

C. When Vitamin E is in short supply:
   1. Changes in blood making.
   2. Adverse changes in the musculature and in the circulatory and central nervous systems tissues.
   3. Increased loss of Vitamin A and Carotene by oxidation in the intestines.
   4. Red blood cells become more susceptible to destruction.

D. Vitamin B Complex - Specific members may give rise specific deficiency diseases, among which we find:

1. Reduction in general metabolic efficiency.
2. Nervous disorders.
3. Loss of appetite.
4. Certain gastric disorders.
5. Skin lesions (outer and inner skins).
6. Energy transmission failures.
7. Insomnia.
8. Muscle pains and cramps.

As Life Scientists we must be aware of the fact that all diseases are the product of toxemia. An insufficiency of vitamins can be a contributing factor, not the sole cause, of a diseased state. The root causes of any diseased state are, multitudinous, not capable of isolation.

When man first began to use fire on his foods, he began to destroy himself. One reason why this is so is because the application of heat is somewhat destructive of vitamins and the higher the temperature, the more destructive heat will be to the vitamin presence. As we indicated previously in our discussion in Lesson 39, vitamins are intimately interwoven with all the other nutritional and chemical elements offered in food and that the effectiveness of all nutrients can be somewhat reduced and even perhaps disintegrated by a deficiency in any one nutrient and this, of course, would include vitamins.

A few specific examples of how heat can reduce vitamins in certain foods will suffice to show how destructive normal cooking can be to one vitamin, Vitamin C. Measurements are given in milligrams and are derived from data supplied by the U.S. Department of Agriculture.

Apricots, fresh halves. 1 cup	16
Apricots, canned, water pack, 1 cup	10

Mung Bean Sprouts, raw. 1 cup	20
Mung Bean Sprouts, cooked. 1 cup	9

Blackberries, fresh. 1 Cup.	30
Blackberries, canned, water pack, 1 cup.	17

Pears, 1 cup fresh, sliced or cubed.	7
Pears, canned, water pack. 1 cup.	2

From these few examples, the student can see that, while the Vitamin C presence is not completely destroyed, it is reduced. Any reduction, of course, will change the proportions planned by nature and will, therefore, be anti-health.

When foods are examined for specific content, we find that all foods contain essentially fiber, vitamins, minerals, enzymes, carbohydrates, fats, proteins, some flavor enhancers, water and poisons of one kind or another, and in varying amouts, even in man's most desirable foods, these being easily eliminated by the normal excretory processes. Food, however, is far more than the sum of its divided and carefully separated parts. Why this is so, no man knows but it is a proven and indisputable fact that man will starve and die if fed solely on any or, indeed, on all of these isolated food factors, but will thrive when he eats unfragmented nature's food packages that contain the very same substances.

Persons who eat preponderantly of cooked food consistently deprive themselves of vitamins which, as we recall from our previous discussion in Lesson 39, are the important metabolic regulatory assistants to hormonal function and the vital enzymatic catalytic action. We view with sadness the meals eaten by man of our elderly citizens who frequent cafeterias and similar moderately priced restaurants.

Invariably their trays reveal depleted, cooked, poorly-combined foods. The usual menu consists of a meat dish, one or two cooked vegetables, usually only one, rolls made of devitalized white bread plus a dessert, frequently a piece of pie or cake. Many can afford but one or two items and, more often than not, choose a meat dish, adding perhaps a roll. Few even do more than glance at the array of salads and fruits. Certainly, the vitamin presence in such meals must be greatly diminished, if not completely so. It is little wonder that their gray complexions and their curved spines reflect the weariness within, of both body, spirit and soul, these being the visible signs of malnutrition and systemic decay.

Most American children today are brought up on cooked, vitamin-deficient foods. It is time that we hygienists take a critical look at America's children and observe their curved spines that encapsulate and crowd the lungs and place all abdominal organs in a stressed posture. Take a look at all the mouth-breathers among them. Their nasal and respiratory passages are blocked with mucous discharge. We see them in school classrooms where we sometimes lecture, teenagers slouched over their desks, their bodies reflecting systemic fatigue; or, the opposite, bodies with taut nerves, falsely stimulated. Far too many of them are hyperkinetic sugar-starch-fat-rich young adults with still-growing bodies trying to make it on vitamin-deprived cooked foods. Unfortunately, it is our belief that most of these teenagers will live to curse the world of which they are a part.

So long as malnourished persons eat of cooked devitalized foods, they can take all the synthetic vitamins in the world and still not meet the needs of their bodies for these nutrients. The only sane way to satisfy our requirements for vitamins is to eat the foods that supply them: fresh ripe fruits and vegetables. There can be no piece-meal approach to dietary adequacy and superb health. Optimum nutrition is essential and it can be obtained only when the food eaten is optimum in all nutrient values including vitamins.

These required food values will be optimum only in freshly-picked, organically-grown, ripe fruits and vegetables and these eaten uncooked and as soon after picking as possible since some vitamins are reduced in value upon standing, even when refrigerated. Freshly-picked foods such as we have described will be whole foods, rich not with isolated food factors of doubtful value, but rather with all of them, properly proportioned as designed by nature's wonderful food factories, the living plants.

Fresh uncooked foods will supply the body with a superabundance of all the food factors we require and with all the vitamins, known and unknown. Cooked foods will always offer an inferior depleted product, one destructive of health.

Vitamin A is regarded as being stable to heat at ordinary cooking temperatures but both the vitamin and beta-carotene are oxidized and destroyed by air. Therefore, when food is cut and chopped and then cooked in water and the water discarded after cooking, considerable amounts of this vitamin will be lost when foods are cooked in this manner.

The vitamin D content of most foods is either nonexistent or present only in very small amounts. Therefore, cooking is not an issue in the case of vitamin D. At any rate, our requirements for vitamin D can be fully met when we expose our bodies to sufficient sunlight.

Vitamin E is somewhat affected by cooking. However, it is very sensitive to slight oxidative changes in the fats contained in the foods in which it is found. Therefore, cooking will produce certain destructive chemical modifications in this vitamin by disorganization of the fats.

All members of the vitamin B complex are water-soluble and, consequently, cooking foods rich in members of this group can be highly destructive of the entire complex. High temperatures dry heating is somewhat less destructive but will also destroy to some extent B complex member vitamins.

The extent of vitamin loss by cooking will depend upon the following variables:

1. The method of cooking employed as, for example, boiling, stir-frying, as in wok cookery; and so forth.
2. The temperature to which the food is subjected as, for example, cooking at lower temperatures as compared to roasting and baking at high temperatures.
3. How long the food is subjected to the heat.
4. The relative presence of oxygen, as for example, heating food in a covered pot will reduce vitamin loss as compared to cooking without the lid on.
5. The presence to which the food may be subjected. Cooking in an ordinary cooking utensil will not produce as much vitamin loss as will be occasioned when food is cooked in a pressure cooker which not only builds up the pressure but also maintains the cooking temperature in excess of 270 degrees Fahrenheit.
6. The presence or absence of light. Darkness tends to protect against some measure of vitamin loss.
7. How much and to what extent the food has been diced, shredded and/or chopped before cooking.
8. The material from which the cooking utensil is made, iron being probably the most destructive to vitamins. Iron utensils are highly porous and whatever food is cooked in it loses a certain portion of its vitamin content to the pan. Greases, juices and blood from meats soak into and remain in the porous iron, carrying with them any remaining vitamins that these vitamin-poor foods may contain.

Herbert M. Shelton points out that the average loss of vitamin C in foods served to patrons of restaurants is 45 percent; of thiamine, 35 percent. It is wise for persons who must eat in restaurants to eat early, just after the food is placed out in expectation of the early supper crowd, about four o'clock in most areas. The newly-prepared food would be at its best at this time. We also advise patrons to patronize those restaurants where salad bars are featured.

We have no trouble eating while travelling. If we fly, we either do not eat at all or we advise the air carrier the day before take off that we wish to be served a fruit meal. There is no extra charge for this service. If we drive, we carry an assortment of compatible fresh fruits with us. If we stay in a town or city for several days, we occasionally eat at a restaurant like Big Boy which features either a fruit plate that is quite acceptable or a well-equipped salad bar. Many of the better steak houses pride themselves on the variety of salads featured. We avoid most cafeterias because their salads are usually covered with sugar-salt-vinegar dressings or liberally dosed with commercial mayonnaise.

2.5 Cooking and Food Fibers

The chemical composition of all fibers found in vegetables is predominantly cellulose, a very complex polysaccharide. So complex is the cellulose molecules that it is largely unaffected by the application of alkaline secretions, a fact which in and of itself means that cellulose fibers cannot be fully digested by the ordinary digestive secretions produced in the human digestive canal.

The student will recall from his previous studies that all carbohydrates are composed of carbon, hydrogen and oxygen in varying arrangements, these being divided into several categories: simple sugars, complex sugars, gums and pectins, dextrins, starches, glycogen and cellulose. The formulas for each category may be written as: Cm(h3O)n.

The number of carbon atoms and the number of possible combinations of h3O very according to the complexity of the various molecules under consideration, the more complex carbohydrates being formulated of many simple sugar molecules (single molecules) all joined together, somewhat like freight cars in a train.

Glucose, a single comparatively simple molecule, is the monomer unit from which two major families of carbohydrates are formed: the starches and celluloses. Both of these two complex formulations are hydrolyzed (that is, disorganized) by a solution of certain acids in water to form smaller chemical units and eventually, when fully resolved, into chemical "fragments" called glucose.

The starches can be hydrolyzed by enzymes found in the human saliva, but the celluloses found in fiber cannot. According to Davenport (Physiology of the Digestive Tract, 3rd Ed. by Horace W. Davenport, Yearbook Medical Publishers, Inc., 35 East Wacker Dr., Chicago, III.), no members of the mammalian family possess an enzyme to catalyze the resolution of cellulose. In man there is a form linkage between an enzyme such as ptyalin and the starch, the two "fining" together, as it were. This fitting together is called "alpha-glycoside linkage." Such is not the case with the celluloses. The enzymes in saliva and elsewhere in man's digestive tract do not "fit" into the cellulose molecular arrangement and therefore have no effect upon the celluloses. This nonfitting linkage is known as a "beta" linkage. This is why the fibers in uncooked food can pass on through the digestive tract virtually unchanged chemically. Cellulose is partially digested by bacteria in the colon with the formation of volatile fatty acids which can stimulate peristalsis and act as an aid to defecation. Most of the cellulose contained in foods eaten will be given off in the feces when defecation occurs at least once in 24 hours but in constipated persons such will not be the case. Davenport states that in constipated persons digestion occurs within the central part of the fecal mass, and acid products may be absorbed (p.212).

The three classes of carbohydrates, according to molecular complexity, are:

1. Monosaccharides - one molecule (the monomer unit)
2. Disaccharides - two molecules joined together
3. Polysaccharides - more than two molecules.

Cellulose is a polysaccharide and the most complex of all the carbohydrate molecules. The polysaccharides have very large molecules: about 10 molecules being joined together to form glycogen, 25 for the simpler starches and 100 to 200 for the celluloses.

For efficient and thorough digestion the body, requires bulk in its food and nature has skillfully designed food for man which contains appropriate amounts of bulky cellulose fiber, the amount incorporated in man's food apparently being proportioned exactly according to the design of the human alimentary canal and its ability to make use of it. Thus, it can be seen that persons who eat food not intended as food for man will do the body a disservice as will those persons who may eat suitable food but then alter by application of heat, the fiber content of that food, as in canned cooked food for babies.

We might assume from our discussion thus far that some foods might contain too much fiber, more than the human body might be able to handle efficiently. This is indeed true and such foods should certainly be either completely avoided or, at least, restricted in the human food intake. They place too great a burden on the peristaltic and eliminative capabilities of the intestinal equipment. The cellulose in some foods, especially if consumed uncooked, can be abrasive to the mucosal lining and, long term, could lead to irritation and inflammation of the food canal. We refer to such foods as most roots, dried legumes and grains. In the uncooked state, these foods can be highly irritating as well as obstructive to free passage of the fecal residue, a condition which leads to packing of the canal with accumulating amounts of dried obstructive fiber, making the walls more or less rigid (the "piped" colon) and laying the groundwork for putrefaction and fermentation of contents. Obviously, too, the high cellulose content of the mentioned foods prevents complete digestion and interferes with absorption of nutrients that may be present in the foods.

We note that the fiber content of the foods generally conceded as being most acceptable to man's digestive capabilities is quite low as, for example, in fruits, the perfect human food. Even so, persons who subsist largely on uncooked fresh ripe fruit do not suffer from constipation but, to the contrary, have regular and sufficient fecal exodus. When the foods that are best adapted to man's requirements are eaten, the fruits, the leafy green vegetables and perhaps a few nuts and edible seeds, and these are well masticated, we note that the digestive process extracts a maximum quantity of nutrients from the food and leaves most of the cellulose behind intact and this is then readily eliminated.

The ingestion of any unwholesome food, whether it is cooked, processed, or improperly combined will eventually result in systemic toxemia. This unwelcome state of ill health affects the entire organism since the body reacts and functions as a whole.

The body may be thought of as a unified structure working in harmony to maintain health. All bodily functions will be affected by the toxemic state and this includes the large intestine. Thus, constipation is a common result which we bring upon ourselves by eating cooked or otherwise denatured foods.

However, when raw fruits and vegetables are eaten in the presence of true hunger, all bodily functions will proceed unhampered and the digestive process also proceeds perfectly.

Dr. Vetrano cautions us to follow our instincts and eat only when true hunger is present for proper digestion of our food. She says, "When you are truly hungry the exact quality and quanitity of salivary and gastric enzymes are secreted for the amount and kind of food eaten and the body moves the food along the gastrointestinal tract fast enough for proper digestion yet slow enough for maximum absorption."

We must not think of one particular food to move our bowels or another food to improve our vision, etc. The proper food will provide the correct conditions for the human body to carry on *all* of its functions and health will be the natural result. When the entire organism is healthy, so will be the bowels and the body will eliminate all of the waste products of metabolism along with the food fiber.

We had a client not too long ago whose lower GI X rays were remarkable. She had a piped ascending colon that was fully three inches across, the transverse colon had fallen and was U-shaped. It, too, looked stuffed with debris while the descending colon was twisted, gross-looking. Her dietetic history revealed that she ate the usual cooked American fare. Undoubtedly, the silent nerve pain channels had been well etched over many years. Just over 40 years of age, she now sees the evidence of 40 years of intestinal mismanagement, of eating so much cooked food and most of it of questionable quality. It will take considerable time to undo the damage, if it is even possible. However, there is some evidence of improvement. She had been unable to have normal bowel movements for over 12 years and is rejoicing in the fact that she is now able to have a normal, unassisted bowel movement once or twice a week. Occasional short fasts to permit rest and healing of her abused body followed by the gradual introduction of more and more uncooked foods, especially watermelon, plus a few leafy vegetables and a very small allottment of nuts three times a week have been instrumental in her progress. Her progress might have been more rapid except for the fact that this client had a tendency (as many do) to regress and, at such times, her commonsense and new knowledge fell victim to habit and she would indulge in the old ways. Fortunately, as time went on, the periods of regression became fewer although even yet they occasionally reassert themselves. We are confident that the day will come when she will have much improved digestive and eliminative powers although it is doubtful that she will experience full recovery since her colon and other organs have been extensively damaged both structurally and functionally, although we must emphasize that we should never shortchange nature. She can often surprise even the most experienced practitioner!

If we are presently not eating an all raw food diet, it would seem, from this discussion, the better procedure to change as quickly as possible to this more healthful way of eating. The body will then respond favorably and total well-being will be the result.

Every food intended for man has its required proportion of largely indigestible cellulose fiber. It is important that we consume our food in its natural state and not cooked, juiced or blended. Dr. Vetrano explains that, "If the food is whole—unjuiced, unblended and uncooked—like wild animals take their food, it will occasion the flow of more digestive juices than if the food has been separated from its fiber content or if the fiber has been excessively macerated. When the natural fiber touches the walls of the stomach, it occasions much more gastric secretion than were it in the form of juice or in the form of a blend."

Dr. Vetrano further states that such practices as cooking, blending or juicing affects the fiber content which is necessary for the proper movement of food through the digestive canal and for the stimulation of the secretion of normal digestive enzymes.

However, we must keep in mind that it is not the fiber alone which ensures health of the digestive canal. It is a proper diet combined with all of the other aspects of a Hygienic lifestyle which will result in health of the entire body and all of its functions, including digestion. By following all of the principles of Life Science, the body will be free from toxic overloads which result in constipation and other disorders.

2.6 Cooking and the Minerals

There are many factors that alter and destroy the mineral presence in foods. One of the most destructive of the various processes which precede the actual cooking process itself is the paring and cutting of foods. In many foods, especially the fruits, the greatest concentration of minerals is found in the skin or peel and these are often totally discarded when foods are peeled as, for example, apples or the tuber, the potato. Some foods have high concentrations of minerals stored directly *under* the skin and these, too, are often removed in peeling. There are foods, of course, which must be pealed before eating, such as the banana and many citrus fruits. All nuts require shelling. However, in considering the foods best adapted to man, by far the greatest number can be consumed whole and require no peeling whatsoever.

The cutting, shredding, chopping, etc., of foods prior to cooking exposes a larger surface to mineral loss and, if foods must be cooked for one reason or another (for example, in very debilitated cases), then it would appear best to cook as many foods as possible whole in order to minimize such loss.

Boiling is the poorest method of all. it is highly destructive of minerals. One can illustrate this fact very easily. Place some carrots or other deep yellow or deep green vegetable in a pan. Add water to cover and bring to a boil. Boil for two or three minutes and then decant the liquid. The water will appear colored, either yellow or green, indicating that many nutrients including the minerals have been dissolved in the liquid and are no longer contained in the food being cooked. The mineral loss will, of course, be greater when the foods have been cut prior to placing them in the water for cooking. According to the *Journal of Home Economics*, Vol. 17, No. 5, the average loss by boiling in foods is:

Iron	48%
Calcium	31.9%
Phosphorus	46.4%
Magnesium	44.7%
From the potato, total loss	50%
From the cabbage, total loss	40%
From the Carrot, total loss	30%
From the apple, lost by peeling, boiling and	50%

coring	

2.7 Demineralization Processes

Dr. Shelton tells us that mineral loss from foods by cooking is accomplished by the following means:

1. By Leaching: the minerals are carried out in the food's own juices which then run out into the surrounding liquid.
2. By Volatilization or Evaporation: Certain minerals, iodine and sulphur being prime examples, will "bubble out" from certain foods upon the application of heat. In the process of pasteurization of milk, the loss of iodine can amount to as much as twenty percent. Any time a person can smell cooking odors, he knows that nutrients are being lost.
3. Chemical Alteration: Certain mineral salts contained in foods are changed chemically by the application of heat, so much so, in fact, that they become biologically unavailable to the body. Pasteurization of milk, for example, changes the calcium in milk from its organic form to an inorganic molecule which is completely useless to the human economy.. In the green leaves of plants, in fresh ripe fruits, in the edible nuts and seeds are found all the minerals deemed necessary to preserve health and to extend life in health. It must be understood, however, their usefulness does not depend solely on the presence of a sufficient quantity and variety of minerals alone, even though all, other nutrients are also present; but, largely upon the proportion of all these vital nutrients to one another and, most particularly to the presence of the organic mineral molecules and to the ratio between the acid carrier elements and the alkaline mineral elements. We refer, of course, to the acid-alkaline balance. With the unavoidable mineral loss that ensues whenever food is cooked, the possibility exists that this balance can be disturbed so much that an acid-alkaline imbalance will result (acidosis or toxicosis).

2.8 The Mineral Presence

Mineral elements comprise less than five percent of our body and only about one percent of the weight of cellular protoplasm. However, minerals are essential to all metabolic activities. Their presence is required to sustain the alkalinity of body fluids; they are required for structure, in healing and for repair.

Our body requires a great variety of minerals, some more, some less. Some of the more common elements like carbon and hydrogen are plentifully supplied by fruits and vegetables; others like potassium, sodium, magnesium, and other alkaline mineral elements required to maintain fluid alkalinity and salinity are found liberally in fresh leafy green vegetables. In our view, these latter foods should comprise an important part of the dietary intake. The important micro-elements, the so-called trace minerals, including iodine, chromium, zinc, molybdenum, manganese, copper, vanadium, fluorine, selenium, and so on, are also required but in unknown amounts. These trace elements are required to feed the body's cellular factory production line and to participate in the thousands of actions and reactions that are going on. We require a full assortment of all required minerals to keep us breathing, growing, regenerating, healing; to keep us alive. The dynamic importance of minerals to health is not always appreciated and probably few among us receive our full quota of minerals nor do we receive the ones we get in their original proportionate distribution simply because most people eat largely of cooked food.

Many sick people improve dramatically when they change from the ordinary mixed diet to the vegetarian fare, even though cooked, but when they change to an all raw food intake, they are often amazed at the dramatic results obtained by them within a very short time. It is not only important to know where the food you eat originates but it is even more important to eat that food unfired, replete with all its minerals in their correct proportionate arrangements and combinations prepared expressly for human physiological machinery in nature's grand plant factories.

Mineral deficiencies and imbalances produced by poor food selection and by cooking can lead to many disorders: to general malnutrition, increased sterility, development of homosexual tendencies, body encumbrances of many kinds, concretions, skin moles, blemishes, general debility and weakness, as well as to other diseased conditions.

2.9 Fragmented Foods

Fragmented foods are foods in which certain nutrients are in short supply. To ensure superb health throughout a lifetime, food must contain all the nutrients required for the living process and these elements must be furnished in organic combinations and in certain prescribed arrangements as they have been formulated in natural foods. Life cannot be maintained for long on fragmented foods. Cooking fragments food because, among other things, it disrupts the mineral presence, throwing it out of balance.

Organized by nature, iron, phosphorus, potassium, magnesium, sodium, potassium and all the other minerals contained within the highly organized molecules of foods can be digested, absorbed, transported and assimilated with highly beneficial results. Cooked, fragmented, demineralized or mineral-poor foods create problems for the digestive process, problems which lead to imperfect processing all along the nutritive chain. A life sustained on cooked mineral-poor food will be plagued from time to time by both minor and chronic diseases; such a life will experience varying amounts of weariness, fatigue, a lack of endurance and strength and will be shortened commensurately with the existing mineral deficit.

A diet rich in its mineral content, unfragmented by cooking, on the other hand, means smaller quantities of food must be eaten, fewer waste products with quicker elimination, improved endurance, greater strength, the maintenance of a proper blood viscosity and alkalinity, clean fluid channels, together with excellent general health, both physical and mental.

As Life Scientists we must understand that no proximate food factor alone is capable of sustaining vital force and further than this, that fragmented foods, even though they may contain many or even most of the required nutrients, are also incapable of sustaining life without creating deficiencies which, in the final analysis, are destructive of some measure of health. When we choose mineral-rich foods and then eat them uncooked, masticating the foods well, we then will provide our body with the best raw materials to produce healthy cells and tissues. We can eat twice the quantity of cooked fragmented food and yet not obtain an equivalent amount of biologically available mineral wealth nor can we be sure to obtain our full requirement thereof.

2.10 Cooking and Enzymes

Perhaps the greatest argument against the practice of cooking lies in the fact that heating any food above approximately 122 degrees Fahrenheit destroys the food enzymes. Water boils at 212° so we can readily see that even the application of comparatively low heat can destroy the enzymes.

Enzymes present in fruits and vegetables play a vital role in the metabolic activity of the plant cells. They are complex proteins formulated in and by the plant cells from primary inorganic elements soluble in water and taken up by the roots of the plants and by the combined action of sun and air they become incorporated into the cellular plant community.

Like all other proteins contained in foods, the chemical structure of the complex enzyme molecules is changed by the application of heat and the catalytic force destroyed. Cooking will kill food enzymes just as effectively as an excessively high body temperature will cause us to burn up. Heating food effectively stops the vegetable metabolic action. In other words, when heat is applied to a plant in excess of 122°, the life force of the plant comes to an abrupt end.

When raw food is eaten, the food enzymes remain intact. Just like the protein in the food, the enzymes are digested in the stomach and become a part of the nutritive package offered up by the particular food, fruit or vegetable, nut or seed. Humans have the ability to manufacture their own cellular enzymes from the nutrients transported to the cells in the fluids of the body. Thus, if we supply ourselves with adequate amounts of suitable kinds of raw foods we will more easily and thoroughly digest our food, we will absorb a goodly quantity of nutrients to supply cellular needs and we can then formulate the required human enzymes, as the need arises.

However, when we eat cooked food we then fail to supply the wherewithal to manufacture our own enzymes and, if we remember that enzymes activate and control all the chemical actions and reactions within the cells and regulate the energy output for all physical and mental activity, we can see just how important the enzyme presence is to the continuance of life.

Adjustment by the body to the eating of cooked enzyme-poor food is always done at the expense of vitality, endurance and strength. However, many persons are afraid they will lose much weight on an all raw diet. This is generally true, but only in the early stages as the impurities in the blood and cells leave. After the housecleaning has been well taken care of, the lost weight is usually regained in short order. John Richter, author of *Nature—The Healer*, found this to be true. In fact, like most people, he first lost considerable weight and then regained all he had lost plus a few additional pounds. In the process, he regained his health, reporting in at 84 years of age to be totally without aches and pains of any kind.

Earlier in this century a wrestler, by the name of George Hackenschmidt known as the Russian Lion, toured the world competing with all the great iron men of the day. He successfully threw all who dared to test his strength and skill. According to Dr. George R. Clements, his diet consisted of the following:

Breakfast: lettuce and 5 or 6 Brazil nuts.
Second Meal: fresh raw fruits
Third Meal: fresh uncooked vegetables.

Dr. Robert, who eats only very occasionally of any cooked food, went from 212 pounds down to about 108 pounds and then began to add on weight until he reached about 128 pounds, where he has remained now for many years. We might point out that the new flesh gained is good firm, much-healthier flesh, and the weight obtained will be in keeping with body structure. On a hygienic regimen complete in all particulars, including a totally raw food intake, both the obese and the underweight tend to return to a healthy weight, normal for them.

Enzymes are the life principle and when they are lacking, their absence will soon be felt. When our food is vital, our bodies respond and we also become more vital. The destruction of enzymes by the application of heat may result in toxicosis and digestion is thus delayed or incomplete. In any event, we have long known that animals fed solely on a diet consisting of cooked food soon sicken and die while those fed their natural food and uncooked, thrive generation after generation. It may be well that the unique talent of enzymes to catalyze chemical reactions at low temperatures serves to conserve body energy and time not only in the cells but also in the digestive tract itself. Certainly the enzymes servicing the alimentary canal act in this capacity.

2.11 Cooking and Proteins

Every step taken to prepare foods for cooking and also the actual cooking process itself produces changes in the nutritive value of the food. Protein content and value is no exception for it, too, is affected profoundly by the application of heat.

As the student has already learned, the protein molecules are very complex, so complex that they are known as "macromolecules." When these macromolecules are subjected to heat, they are chemically changed, becoming less digestible in most instances. Egg white is an exception. The albumin in egg white is indigestible raw and quite indigestible when completely hardened as in hard boiled eggs. However, when slightly curdled as in poached and very softly boiled eggs, the egg white is most digestible.

Meat protein undergoes important changes beginning at about 147 degrees in some instances as with fish, for example. If one is frying fish, one can observe a "leakage" of fluid begin at just about that temperature and, by the time a temperature of 151 degrees Fahrenheit has been reached, the pan will evidence considerable fluid in it and the texture of the fish will have changed having become quite dry and also less digestible, the protein having been coagulated and rendered less soluble, the water having been removed by the increased temperatures.

Beef and lamb are more easily digested raw than when cooked.

With these two meats the protein starts to harden at temperatures above about 150 degrees and at 160 degrees has been hardened. One time we were the only passengers on board a Dutch freighter which we had boarded in the harbor at Marseilles for a trip across the Atlantic where we were to study eating habits among the island people in the Caribbean. We ate with the captain and officers and observed that the meats served were cooked only to a depth of about one-quarter inch with the rest of the meat, usually beef, oozing blood. Many cultures in Europe we found eat lightly of meat, serving it mainly in very small portions and well cooked, as in various stews, but the Dutch, apparently like their meat in large quantities and almost uncooked. The only meats we observed being well cooked on that voyage were bacon and sausage.

If one examines a typical protein molecule as might be found in animal protein, one can observe various NH3 groupings, the N indicating nitrogen, the H, hydrogen. These are known as amines. In cooking and especially in the presence of water, these amines are replaced by an hydroxyl grouping, that is by an OH group, the O being the symbol for oxygen. These OH groupings cannot again be replaced by NH3 by any mechanisms present in the human body. This is why the cooked protein becomes useless. In some methods of cooking, it is believed that certain amine groups are actually split off even though no water is used in the cooking.

Certain proteins contain sulphur in their molecules. In the presence of water, this sulphur can also be split off. Cystine, an important amino acid which contains some 27 percent sulphur, is a typical example. Sulphur is found in all members of the cabbage family and it plays an important role in the human body as a disinfecting agent. The student will observe that in cooking members of the cabbage family, one can often be aware of the smell of sulphur as gases leave the cooking utensil. What is left is an inorganic molecule made up of inorganic atoms, which are useless to the economy. Cystine is an important element in the formation of red blood corpuscles but not a desulphurized changed cystine, but the whole organic molecule.

The vital factors, the complete amino acids, are destroyed and rendered useless as food factors to the precise extent that they are destroyed by the heating process. Methionine, another important sulphur-containing amino acid, is similarly affected by cooking. This amino acid is an important constituent of the body serum, of hemoglobin and of tissues. We can see how cooking such methionine-containing foods as Brussels sprouts, cabbage, cauliflower, kale, pineapple, apples and Brazil nuts could render their constructive values almost useless.

Similar modifications in structure occur with all the amino acids in cooked proteins, essential and nonessential. When we consider the vast complexity of these molecules, we can appreciate perhaps more fully the value of retaining the original organic structure. It is difficult, if not impossible, for the human body to build its own protein if it must first untangle an inorganic mess even before it starts.

Ragnar Berg, the Swedish scientist, reported long ago on research that showed that boiling meat even for a comparatively short time changed the nature of the phosphate presence in protein. Phosphorus is essential to blood and brain building. And yet, how often are the following valuable foods cooked, valuable because they contain generous amounts of phosphorus in them: kale, asparagus, Brussels sprouts, Savoy cabbage, carrots, cauliflower, cucumbers, lettuce, Brazil nuts, walnuts, huckleberries, blackberries, cherries and black mission figs. Many of these same foods contain iodine which, on heating, is also changed to HI or hydriotic acid causing damage to the thyroxine presence.

It is interesting in this respect to note the recent release by an "expert" panel of the National Academy of Sciences (as reported in the public press on June 17, 1982) in which, for the first time, it is acknowledged that a faulty diet is related to cancer. The panel urged people to increase their consumption of fruits and vegetables and especially of members of the cabbage family, such as broccoli, cauliflower, kale and brussels sprouts which "contain natural cancer-inhibiting substances."

Could these perhaps be the sulphur in the amino acids which are destroyed by the cooking process? Perhaps for the first time this official body has also recognized the importance of an adequate vitamin intake, emphasizing the vitamin C contained in dark-green leafy vegetables and deep yellow fruits and vegetables. As Life Scientists we, of course, know that cancer represents the end-point of a long and involved biological evolution, one made operational by a multitudinous number of physiological insults, a faulty diet being one.

The more the complex molecules of protein are heated, the more changed is the colloid form. The water-containing colloids (called hydrophilic) are converted into water-reduced colloids (hydrophobic). Unfortunately, perhaps, the human liver is designed to accomodate only hydrophilic colloids. After hydrophilic protein colloids are processed by the liver, the waste products can be neurtralized very handily by the sodium stored in the liver for just such a purpose and then can be flushed out as sodium salts, carried out of the body via the bile and feces. The kidneys take on the remaining nitrogen wastes which are flushed out in the urine as soluble urea.

Heating proteins, because it alters the protein molecules, makes them more subject to putrefaction in the intestines, a decaying process which, over the years, can lead to grave disorders of many different kinds according to inherited individual strengths and weaknesses and, of course, to the general overall profile of the individual, both as to his eating habits, past and present, and to his lifestyle, past and present. Past indulgences must have left their imprint.

Dr. Kouchakoff discovered that cooked meat causes a tremendous proliferation of white blood cells in the bloodstream, the increase being two to four times the normal. The body produces these white blood cells for a purpose: they surround toxic particles and then escort them to the nearest exit point, usually the kidneys. We note and it is so recognized that leukemia is always associated with an extremely high uric acid reading in the blood.

In all likelihood, other components than protein are also affected and reduced to a lower inorganic state, less useful to the cellular community. We have already noted a few. The experiments performed on cats by F.M. Pottenger, M.D. and D.G. Simonsen at Yale are well known but deserve repeating here to emphasize the harm cooking can do to proteins so essential to growth, building, healing and repair. In these experiments the cats were divided into two groups. The group that received all uncooked food lead normal lives and remained healthy through several generations, in fact until the termination of the experiment. The other group, fed only on cooked food, rapidly failed in health and members of the second and third generations lost all ability to reproduce. The members of this group suffered from diverse diseases including "softening of the bones, paralysis of the legs, thyroid abscesses, convulsions, cyanosis of the liver and kidneys, an enlarged colon, degeneration of the motor nerve ganglion cells throughout the spinal cord and brain stem, with some cells even affected in the cerebellum and cerebral cortex." Do we not observe similar conditions among our friends and neighbors who eat consistently of cooked foods? Certainly, we are observing considerable deviation from normal sex habits among both sexes and among women, especially a departure from biologically normal female instincts (some lessening in devotion to the raising and protection of the young they have brought into the world, and increased lack of desire to bear children, promiscuity, and so on). An increased number of males fail to provide for their offspring Many of both sexes have become either homosexuals or sterile. While other influences are no doubt causative here we cannot but help believe that the evidence of the cat experiments points an accusing finger at the tendency to emphasize cooked food almost exclusively in our dietary habits. Because of the high temperatures, cooking by boiling, frying and by pressure cooker are particularly destructive of the important amino acid molecules.

It takes many generations to affect conclusive, results— two to four in the cat experiments. The human race has been eating cooked food now for a long time and in increasing amounts. We are no doubt witnessing the evil effects of this practice and are apparently helpless to stem the tide of disease among our peoples. Someone has well remarked that it is the uncooked molecules in the food we eat that maintains life. The only hopeful thing we see at the present time is the growing interest in sports and the interest many of our young people express in the study of nutrition, especially in natural hygiene.

2.12 Cooking and Fats

Cooking fat-containing foods renders the fat and the foods less digestible and, in some cases, even highly toxic. Foods fried or cooked in fat and all foods with a high-fat content are more or less difficult to digest depending on the quantity of fat present and the temperature at which it is cooked. The free use of fat, cooked or uncooked, encourages digestive disorders mainly because its digestion must wait until it passes out of the stomach. The fat, when mixed with other foods, has a tendency to form a coating over the other food particles and the digestive juices and enzymes have difficulty penetrating this coating. This difficulty is augmented when the fat has been heated. Additionally, the fat coats the lining of the digestive tract impeding free secretion of digestive juices. But, that is not the end of our difficulty with fat. The fat will form around the individual complex food molecules preventing resolution into smaller elements; in other words getting in the way of the necessary chemical separations. Putrefaction of protein substances and fermentation of carbohydrate molecules are a natural sequence.

Fats, as found normally in nature's food packages, need not be avoided but, even here, one can overindulge as many do, eating too many avocadoes and snacking on nuts at all hours. It seems that many hygienists are guilty of the last. They do not seem to understand that every time we put anything into the oral cavity, we put the wheels of digestion, absorption, transportation and assimilation into motion, we activate every organ and system in the body and waste our vital reserves by so doing.

The application of heat to fats breaks them down chemically into fatty acids which are nonassimilable and, consequently, these become free-floating poisons in the body fluids. Experiments on animals have shown heated fats to be carcinogenic to the animals. As Life Scientists we know that cancer is an end-point reached after many indiscretions, and is not caused by a single isolated factor. However, we also know that fats (triglycerides) are responsible for body balance of the metabolic processes working with the nervous system. High triglyceride count slows the utilization of minerals causing excess mineral build-up and depression of the nervous system communication capabilities, a state certainly capable of confusing the entire system's operational accuracy.

In September 1976, the Washington Post reported on the dangers of increased fat intake and especially of cooked fat, as shown by the research of an Australian scientist, E. Bruce K. Armstrong of Perth Medical Centre. It was reported that women eating diets rich in fat and especially in animal fats apparently showed an increased risk of developing womb cancer, often localized in the lining of the uterus. This was of great interest in the U.S. since the incidence of this kind of cancer among women was shown in 1975 to be the highest among 23 countries. Our daily fat consumption at that time was fourth, and, as students well know, most of this fat was cooked fat.

Armstrong also cited studies that showed a close correlation among endometrial cancer and breast cancer and colon cancer, both of these last cancers being suspected of having a cause-effect relationship with fat consumption. Armstrong cited studies dating back to 1958 linking obesity to endometrial cancer, but emphasized a 1973 report which suggested that dietary fat displays larger role than sugars and starch in causing this disease.

In a 1975 survey of 23 countries, it was shown that the per person daily consumption of fat was listed at about 150 grams in the U.S., compared with about 40 grams in Japan and Nigeria. The rate of endometrial cancer in women was 34 per 100,000 in the U.S. and only about 5 per 100,000 in these two countries. Certainly these studies seem to support the conclusion that excess fat consumption, and especially cooked fat, may well be one of the causative factors which, added to multitudinous other physiolgical insults, can lead to the biological evolution which terminates in cancer.

A number of witnesses before the Senate Select Committee on Human Nutrition and Needs have testified to the epidemiological evidence correlating dietary imbalances to increased cancer incidence and most, if not all, have pointed an accusatory finger at excess fat which is heated fat. We have also observed in this lesson that heating food disturbs and, in some cases, destroys minerals, vitamins and enzymes, creating imbalances not only in the food but in the person who eats that food.

Dr. Gio B. Gori, deputy director of the National Institute of Health's Division of Cancer Cause and Prevention, told the Committee, "The role of nutrition in human disease is obvious, and no other field of research seems to hold better promise for the prevention and control of cancer and other illness, and for securing and maintaining human health." As Life Scientists, surely we can say, "It's about time!"

Certainly we cannot long have a viable nation when its children and adults eat a diet well laced with cooked carcinogenic free-floating fatty acids. Dr. Gori said that there is a need to reduce the intake of foods rich in fats and specifically named meats and milk. Few people eat uncooked meat and most drink liberally of pasteurized milk (heated) which has a relatively high cooked fat content.

A report of the Worldwatch Institute, a Washington-based research group, states that "those with an affluent diet consume large amounts of animal proteins and fats in the form of meats and dairy products...and increasingly, they choose commercially manufactured foods over fresh, unprocessed products." It is well known that many of the commercially manufactured products are subjected to high temperatures destroying the normal fat content and rendering it less digestible. It is interesting to know that the fat-heavy American lifestyle is rapidly replacing the former heavy grain-potato-fruit-oriented diets of the countries throughout the world. In our earlier trips to Europe we became familiar with the small family-oriented markets with their beautiful displays of fruits and vegetables brought in early in the morning from the surrounding nearby farms and orchards. On more recent trips both to Europe and "down under" we have noticed fewer and fewer of these markets. They have been supplanted by supermarkets, a la U.S. style. These brightly lighted and beautifully appointed showplaces display a greatly augmented array of meats and the familiar over-processed devitalized foods so common in the American dietary. As our dietary practices expand so do the world's ills. Life Scientists should remember that fats are the most difficult of foods for the body to digest and they become even more dangerous when heated. Those persons who eat excessively of fats and especially of cooked fats, as in barbecueing and deep frying, place themselves in a hazardous position exposing themselves, as they do, to certain known carcinogens. We should eat as little fat as possible remembering that fat contains twice the food value be weight of all other types of food and, additionally, makes one vulnerable specifically to cancers of the uterus, breasts and prostate gland—in males.

The National Academy of Sciences has also noted that, in those countries where consumption is high of such foods as smoked sausages and fish, ham, bacon, frankfurters and bologna to name a few, that cancers of the digestive tract are also common. All of these products (we cannot call them food) are high in fat content and all are eaten after being subjected to heat. The presence of certain additives in most if not all of these same foods, such as nitrates and nitrites, with the subsequent formation of nitrosamines and ploycyclic hydrocarbons, only adds to the health hazard of the fat.

And finally: we need so little fat! Just enough to pad and protect us. When and if we require additional fat, our amazing bodies can synthesize it from carbohydrates and proteins. Nature puts very little fat in man's perfect food, fruits, and that should certainly tell us something!

2.13 Cooking and Carbohydrates

Carbohydrates are no exception. Cooking renders all starches indigestible. It was long believed and still is by most people, that cooking renders starches more digestible. The ability to digest starch thoroughly depends on the general digestive health of the individual. One person will experience no difficulty in digesting starch, cooked or uncooked, while another, with less digestive power, will be able perhaps to digest cooked starch but will suffer from gas if he eats raw starch, due to fermentation of a residue of undigested starch.

Some scientists have maintained that cooking changes starch to dextrin and, since dextrin is easier to digest than the more complex molecules of starch, this was the rationale behind the assumption that cooking would render starch more digestible. True, starch will be converted and if it is maintained for a sufficiently long time. In ordinary cooking, only a very small percentage is so changed. Additionally, when we attempt to dextrinize food starch prior to eating, we interfere with the salivary amylase which normally acts in the resolution of starch. If starch foods are boiled and become saturated with water, the enzyme ptyalin, the active enzyme in saliva, will be powerless to affect any change from the poly to the disaccharide formulation, certainly a circumstance that will almost ensure fermentation along the alimentary canal, with the formation of such products as carbon dioxide gas, various alcohols and acetic acid (vinegar).

Eating cooked food causes persons not to masticate their food thoroughly. It is moist, giving the impression that it should be swallowed. The imperfect and short mastication time interferes with the digestive process along the entire alimentary canal due to the fact that the nerve communication channels are not kept open long enough to permit the inner stage to be pre-set in the three digestive departments in a correct arrangement before the arrival of the food requiring digestion.

On the other hand, the thorough chewing of food, and especially of starch food, gives sufficient time for message transmission and for adequate secretion of both enzymes and juices prior to the time of arrival of the food, resulting therefore in a more thorough resolution of the starch into primary molecules.

As a sidelight of interest here we might note that raw cabbage digests in two hours whereas it requires four hours if cooked. Most persons can eat raw cabbage, but few can eat cooked cabbage without experiencing distressing symptoms. We can note also an unnecessary energy drain on the system due to the extended time required for thorough digestion. If we desire health, we have to avoid such unnecessary energy loss.

Toasting and baking "to a nice brown color" forms charcoal (carbon) as well as other harmful products contained in the baking foods. Such products have been shown to have less food value overall than the soggy inside portions which have not been subjected to the high temperatures required to produce that nice brown color.

Phosphorus acts as a carrier to transport digested carbohydrates to the liver for conversion to glycogen which then can be stored both in the liver and in the muscle tissues for use in emergency situations. Adjustment of a proper intestinal pH to a rather strong alkaline balance is necessary for thorough and a more complete digestion of complex carbohydrates such as starch. The change in composition of the molecules after heating necessitates a different pH in a number of cases, not always possible for the organism to provide. Very high temperatures are required to change most sugars but the sugar in milk is changed in the process of pasteurization and is rendered less valuable, even though the heating temperature is relatively low.

2.14 Some Specifics

Cooked starches are difficult to digest primarily due to the hydrolysis of the starch in the cooking process. The hydrolyzed starch is subject to easy fermentation giving rise to the formation of acetic acid (vinegar) and the other byproducts already mentioned. One of the harmful effects of acetic acid is that it has a tendency to leach out the body's phosphorus and to stimulate the thyroid gland. As we have previously observed in Lesson 39, there is an intimate relationship among all the members of the endocrine system so it is not a surprise to learn that, as the phosphorus becomes depleted, the performance of the adrenal glands becomes less perfect since phosphorus is one of the active components of the adrenaline hormonal secretion. Thus, we have dysfunction of both the thyroid and the adrenals and, no doubt, of other hormone-secreting glands.

It is little wonder that those persons who depend for a large measure of their substance on cooked starches so often experience headaches, throat congestion, mucous expectoration, pains in the heart, sour eructations, body odor, frequent chill and rapid pulse. It can most surely be said that such a diet, if long continued, will lead inevitably to hyperthyroidism and hyperadrenalism.

2.15 Cooking and Baby Formulas

Oliver Wendell Holmes once said that "a pair of substantial mammary glands has the advantage over the two hemispheres of the most learned professor's brain, in the art of compounding a nutritious fluid for infants." Nature has provided an infant with an intestinal tract which will mature as the infant grows. This maturing process is a slow evolutionary process and, during the growing and maturing years, the diet must be fitted to the equipment provided and not the other way around!

At no time in the progress from birth to childhood to puberty to adulthood are the digestive organs designed to handle cooked food. The stools of an infant fed on the milk provided by a healthy mother will be soft, nonirritating, easily defecated and sweet-smelling. The stools of the young child, of the young lad or young woman and of the adult will remain always in the same, much-to-be-desired state indicating healthfulness when the constant fare is uncooked, well chosen, properly combined and eaten according to need. Why? Because we have the equipment within us to properly process food designed for the human body and also the equipment to dispose of normal metabolic wastes. It is only when we depart from the ways of body correctness that we begin to suffer from the effects of our departure and in a precise relationship to such departure. Anything cooked has changed in it's chemical composition, its nutritive values have been deranged and the products of such change and derangement brought about by heat or by any other abnormal method, practice or substance, are always pathogenic. Cooking of the food supplied to an infant begins the wholesale destruction of health from the very first moment that food is eaten.

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3. Consequences

A high-protein diet plus overeating plus bad food combinations plus cooked foods plus animal fats, all cooked, of course, will always result in poor digestion, absorption, transportation, and assimilation. Such practices will result in excessive mucus, thickening of blood vessels and of the fluids, derangement of the lymph and blood fluids as, for example, an increase in viscosity (thickening), formation of plaques in the blood and concretions (accumulations of precipitated overload, as of uric acid, for example anywhere they may be dumped to get them out of the way, as in a joint); plus a host of other annoying and dangerous symptoms of systemic poisoning. All such derangements tend to alter homeostasis within the body.

We are not by design fat eaters, as we have said. The human body will meet most of its fat needs by synthesizing its own body fat from the sugars supplied by fruits. Remember that fat is composed of carbon, hydrogen and oxygen. Fruits contain exactly these same elements only in a different arrangement. The human body has the ability by means of catalytic enzymatic action to disorganize the sugars of fruits and then rearrange the released elements into the kind of fat which will suit its own specific needs at the moment. Fat taken as either an oil or as a solid fat presents problems at all levels and especially when it has been cooked. This kind of fat really just passes on through the stomach because that organ just can't process it. Fat is even very difficult for the intestines to manage, it is difficult to absorb and once it arrives at the liver, fat becomes a major concern to that organ, too.

Consider, in contrast, the sugar trip: almost no digestion required in either the mouth or stomach (it is all pre-digested and in a travelling molecular formulation), it is quickly absorbed because the molecular structure just fits into the membranous passage mechanisms and it passes easily through the cells lining the alimentary canal, it is greeted cheerfully by the liver which rejoices in a 90 percent gain of energy after fully discounting the energy loss of digestion, appropriation and assimilation and the transportation, and so proceeds happily to convert the sugars into glycogen for storage or to make the glucose available for the maintenance of body temperature and energy; and, if required, to restructure the primary elements into body fat. Thus, uncooked sugar-rich fruits are welcomed by the body while fats, cooked and uncooked, yield few, if any benefits to the organic domain.

3.1 Cooking, the Teeth, the Mouth, and a Forever-Young Face!

There are two main considerations here, namely: the effect of heat upon the enamel of the teeth and secondly, the effect of poor mastication on the mouth and facial muscles.

The enamel on the teeth is a species or organic crystallization. It is by far the hardest substance in the human body, made by a precise magnesium-calcium arrangement. However, this crystallized material can be rudely cracked with hairline invisible fractures in the process of masticating very hot foods. These hairline fractures in time develop into dental caries. This may well be a significant cause of the high incidence of dental caries in this country, in excess of 98 percent even in children and almost 100 percent among adults, few of whom retain their full quota of teeth after the age of fifty, with many wearing dentures. Diminished health inevitably follows after the loss of teeth.

As to the second effect evidenced by poor mastication: cooking food encourages a person to masticate his food too little, to swallow it too fast, and to eat too much, all effects which have serious implications with regard not only to the health of the digestive apparatus because it is not well exercised and/or properly cleansed, but also to the general health of the entire body due to improper nourishment; but also to the health of the teeth.

When raw foods are eaten and eaten in their natural state (that is, unchopped, unshredded, and so on), the teeth are required to perform their full function and, as they regularly and dutifully perform, they are strengthened, just like any other exercised tissue, organ, or part. If they are not used properly, the teeth will weaken just as any other unexercised tissue, organ or part will weaken. Graham (Sylvester Graham, "Lectures") makes note, of the fact that if we become accustomed to masticating food only on one side of the mouth and do not make use of the teeth on the other side, within a very few years the unused teeth will begin to decay and the gums will become tender and, in time, a certain number of the unused teeth will be lost, while the teeth on the other side where chewing is performed consistently will remain sound.

Uncooked food, in contrast to cooked food, requires thorough mastication, especially when it is eaten without drinking any liquid during the mastication process (as it should be). Eating raw foods helps to cleanse the teeth and will tend to maintain a high level of dental health; but, not only sound dental health, but also the health of the mouth itself because full mastication of raw foods requires vigorous muscular exercise of all parts of the mouth including the tongue and all lymphatic tissues.

Whatever disturbs the function and causes a general irritability of the nervous system will lessen not only the health of the teeth, but also the health of the entire mouth. Insufficient mastication over the years gradually brings about a diminution of secretive ability. Saliva production falters as does enzyme production with a resulting lessening in the ability to process carbohydrates in the initial first stages so important to their complete digestion. If food is cooked to the soft, pulpy stage and is then consumed hot, tartar begins to build up on the teeth. The gums soon become soft, losing their tonus. The mucous membranes and muscle tissues of the mouth remain poorly exercised because all cooked food is so easily swallowed and people are deceived into thinking it is ready for the stomach, if they think about it at all. This imperfect mastication and insalivation obviously creates chemical and physical problems for the stomach and, indeed for the entire alimentary canal.

Muscles that are not well and consistently exercised become flaccid, limp and, if not exercised at all for a sufficiently long period of time, even atrophied. Many people today have wrinkled faces largely because they eat of so much devitalized cooked foods which they swallow so easily after insufficient mastication. Thus, they rarely, if ever, sufficiently exercise these facial muscles. About the only exercise they get is when the individual speaks and even then, the exercise is very limited and for too short a time to be of much benefit.

But, to the contrary, watch a true Life Scientist at his meals. He chews and chews and chews while all the while the saliva pours out, the teeth are cleansed and the gums, membranes and facial muscles participate fully and, in the doing, retain their elasticity and tonus, remaining forever young and wrinkle-free. Life Scientists do not require creams or lotions for facial plasticity nor face lifts to give the illusion of youth.

3.2 Overeating

Eating cooked emasculated foods leads to overeating simply because a large quantity must be consumed to satisfy the system's overall nutritive requirements even though this is rarely accomplished in all particulars. Consequently most people who eat of cooked food are actually burdening their stomachs and other organs with three or four times more food than would be required to supply the same amount, if not more, of nutritive factors if uncooked foods were eaten and these in a more appropriable form. It is our belief that this one fact alone serves to drain the vital force reserves as the years go by because the mere quantity of food consumed requires energy and reserves for a time-consuming and more difficult digestion to take place, energy which might better be conserved and held in reserve for an extension of the life span. It is little wonder that drained energy reserves cause man's vitality to decline noticeably at forty and that only a handful of those persons who began life are still around at 70 when they should be perfectly capable of living heartily and in health probably far in excess of 100 years.

As Life Scientists we need to be aware of the fact that the usual food intake is not an index to the normal needs of the body, but rather to "the morbid cravings of a perverted appetite. The quantity of food consumed...is by no means a safe indication of the physiological requirements of the body...Civilized man lives to eat instead of eating to live...until after years of overindulgence, they find themselves in the grip of chronic disease.

Almost all students of this subject are in agreement that man has always had a tendency to overeat and that this tendency is, beyond all question, decidedly the greatest source of disease and suffering and untimely death to man. Even if we eat wholly of uncooked natural food, we must guard continually against this tendency. Countless numbers of experiments have proved, beyond a shadow of a doubt, that eating a minimum of food to satisfy systemic needs is a life-extender while eating in excess is a life and health destroyer.

Even if we eat wholly of uncooked natural food, we must guard continually against this common tendency, but obviously the danger is vastly augmented when an individual overeats on damaged food, food that has been cooked, its vital elements altered. Then, we break down, wear out and prematurely age all our organs and systems; our muscles stiffen, our bones become brittle and we begin to look curved, bent, wrinkled and old.

3.3 But I Like To Eat Some Cooked Food!

Well, we tell our clients, "It's your choice!" We know that a high degree of heat applied to food for any length of time will greatly reduce its nutritive value. There is no argument here. We must decide if we will settle for less when optimum is best.

Not all of the value of food will be destroyed especially at lower temperatures. If cooking is done in a restrained fashion at lower temperatures and for only a brief period of time, so that the organic salts and other nutrients are not totally destroyed, there will then be no great harm in eating some cooked foods *occasionally*, but let us be fully aware of the fact that when we do eat cooked food we will not be eating ideally nor will be providing optimum nutrient values to ourselves. We must remember that the quality of our body depends on the quality of the food we eat and upon how we eat it and, very importantly, on our restraint in eating.

Almost all artificial food preparation methods create a situation wherein we have a superabundance of one constituent or another, or else some are absent altogether or are present in too insufficient a quantity. The living organism always abhors an imbalance and reacts adversely to it, most often in the form of some diseased state in an effort to protect the integrity (the life) of the individual. Only uncooked plants, perfectly fresh and unspoiled, can provide the correct balance of known and unknown food factors to maintain perfect health. All wisdom dictates that eating any amount of cooked food represents a fool's paradise.

4. Questions & Answers

I would like to have you explain why it is that so many persons can appear to be so healthy in spite of the fact that they eat cooked food which, according to you, cannot long sustain life?

> That is a good question. You see, we all come into the world with an inheritance. It is our legacy from the past. Some of us have huge vitality reserves in our health bank account, others, less fortunate, have a lesser amount; still others possess a bare minimum to sustain life for only a short time. The greater vitality we have, the more value we will receive from the food we eat because our nerve energy allows for greater digestive efficiency. If our vitality has been reduced for one reason or another, we will not be able to digest, absorb, transport or assimilate nutrients with the same degree of efficiency. In time, our vital force will dwindle away and we will become more and more vulnerable; that is, subject to disease because we will become malnourished and enervated. Toxicosis becomes our companion, instead of radiant health.

If we have always eaten mostly of cooked foods, can we change immediately over to eating raw foods entirely?

> I must give a qualified answer here simply because there are many variables to consider. Let me state firmly and without equivocation, however, that nothing but good can come by making a radical and complete changeover from eating all cooked food to eating all uncooked food provided it is food to which your body is adapted by structure and by function, namely, fruits, vegetables, a few nuts and edible seeds. However, not all persons can do so without being subject to certain psychological hang-ups and, if their bodies are quite toxic, to "withdrawal" symptoms of one kind or another. Age is certainly a determining factor. In our practice we find very few elderly people who can make abrupt changes without worrying unduly, even to the extent that their health is adversely affected by their emotional state. In such cases, it is our belief that until the mind has been reeducated, it is better to make changes more slowly. When persons are willing to fast, having come to an understanding of the benefits to be accrued thereby, then, of course, they should fast and following the cleansing of their body, they should immediately become "raw-fooders." But, let us emphasize that, all other things being precisely equal, nothing but good can come from introducing more uncooked food into the dietary regimen, even though the initial steps be small and hesitant. Keep at it. Your entire body will say, "Thank you!"

Dr. McCarter, what is life?

I wish I knew. I'd probably win the Nobel Prize! But, seriously, no one knows this secret. It is locked up within all living creatures. We know certain things that happen within a living cell but we are just beginning to take our first hesitant steps across the membranous barriers via electron microscopes and radioactive isotopes but even our most liberal scientists admit that the inner world of life is still a vast unknown of maybe's and perhapses. Everything that is alive has the power to receive impressions and to react there—from or thereto; it also has the power to reproduce itself and, in the doing, to make certain that LIFE continues. Certainly we know when something is dead, without life; but, to spell out exactly what this phenomenon of life is and what makes it so, is beyond man's knowledge and probably will always remain the Creator's secret.

I always thought the acids in the stomach would destroy all life. Do not these acids destroy the "life" in food?

Let me ask another question in answer to yours. The cells in the stomach, are they not alive? Of course, the answer is "Yes!" But, they are not destroyed by the gastric secretions. Food is not alive in this same sense. Uncooked food, however, should be capable of producing life if it is returned to the soil. For example, we can take a portion of carrot, place it in the soil, water it and see to it that it receives all the requisites of its organic existence and it will send forth leaves and grow. Raw food contains the food for life: enzymes, minerals, vitamins. In other words, uncooked foods contain the essence of life and it is this that is imparted to us when we eat of them and it is this essence that will sustain our own life in health.

If we eat always of raw foods from the day of our birth, will we live forever?

Probably not. Lewis Carrell, a Nobel prize winner, a renowned physician and surgeon, proved that when cells are correctly fed and kept in a friendly environment with proper drainage of wastes, they could continue living and reproducing themselves indefinitely. Perhaps if man lived ideally and always under ideal conditions, he might also live indefinitely in health but it is doubtful that we will ever be able to live under such ideal circumstances. There are too many variables to guarantee life. We are all subject to physiological assaults of one kind or another and each one leaves an imprint, each one subtracts some measured amount from our vital force bank account.

You talk about our vital force bank account? Can't we use some of that vital force and then put it back by proper eating and living?

Probably not. Once used, it cannot be replenished by changing our ways and assuming a more correct lifestyle. However, this does not mean that all is lost. By no means. We will no doubt have a diminished supply of vital force, but we can, by constructive application of principle and devotion to the sacredness of life, learn to use our vital force more efficiently. Most people dissipate fully two-thirds of their quota of vital force by the time they reach the age of thirty but if they learn how to live correctly and to eat foods adapted to the human structure and how to eat that food and to see to it that they eat a minimum (adequate) amount of food, then they will extend their life span far beyond those who continue the common pattern of living and eating.

You talk about using our vitality more efficiently. What do you mean by this and how can we do it?

Let me give you an example. Foods have differing orders of digestibility and it is interesting to know that those foods that are most easily and thoroughly digested are the foods that are best for our health. When we eat a meal which contains meat, potatoes, bread, butter, a vegetable or two and then top it off with a rich dessert, such a meal and its remains after the digestive process has been concluded may remain in the alimentary canal for several days, especially if more food is eaten during the day. This is the common practice and it is exceedingly wasteful of energy because the digestive organs and glands are required to work at full capacity for hours on end trying to cope with such a heterogeneous mixture of food. But, to the contrary, when we eat mono meals, say of fruit, the food will be in and out of the stomach in less than an hour in most cases, and the entire trip from mouth to anus will be travelled and the residual wastes disposed of in less than 24 hours, often in half that time. Can you imagine the savings of energy to say nothing of the increased efficiency of digestion obtained by eating only those foods which are best' adapted to our digestive equipment? We conserve our energy in order to live long and in health.

I had always been told that raw foods contained molds and germs and that this is why it is better to eat of cooked food. Can you address this issue?

Gladly. Germs and molds are made up of protein. They will be digested in the stomach just like any other protein. The only time they will be able to gain a foothold in the digestive canal is when it becomes highly toxic. Then, they find a smorgasborg of food laid out before them and ideal conditions under-which to live. They will, of course, become fat and healthy, reproduce rapidly adding their own toxins to those already present, placing their host's well-being in jeopardy. But, in the normal (and we mean really normal as in "healthy" person, they will simply be digested. Incidentally, the only way to rid the intestinal tract of unwelcome pests is to remove their food supply since all living things require food. The best way to do this is to fast using only distilled water to satisfy thirst.

Should a person never eat any cooked food?

If a person's stomach is highly inflamed due to past indiscretions and perhaps filled with mucus and catarrh, then he may have to continue eating cooked food but his meals should be simple ones, if he eats at all. It would be far better to have such a person, fast until his alimentary tract has been both cleansed and health and then introduce raw foods one at a time, reeducating his digestive tract and his mind to accept this new way of eating. With older persons who are afraid to fast, we lay out menus to follow which are, at first, made up of all cooked food properly combined and then proceed to introduce more and more uncooked food. We have great success using this approach. They especially seem to adapt well to lightly stewed or baked fruit for their first meal as, for example, a baked apple. After a week or two, we then show them how to make a date sauce made in a blender using raw dates and distilled water which they then pour over their baked apple. They usually accept this combination well, both mentally and physiologically and by their acceptance and enjoyment of this one dish become more receptive to our next suggestion! As they watch their health improve, they often become completely converted and eat nothing but uncooked food.

Article #1: Uncooked, Unmixed, Unseasoned Food by Dr. G.R. Clements

Multitudes are discovering that their diet is wrong, and many of them are turning to the medical doctor for dietetic advice. Dr. Willian says that this course is absurd. He observes:

> "The laity took to the doctor, and the doctor is usually a dietary dunce. He knows not how to feed himself, or else he does not practice what he knows. He eats of all the far-fetched, overseasoned and otherwise dietetically abominable dishes, sheds his teeth, hair, and healthy color quite as young as any of his patients, and is a confirmed and incurable dyspeptic at 35. His medical societies and his clubs all spread a "collation" after each meeting—salads, cake, cheese that would make a tanyard smell like a rose garden, sandwiches with sliced sow in the middle, to be topped off with claret punch, capsicum-flavored gingerale and Cuban-Connecticut cigars."

Since it has required time for the body to adjust itself to the use of cooked, mixed and seasoned foods, it will require time for it to recover from this habit, and readjust itself to the use of uncooked, unmixed, unseasoned foods. In fact, it is practically as difficult for the body to repudiate a destructive habit, as for it to resign itself to such habit, as wide experience shows. But there is this difference: since the body suffers a gradual decrease of vitality as it adjusts itself to a destructive habit, so it experiences a gradual gain in vitality as it discontinues a destructive habit.

Evidence to prove the truth of this last statement may be had by him who will diligently test the proposition. I daily receive letters from patients, who under my advice are adopting the uncooked, unmixed, unseasoned diet, in which letters the patients happily declare that they are having a delightful improvement in their health, since adopting this mode of eating.

Bread, butter, milk, meat, eggs, potatoes, coffee, tea are the staple articles of diet of this country. Medical schools raise no voice in protest against this menu. It is the diet of medical doctors and medical hospitals, and the medical profession teaches that this is the standard diet, and must be eaten in ample quantities by all who crave vim, vigor and vitality.

Medical institutions forget that the camel, elephant, rhinoceros and hippopotamus never eat these things. They forget that the dinosaur, megalosaur, magatherium, and mammoth, the mightiest beasts that ever roamed the earth, were herbivorous and frugivorous animals. They forget that great athletes of ancient Greece and Rome were trained on a diet of vegetable and fruit; that Milo the Greek, perhaps the strongest man of history, was a disciple of Pythagoras, and a strict vegetarian. They forget that the giant gorilla feeds on fruits, berries, and herbs, and yet is so powerful that no animal of the wild dares attack him.

Clements Willian further observes:

> "Where do we find such muscles of steel and rubber as are those of the agile antelope and the equally agile deer, that run with the wind for a day and a night without tiring? Or where the equally keen sense of sight, hearing, and smell; where such sleepless sharpness of instinct, such tenacity of life, such graceful and perfect physical development? The huge elephant, with the strength of a steam engine, and an intellect that lacks only the faculty of speech to make him a talking philosopher, lives half a dozen centuries, practically on grass. This is not at all strange, when we stop to consider that, botanically, all grains are grasses."

George Hackenschmidt, the greatest wrestler known as the Russian lion, weighing 220 pounds of bone and muscle, toured the world, throwing the huge Greek and Turk wrestlers without difficulty. Of his diet Dr. Bernard remarks:

> "His breakfast consists of fresh lettuce and five or six Brazil nuts. The Brazil nuts and some sweet fruits are the only really heavy foods that he eats. All his other meals are composed of fresh fruits and fresh vegetables, eaten raw."

Even here the law of diet is violated, for we find man mixing lettuce with nuts. If we desire perfection in diet, we must strictly adhere to the one-thing-at-a-time, rule.

We hear our students asking: Since you condemn all the menus published by the various authorities, what sort of a diet would you prescribe?

That question forces us to declare ourselves. But our prescription is so simple that a child cannot go astray in following our directions. It also offers a complete solution of the food problem, and still is so elementary that few will consider it worthy of attention.

Go and wash in Jordan and be clean, has never appealed to humanity. It is too simple. Men are looking for signs and magic. The plain and simple are of no value, for these one can understand without education. They forget that the object of education is to lead men away from the truth into error, confusion and complexity, and there leave them lost and bewildered.

Our diet prescription is this; Eat whatever you want to eat, whenever you want to eat, but observing these three fundamental rules:

1. All food must be uncooked;
2. All food must be unmixed;
3. All food must be unseasoned.

Think of the time, toil, worry, and wealth that would be saved, if people would be persuaded to return to his ideal eating method of primitive man, whose height was like the height of the cedars, who was as strong as the oaks...and who lived to see the sun rise and set" for nearly a thousand years, ere his sturdy frame sank back again into the dust whence it came.

With one sweep of the pen we solve the perplexing diet problem, and if our advice were heeded, human health would improve so amazingly in a generation as to be one of the wonders of the world.

From Lesson 21 by Dr. G. R. Clements in Orthopathy The New Science of Health and Natural Healing.

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Article #3: Excerpts From Nutritional Methods Of Blood Regeneration, Part II by Dr. R.W. Bernard

Sherman emphasizes the "protein-sparing" action of carbohydrates, and also refers to the synthetic formation of protein within the body by the formation of simpler amino acids, as analine, by union of glucose with ammonia, a protein metabolic end-product. From the simpler amino acids, he claims that more complex amino acids can be synthesized. An abundance of glucose will therefore aid such protein synthesis within the body, whereas, on the other hand, when there is a lack of carbohydrates and fats, protein molecules will be broken down to yield carbon compounds.

Kayser compared the efficiency of carbohydrates and fats as sparers of protein by observing the effect upon the nitrogen balance of replacing the carbohydrates of the food by such an amount of fat as would furnish the same number of calories. On substituting fat for carbohydrate there was a marked increase of protein catabolism, with corresponding loss of nitrogen from the body; this loss of nitrogen, accompanied by a negative nitrogen equilibrium, increased each day that the fat diet was continued, but stopped as soon as carbohydrates were added to the diet, when the body almost at once began replacing the protein it had lost, although the nitrogen and calories of the food were practically unchanged.

Taliquint, working in Rubner's laboratory, also found that if one-third of the total value of carbohydrate in the diet was replaced by fat, there was an unfavorable influence on the nitrogen balance, causing a small fall of body protein. Sherman, in his "Chemistry of Food and Nutrition," says: "It appears that the carbohydrate of the food cannot be entirely replaced by an equal number of calories in the form of fat without an unfavorable effect upon the nitrogen balance."

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Article #4: Excerpts From "Unfired Food And Tropho-Therapy" by Dr. George J. Drews, AI.D.

The Unfired Diet is truly attractive,
Is moral, aesthetic, delicious and good,
And further than this, it is more than preventive -
It cures the disease that come from cooked food.

Cheer up sisters and brothers and rejoice with me for I have found the key that unlocks the door to physical, mental, moral and spiritual salvation and I will tell you how to use that key if you will but listen.

Those who are seeking for absolute health, longevity and refinement should understand that THE BODY, MIND, SPIRIT AND SOUL ARE ABSOLUTELY INTERDEPENDENT.

Hence there is no sane mind, no spiritual perfection and no salvation of the soul without a healthy body. A healthy body can only be built and maintained with Nature's perfect (unperverted and unfired) food, pure water, fresh air, sunshine, exercise, restful sleep and a serene mental attitude savored with lofty aspirations.

It has been the earnest aim of the author to reintroduce a natural health-sustaining, disease-resisting, disease-eliminating, brawn- and brain-building diet consistent with the present state of human evolution, civilization and refinement. A diet which shall promote further evolutionary progress on all the planes of the body, mind, spirit and soul. A diet physiologically and financially economical, artistic, inviting and delicious. All logical minds will agree with me that this can only be accomplished by feeding on natural food which contains all the elements for building a healthy body and which promotes all the natural functions of life.

Here it must be understood that cooked food is not natural because its chemical constitution is changed (perverted) by the destructive power of the applied high temperature. The sun energy (galama) is dissipated. The volatile essences are exploded. The tonic elements (organic salts) have been freed, mineralized and neutralized. The proteins are coagulated. The starches are rendered so soluble that they enter the circulation undigested. The atomic arrangement of sugar is rendered incongenial. And the oils are fused. Therefore cooked food readily ferments and decays in the alimentary canal; besides, its consistency does not give the proper exercise to the organs of cominution, digestion and absorption; and it has a tendency to puzzle, confuse and pervert the alimentary functions, thus laying the foundation for disease.

Natural unfired food promotes all natural functions of the body. With natural foods, only, can be laid the foundation for the maintenance of a truly healthful and beautiful body, spirit and soul. By means of unfired food can Nature keep the body clean, heal all diseases of body and mind and eradicate immoral tendencies. It is unnatural food which interferes with the natural metabolism of the system, which hinders and perverts natural growth, which retards recuperation and reconstruction, which results in amemia and atonicity, which promotes disorderly proliferation, which causes abnormal craving and inebrety and which results in nearly all the physical, mental and moral diseases and pains which ignorant, misinformed, deluded, ensnared and perverted humanity is heir to. Every attempt to improve on natural food by artificial means results in an absolute failure—it cannot be done.

Every unnatural thing or action in the realm of nature has inherent the cause of its own destruction. Hence for every infection and malfaction nature has an acute reaction (crisis) which results in salvation for those who obey her laws; but interfere with that acute reaction by means of medicine or surgery, and it may disappear only to reappear in a later chronic or fatal reaction. "Interference perpetuates both good and evil" hence—"Resist not evil."

There is a "Beneficent Design" in unperverted Nature, but also a malefic design in perverted and artificial Nature....Natural food, fresh water and live air in connection with plenty of sunshine, exercise and rest, is the only reliable "Materia Panacea."

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Article #4: Excerpts From "Nature—The Healer" by John T. Richter, Vera M. Richter

Excerpts from the "Biography" given to introduce the subject of the influence of eating raw foods on health in NATURE—THE HEALER written by John T. Richter and Vera M. Richter. The writer in this excerpt is Mr. Richter. Date, October, 1936.

After having lived for fifteen years largely on a cooked food diet (no meat, of course), I noticed that there was something physically wrong with me. My kidneys were not functioning properly. I seemed to lack recuperative energy. Although I did not feel ill enough to be in bed, I was constantly harassed by a "gone" feeling, lack of power to rebuild myself—in short, general lack of energy. Especially was this forced upon my attention once when I was called out into the country on a consultation. I was practicing independently at that time in Minneapolis. It was a long, hard trip—thirty miles over the prairies, and back to the city only at four in the morning. It was too late to have any real rest in bed, as I thought; therefore I simply waited around until it was time to have breakfast. Then I went to the office to get ready for business. The patients were already coming in, but I was so tired that every now and then I would find myself dozing over my work. I would shake myself, take a swallow of cold water, and rub cold water over my face. Yet in a moment or two I would again be nodding. I was nonplussed, not to say alarmed, at this lack of reserve energy. I became dizzy, too, at intervals. What was there in my system of living that was wrong? Had I not at least been eating correctly? That set me thinking.

It was not, however, until later that I became convinced it was really the food I had been eating which was at fault. This is how it came about: in a naturopathic magazine which had come to my hands, there was an article describing how a certain Dr. Lust had been invited by Dr. George Drews of Chicago to partake of an uncooked food dinner. It told of the many different varieties of food that, were served, of how delicious they were. It said something, too, about raw pie. I thought, "How curious, unbaked pie!" I remembered how mother used to make hers. But this was raw pie. The whole idea took me by surprise. How can people live on uncooked food, I wondered, just as people today ask me the very same question.

I kept thinking about it, however, and finally decided to give this new diet a trial, to see if it would bring me that unlimited reserve of energy which I so ardently desired, as well as freedom from the more obvious diseases. Dr. Drew came to Minneapolis to teach me, as well as the class I had organized for him. Gradually, my health began improving, as the result of faithful adherence, one hundred percent, to the prescribed diet. In six months such a change had been wrought in my body that it seemed logical to use the new system in my practice in order to observe how it would affect others. After a period of nine months, I realized that the nature of my bloodstream had been completely transformed. My blood, under tests, had previously shown too much acid present. Now it had become slightly alkaline, which is the normal state for one who is in first-rate health. We now know that cooked-food vegetarians, as well as meat eaters, alike suffer from too much acid in the bloodstream as a rule. Nine months had been required in my case, but many others require only from three to six months. You can well suppose that I was very happy when I found my blood was sufficiently alkaline. What a mental relief and assurance to know that I was getting better at last! As to weight, when I first began, my 145 pounds dwindled away to 123. Many of my friends told me, as yours will undoubtedly tell you, that I had better quit before starving to death. Yet, realizing that my old, worn-out body cells had to be utterly eliminated before new cellular tissue could take their place, I remained faithful to my task. All the while, of course, even though seeming to be thin, I felt much better than I ever had before, and really did not care whether the scale index went up or down. Soon I redeemed that loss—redeemed every pound and a little additional.

For many years now I have lived according to this system. I was in the late forties when I started. Today, at 84 (I was born in 1864), I am active and without disabilities of any kind. No aches or pains have plagued me for many years.

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Lesson 44 - Overeating: Fasting Fanaticism And Diet Fanaticism

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1. Foreword

Eating seems to be the favorite indulgence of humans—it has no rivals. It is part of, or associated with, or on the periphery of, almost everything he or she does. It is the accompaniment, passtime, recreation, entertainment, hospitality, ice-breaker, social function, reward, goal, comfort, business tool, monotony-relief, grief-assuager, pain-reliever. Humans eat when they work, they eat when they relax, they eat when they rest, they eat when they watch, they eat when they listen, they eat when they ride.

They eat, not necessarily because they are hungry, but—because it is meal-time, break-time or snack time because they are bored, restless or unhappy; because they need something to do while waiting, while watching television or movies, or while playing cards; because they can't offend the hostess; or for no reason at all.

Intervals between eating become shorter, the habit of chain-eating abounds and we may find them tasting, chewing, snacking, eating, any time at all, from the first thing each morning till the last thing at night.

They know that their digestive equipment must serve them for their lifetimes, but they make little or no effort to economize on its use, or prolong its ability to function. They rarely give it a vacation; they even force it to work while they sleep. When it complains, they stifle it with drugs. When it breaks down, the surgeon may cut out the offending tissue—perhaps fifty or sixty percent of the stomach, ten or fifteen feet of the intestine, or maybe part or all of the colon.

The most significant cause for these conditions is the combination of sedentary habits and dietary errors (*especially overeating*).

Overeaters of the world (you comprise the majority)—I hope I can help you before you reach the point of no return.

2. Quintessence

"The smallest amount of food able to keep the
body in a state of high efficiency is
physiologically the most economical, and thus
best adapted for the body's needs."

This is the Chittenden concept, stated years ago by Russell Henry Chittenden.

3. "Appetite" Is Not Hunger

"Appetite" is a habit and as such can be trained to be satisfied with small amounts of food, or to demand enormous amounts of it. The English poet, John Dryden, said, "we first make our habits, and then our habits make us."

Many people have never emptied the stomach completely. Most people have never experienced true hunger, which is a mouth and throat sensation, and not a feeling of emptiness and weakness.

People eat—either from habit or because they feel better, or stronger, and—frequently—because the food relieves distress or pain. The food has a stimulating effect, and forces the body to get busy dealing with the newly-swallowed food supplies. It must, perforce, temporarily discontinue its efforts to clean out the debris left by previous meals—which efforts have been the source of the discomfort.

Waste material from the new food adds to the organism's need to clean out the debris (which can be accomplished only by not eating—by fasting).

Dr. Claunch says (*The Hygienic System, Volume II*, p. 291), "The difference between true hunger and false craving may be determined as follows: when hungry and, comfortable, it is true hunger. When hungry and uncomfortable, it is false craving. When a sick person misses a customary meal, he gets weak before he gets hungry. When a healthy person misses a customary meal, he gets hungry before he gets weak."

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4. Development Of The Habit Of Overeating

The development of the habit of overeating starts all too early. The sad truth is that children are trained to overeat. From early infancy, babies are coaxed to take frequent feedings they do not need. Older children are bribed to "clean their plates" with the promise of a sweet dessert, which further complicates the digestion of the unnecessary meal. Worst of all, they are not even allowed to refuse a meal when they are not hungry.

Even the sick are urged to eat "to keep up their strength"—in spite of the protests from the ailing organism. Young girls are taught that the way to a man's heart is through his stomach. *The way to a man's health is also through his stomach*.

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5. Overeating Undermines Health

Overeating is probably the greatest culprit in the undermining of our health. It is the primary cause of most digestive problems, and impairment of the digestion leads inevitably to the breakdown of the organism.

R.T. Trall, M.D. (*Digestion and Dyspepsia*, pp. 82-83) said, "It is a great mistake to regard dyspepsia as peculiarly or especially a disease of the stomach." He said that a multitude of organs and structures are essentially cooperative in the digestive processes, and they are just as co-implicated in the derangement of these processes.

"The debility of the stomach or other digestive organs, in any case of dyspepsia, is no greater and no worse than that of all other parts of the body. Indeed, the difference is just the other way, for nutrition, being the first and last process of organic life, all other parts of the system are disproportionately debilitated when the digestion function is impaired. Dyspepsia is, therefore, but a name for universal physical deterioration....The error of regarding dyspepsia as a local disease instead of a constitutional infirmity, leads to the mischievous practice of local medication." (Stimulants, tonics, nervines, opiates, purgatives, etc.) "These are excellent methods for curing dyspepsia by killing the patient, or to mitigate symptoms by destroying vitality.

Laboratory experiments have demonstrated repeatedly that overeating is a major cause of cancer. The following experiment has been repeated hundreds of times at various research laboratories; many times at the finest cancer research institute in the world. One hundred rats are bred to develop breast cancer by the age of one year, then separated into two groups. One group is given free access to food, the other group is given the same food in limited amounts. All rats in the first group develop cancer, but only 20% of the rats in the restricted food group develop cancer.

Conventional diets and overeating (or even overeating of the best foods) result inevitably in damage to the organism. The body is forced to make adaptations, and to gradually increase its tolerance of toxins, bringing it closer to common digestive maladies, followed by impairments of the entire organism.

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6. The Remedy Mentality

The victims of the uncomfortable symptoms thus produced develop a "remedy mentality," and are always seeking new preparations, medicines and cures (as an easy way out).

Food is used for the relief of symptoms. Ulcer patients are fed frequently during the day and sometimes at night; nervous people are fed to quiet them. "Foodaholics" (compulsive eaters) suffer from nausea when their stomachs are empty and must have more food.

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7. How Overeating Vitiates The Body

Sylvester Graham used to say, "A drunkard may reach old age, a glutton never." And Hippocrates also said, more than two thousand years ago, "Excess in drinking is almost as bad as excess in eating."

Remember that we require less food—and can utilize less food—as we grow older; and that overweight becomes a greater threat with the passing years. Excess poundage not only increases the threat of coronary problems, diabetes, and a host of other degenerative diseases—obesity will undoubtedly shorten one's life.

Dr. Shelton says that overeating overworks and poisons the body. Overindulgence in food works all the organs of the body to death and wrecks the whole system long before the digestive organs begin to show signs of weakening. Don't labor under the delusion that unless food causes distress in the stomach, it produces no harm.

In the overeater, all the functions of the body are conducted more rapidly than they should be until the overwork forces them to stop. Light eaters who use no stimulants should have a heartbeat (pulse) of about sixty a minute. The average of seventy-two that is considered normal is too high, and is the average standard for over-stimulated, overfed individuals.

Cornaro's food selection is not one that we would recommend, but the point here is not the particular food items but the quantity of food ingested that resulted in his longevity, ed.

8. If You Want To Eat More, Eat Less

It is obvious that reduction of total food intake will prolong the life of all the vital organs by reducing their work loads. Dr. Graham said, "It is a general rule strictly true that a correct quantity of a less wholesome ailment is better for man than an excessively small or an excessively large quantity of a more wholesome ailment. It is solely from the want of a proper regard for this important truth, that many have been unsuccessful in their attempts to live exclusively on a vegetarian diet."

A well-known illustration of this precept is the example of Luigi Cornaro, who lived to about 100. As a young man (around forty), he became very ill, and an early death was predicted. He discontinued his gluttonous habits and experimented with various foods to find which foods caused no overt symptoms. He restricted himself to fourteen ounces of food daily. He ate bread, meat, the yolk of egg, and soup (a selection of foods which caused no symptoms). The quantity was minimal, you will agree, and so his body was able to handle it efficiently and sustain itself so well that he outlived his prognosticators.

Cornaro said that what we leave of a hearty meal does us more good than what we have eaten. He is credited with having said (loose translation), "if you want to eat more, eat less, because if you eat less, you will live longer, and if you live longer, you will eventually eat more."

Hereward Carrington (*The Natural Food of Man*, p. 269) quotes Dr. Nichols: "It is my experience—and I believe of many others who work as I do—that the less I eat, the better I feel. I do not vary much in weight through months and years from 160 pounds. In solid, dry weight, my food, day by day, would not exceed ten or twelve ounces."

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9. Light Eaters Vs. Heavy Eaters

The light eater has muscles of better quality, and his strength and endurance have been repeatedly shown to be greater. He thinks more quickly, more accurately and clearly, has more reserve power, and lives longer. He also escapes the aches and pains that (sooner or later) fill the lives of heavy eaters. (Dr. Shelton, *Human Life, Its Philosophy and Laws*, pp. 240-241.)

Temperate eaters have good digestions, and never think about their stomachs. Heavy eaters are troubled with thirst, bloat, acidity (and all kinds of disorders), and are constantly "popping pills" to obtain relief (spelled R-O-L-A-I-D-S).

Sometimes, overeating may produce an appearance of health, with no overt symptoms (as yet!), and a well-rounded appearance, but it cannot compare with the strong, enduring, true health of the properly nourished body.

10. The General Rule

Carrington maintains that overeating is the chief cause of all disease and thus shortens and destroys life. He says that the general rule to follow is: "Every individual should restrict himself to the *smallest* quantity that he finds, from careful investigation and experiment, will meet the wants of his system—knowing that whatever is more than this is harmful.

A high caloric intake produces a toxic body, which is unable to use energy efficiently. Waste clogs the body, impairs normal function, and demands high blood pressure for circulation. The more food that is ingested, that much more must be eliminated. If more is ingested than the body is able to utilize efficiently, a great deal of the body's energy is wasted in converting and expelling the surplus.

11. Building Health And Strength

Many physical workers and athletes think they must eat excessively to maintain strength and endurance—but the result is premature aging.

Professor Gilman Low demonstrated the ability of the body to build and maintain Herculean strength and great endurance on little food. He trained for two months. For the first five weeks he ate one meal a day, almost all uncooked foods. During the last three weeks he ate only four meals a week. In fifty-six days of training, he ate forty-seven meals. After the first five weeks of almost all uncooked foods, he ate eggs, whole wheat bread, cereals, fruit, nuts, milk and distilled water.

Eleven hours after the last meal, he lifted 1,000 pounds 1,006 times in 34 minutes and four seconds. Fifteen minutes later, he lifted one ton 44 times in four minutes.

The preceding details about Professor Low's spectacular feat is given in Dr. Shelton's *Volume II*, pp. 285-286, but no information is included on the date this occurred, the height and weight of Professor Low, and whether or not he was a professional weight lifter.

This was an impressive demonstration of the fact that health and strength can be maintained on minimum amounts of food, but, in general, Dr. Shelton says, "It is quite true that a man needs more protein while he is building large muscular bulk, and he perhaps needs a little more protein than the average man to maintain so much muscular structure, but it is a fallacy to think that he needs and can use as much protein as is consumed today by men who train with weights." (*Dr. Shelton's Hygienic Review*, March 1974, p. 161.)

On the other hand, it is true that there is an important relationship between activity and the amounts of food that can be efficiently processed by the organism. The combination of sedentary habits and dietary errors, especially overeating, will inevitably lead to disease. Active people, who make vigorous activity and regular exercise an integral part of their lives, are better able to process the food that they eat—to reap the benefits—and even to discard undesirable substances and excesses.

Dr. Shelton says (*Dr. Shelton's Hygienic Review*, March 1974, p. 150), "Excess of food is often but another term for a lack of fresh air and exercise."

12. Willpower Is Supported By Knowledge

Willpower is not the only weapon in the fight to break the habit of overeating. Knowledge is a much more potent tool.

The individual must realize and acknowledge that overeating is a habit that has him or her in its grip. If one is eating denatured foods, which do not completely nourish the body, such foods may not satisfy hunger unless eaten in large quantities. Spices, condiments and cooked foods also result in stimulation of appetite and overeating.

If the change to a good selection of foods has been made, but a great variety of foods are being used at a meal, this also leads to overstimulation of taste and appetite—and overeating.

13. Food Addiction

People become overweight because they overeat. They may overeat because they are overtired, unhappy or bored. Some individuals overeat because of psychological and emotional factors—such as compulsive eating as a compensation for frustration, defeat or loss. Anxiety and a poor self-image are so uncomfortable that relief is urgent.

Food reduces the energy level in brain and thus relieves anxiety and depression.

People overeat to satisfy these emotional needs which translate into vague cravings which seem to be never satisfied.

Or they may be overeating because of poor mastication, stomach enlargement due to a history of overeating, or because their inadequate diets leave them physiologically unsatisfied. The result is food addiction.

Any type of addiction—be it addiction to sugar, salt, condiments, coffee, tea, chocolate, alcohol, tobacco, drugs, vitamin pills—or even food in general—inhibits pancreatic efficiency, and pancreatic efficiency has a relationship to both low blood sugar (hypoglycemia) and high blood sugar (diabetes). William Phillpott, M.D., specialist in cerebral allergies and psychiatry, says, "Addiction is dangerous, because it suppresses pancreatic function."

Mehl McDowell, M.D., says that irresistible cravings for food can be understood as the typical cravings of addicts, stemming from cyclic biochemical processes. The addiction can be made to temporarily disappear in several days after totally avoiding the foods to which the individual is addicted. The addictive food will frequently be one or more in the sugar/white flour group, but it can be any foods, which, when discovered, are "enemy foods" for that person.

Dr. McDowell says that total abstinence from the "enemy foods" is only the first phase, which must be followed by a "conditioned reflex response"—the "instant yuk technique." The person trains himself to react with disgust to thoughts about the "enemy foods." (See article "Say Goodbye to Compulsive Eating," in this lesson.)

Once the addiction is under control, even overeating syndromes with psychological bases can be more easily restrained.

13.1 Binging

Binge eating is the way that bingers cope with life's problems, and this may contribute more to overweight than any other factor. Binge eaters may compulsively pile in hundreds, or thousands, of calories, almost without any true realization, satisfaction or enjoyment. They are trying, unsuccessfully (perhaps unconsciously) to escape from reality. Some people drink, some use drugs, some go on shopping sprees—and some eat. They usually eat rapidly, as though fearful they will be deprived of the mountain of food.

13.2 How To Escape From The Slavery To Overeating

An article in "Food for Thought"—a brochure found in health food restaurants—suggests, "With or without outside help," (the best is Overeaters Anonymous), "the binge eater can learn to apply some principles of behavior modification. First, binge eaters must learn to pay attention to what's happening at the start of the binge—the time of day, where they were, what they were doing, what they were thinking, what they were feeling. It helps to keep a daily log or diary. Second, they must analyze what they discover. Divorced individuals might find, for example, that the binge usually occurs in late afternoon when they become acutely aware that the former mate won't be coming home to share the evening meal with them.

"And third, they can learn to break the chain. In the example we just used, the individual could make a point of being somewhere else in the late afternoon—the library, an early movie, a gym or an adult education class, for example. Learning to control binge eating is difficult, but not impossible, and it's worth the effort."

The individual must *work* to initiate whatever changes are necessary for release from slavery to the appetite; that will help to break the habits of unwholesome redundancy which are threatening physiological, efficiency. When major sources of former eating pleasure are eliminated, they must be replaced by a new eating style that can gradually grow to be even more pleasurable, and by a new life that can be psychologically, emotionally, mentally and physically rewarding. The individual must be encouraged to not concentrate on what is being given up, but rather on what will be gained.

The body chemistry is influenced by the food that is eaten. When the diet is altered and the new diet maintained for a given length of time, the enzymes, body fluids, and glandular secretions become increasingly adapted to the influences and requirements of the new food program, just as the organism necessarily struggles to adapt, when it is bombarded with junk food, or too much of any kind of food. *The important difference is that the prior adaptation to the misguided food program involved health deterioration, while the readjustment in the direction of an ideal food program is towards improved health*.

We are not referring to calorie restriction in the usual sense. Reducing diets are always frustrating and frequently unsuccessful, since they involve countless decisions and the exercise of power at every meal. It never becomes any easier to eat half portions and to refuse the dessert, because the reducing diet continues and accentuates the perverted tastes and cravings of the malnourished (even though adipose) body.

Rather, we are referring to a planned program of meeting all of the body's nutritional requirements in a pleasant, satisfying, rational manner, with no redundancy or surfeit, which will tend to gradually reeducate perverted appetites—and produce such a sense of well-being that cravings will become easier to handle, and gradually all but disappear.

Ideally, such a program should be preceded by a thorough indoctrination into the precepts of the Hygienic system. The initial period will require mind control and firmness of purpose—but the potential rewards for those who have the determination to succeed are almost incalculable.

The first thing to do is to determine one's goal, make plans, and don't stop until success is attained.

Those who stumble along the way should pick themselves up, forget about the fall, and keep right on going. The only failure is giving up.

Learning to do something—to drive, to play a musical instrument—takes many hours of practice, and so many mistakes!

13.3 Forming New Habits

It is not easy to break a habit. At first, you may dislike or even hate what you are trying to do. Tough it through! Soon it won't seem so difficult and the worst part is over. But the best is yet to come, and you will eventually experience the delights of good food and good health.

A simple approach to the whole problem of overeating is the elimination of cooked food to the greatest extent possible. It is difficult to habitually overeat at meals when no cooked or processed foods are served. (However, snackers *can* overeat, even of uncooked food.)

John M. Douglass, M.D., internal medicine specialist at Southern California Permanente Medical Group (in his reports in the *Medical World News* and the *Annals of Internal Medicine*) says that raw food diets reduce or eliminate the need for insulin in many diabetics, reduce blood pressure, and develop an inner feeling of cleanness that causes people to want to reject such habits as smoking, drinking and overeating (from *Organic Gardening Magazine*, July 1978).

13.4 A Practical Program

A very practical program to eliminate the over-consumption of food is to begin with a short fast (about three days), followed by a program of twelve meals weekly —a thirty-six hour fast one day out of seven, and two meals a day on the other six days—with probably one meal around noon and the other in the early evening—no snacking.

Most people do well on such a program. Occasionally, we find a person who tends at each meal when he is limited to twelve meals weekly, or who keeps to this program, eating moderately, but who never feels satisfied. Such a person might do better on a semi-monthly fast of thirty-six hours, and alternating between two and three meals daily. Experimentation may be necessary to help the individual to determine his or her own requirements and capacities, which may be influenced by the rate and efficiency of the metabolism and assimilation.

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14. History

Dr. Shelton (*Volume II*, pp. 274-276) quotes numerous students of history as saying that the Greeks and the Romans, for more than a thousand years, ate one meal a day—and their armies marched for days "under loads of iron, clothes, and provisions that would stagger a modern porter."

During the zenith period of Grecian and Roman civilization, the firmly established rule was that a health-loving man should content himself with one meal a day, and never eat until he had leisure to digest, i.e., not till the day's work was wholly done.

Dr. Felix Oswald says, "The evening repast was a kind of domestic festival, the reward of the day's toil, an enjoyment which rich and poor refrained from marring by premature gratifications of their appetites."

After the Greeks and Romans acquired power and riches, their sensuous indulgence in food was followed by their physical, mental, and moral decline.

The Persians ate one meal daily. The Jews from Moses to Jesus ate but one meal a day. They sometimes added a lunch of fruit. For more than a thousand years, the one-meal-a-day plan was the established rule among the civilized nations inhabiting the coast lands of the Mediterranean.

Even today, primitive tribes eat their daily meal after the hunters return—if the hunt fails, they have no meal.

The two-meal-a-day plan survived in England at least until 1858. With its increasing prosperity, England adopted the three-meal-a-day program.

When Sylvester Graham (early Hygienic pioneer) began his career as a temperance lecturer in the United States, gormandizing was one of the favorite indoor sports. It was not unusual to serve as many as thirty or more kinds of meat and fish at a ceremonial banquet. Gentlemen sometimes sat at the table for as long as seven hours for one meal—followed by gout and other penalties of overrating.

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15. Today

Though most people still overeat today—there has been some improvement in the last 150 years—but not nearly enough. Look around you—how many people have maintained their slender figures through the years? Thousands of people are significantly, even grossly, overweight.

The prevalence of diet fanaticism (and sometimes fasting fanaticism) is perhaps even more dangerous than the overeating/overweight syndrome.

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16. Fasting Fanaticism Vs. Rational Fasting

Most people are fearful of fasting, calling it a "starvation" diet, and are convinced they could never fast. At the opposite pole are those who become fanatically addicted to fasting, either because they believe it will control their weight, or that it will improve their health.

These people don't really understand fasting at all. Fasting may, in general, be divided into three categories:

1. Therapeutic Fasting—Ten to thirty days, or longer, for relief of a pathological problem (or for weight reduction, in some cases)—in general, to be undertaken not more than once a year (if fifteen to thirty days or more), or twice yearly (if ten to fourteen days). Such fasts should be supervised. Some people believe that ten-to-fourteen-day fasts twice yearly are beneficial for almost everyone. Others believe such fasts should not be undertaken without reason. This is my opinion.
2. Maintenance Fasts—For general health improvement, or for further progress between therapeutic fasts (three to five days, not more than once monthly, or perhaps bimonthly, in some cases).

Might be useful for weight control for some people. Fasting for three days a month, without a reason, is really not advisable or necessary. If one is not experiencing any problem, there is no need to fast.

3. Weekly or biweekly 36-hour fasts, as part of the regular program—a good idea for most people. I really do not regard this as fasting—more like a respite for the digestive system.

Dr. Vetrano (*Dr. Shelton's Hygienic Review*, November 1979, p. 79) says, "For maximum health, one does not have to fast unless injured or unless there is an acute crisis of some sort. If you live genuinely Hygienically, all you need, because of a polluted environment, is a once-a-year rest and tune-up fast of about eight to fourteen days. It you live in the country, away from all types of pollution, you may not require a fast of that length.

"Fasting one day a week may be too much for some people. They may not be able to gain weight, or muscle, by fasting this often. Fasting three days a month, for no reason at all, is not necessary. When your hunger is absent, fast. As long as hunger is present, and there is no physical or mental problem, then there is no reason to fast. Just live Hygienically."

Fasting fanatics sometimes fast every other day, or take a two- or three-day fast every week. They sometimes fast for longer periods—thirty or sixty days or more—when there is no therapeutic reason for doing so. They may fast a week or more at frequent intervals—every month or so (or oftener).

Some of these people embark on this type of fasting "program" in the hope that frequent fasting periods will gradually result in rejuvenation and optimal health (or in an effort to normalize their weight). They do this in the mistaken belief that such erratic fasting can achieve the same dramatic results as a prolonged fast.

Such capricious use of fasting may prove to be dangerous. Short fasts, taken at too frequent intervals, produce enervation and exhaustion, and create nutritional deficiencies. Serious problems cannot be corrected in this manner.

To a certain limited extent, well-planned, well-spaced short fasting periods do have a health-improvement potential, but, even in those cases where successful remission of a serious problem is achieved in this manner, it is infinitely slower than a supervised, prolonged fast, and not nearly as certain.

Much of the rejuvenating and therapeutic value of a prolonged fast (fourteen to thirty days, or longer) on distilled water only, may be attributed to the *uninterrupted*, orderly succession of phenomena initiated by the organism when continuously deprived of external food sources.

As the fast progresses, elimination of toxins is accelerated, and the body continues to explore its reserves for life-sustaining materials. Nutritional elements which have been stored in the body are released into the bloodstream, to be salvaged and absorbed by the cells. As the fast progresses, the utilization of available supplies is accomplished with increasing economy and efficiency.

Ideal conditions for maximum debris autolysis and healing are produced by *prolonged* abstinence from food, and there is a steady weight loss.

By contrast, *erratic, frequent, short fasting* periods are a drain on the organism, without a corresponding recompense. For each fasting period, the body must undergo the stresses of adapting to the fasting situation and readapting to the eating situation, with very little time in between to experience any benefits.

If you are trying to lose weight, this is a poor method, and apt to not only be unsuccessful, but also to be a threat to your health. You may lose a few pounds when you fast and gain it back between fasts—which is worse than not losing the weight at all. Such a practice will not only be self-defeating, but will result in weakness and malnutrition—even if you are overweight.

Utilizing planned, well-spaced fasting periods of from ten to thirty days is the easiest, quickest and most effective way to lose weight—for many people. Pounds quickly melt away, with a bonus of health improvement. In this type of fasting, the readjustment to eating is quite different than the constant seesawing between eating and fasting, which usually leads to gorging on the days you are eating.

After the weekly thirty-six hour fast, one has a keen appetite, but, as a rule, there is no tendency to overeat in order to compensate for the lost meals.

Even a monthly (or bimonthly) three-day fast is not usually followed by an uncontrollable desire to "eat everything in sight."

Fasting ten to fourteen days twice a year, or thirty days once a year (if there is a therapeutic necessity for a thirty-day fast) is followed by a readjustment period, but, ordinarily, this infrequent situation does not lead to habitual overeating. In fact, in many instances, such prolonged fasting periods (*under professional supervision, of course*) seem to reduce eating capacity and cravings for frequent large meals and unwholesome foods.

Even those people whose prolonged fast results in an increased appetite will find the annual or semiannual readjustment to a moderate eating program manageable, even though some thought control will be necessary to "get over the hump."

But people who are always "recovering from" the previous fast at the same time that they are within a few days of entering another fast are almost helpless to control the overeating and even bringing urges, since such compulsions are created by the body's demands for more and more food to counteract the nutritional deficiencies produced by the unwise use of fasting as a modality to replace moderate and healthful eating and living habits on a daily basis.

Each time one fasts, vitamins and minerals are lost, and an expenditure of energy and a loss of reserves are experienced. These might be weighed against the anticipated beneficial effects of the fasting period.

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17. Special Problems

Some people cannot use fasting at all (of any type, frequently, or lengthy) as a tool for weight control, because all it does is to cause them to seesaw between "starving" and "gorging." This is, sadly, especially true of many grossly obese people. This may be because their metabolism is abnormal, because the problem is glandular or congenital in origin, or because of any of several other possible and complicated factors.

Many authorities believe that an important cause for lack of obesity control is too many fat cells. People who have been grossly obese, especially if they were fat children or teenagers, have a special problem. When there is weight gain, there is a multiplication in the number of fat cells, but when weight is lost, the number of fat cells does not decrease, the cells simply grow smaller.

The Hartbargers (*Eating for the Eighties*, pp. 155-156) say, "From the moment of conception through the first year, virtually all the organs and tissues undergo intensive growth, including cell division. During these early stages, the most elementary functions of each organ are determined. Malnutrition can have its most lasting effect on physical and mental development at this time. By the age often months, for example, the number of brain cells has been determined for life. There will not be another period of such rapid general growth until adolescence.

"Overnutrition, incidentally, can have effects similar, though opposite, to undernutrition. A good example is the fat cells. Too many fat cells are thought to be a major problem in obesity control (or the lack of it). The two critical periods for fat cell growth are, predictably, early childhood and adolescence.

"Once cell division has ceased (the third stage), the effects of deficiencies and overfeeding are usually more temporary. A particular organ may be smaller or larger for a time, but an appropriate adjustment in food intake will normalize things again."

Dr. Richard Lopez of Florida International University (*St. Petersburg Independent*, September 14, 1979, Bob Rabin, Knight-Ridder Newspapers) says that those who have been overweight since childhood have a far more serious problem, because the body's fat cell production is greatest in the early years. He says, "Fat cells are very closely related to appetite. When you lose weight, you don't lose fat cells, you lose fat stored in them."

Many people with large numbers of fat cells are almost like alcoholics. They are foodaholics. Even faithful Hygienists with large numbers of fat cells may fight a continual losing battle. I know one such Hygienist who once fasted down to considerably below one-hundred pounds, but the obesity returned, inexorably, in spite of dedication and moderate eating. She continues to take twice yearly fasts, and to eat moderately, with only minimal progress. It may well be that no more can be done in such a situation, but no one should accept an impasse unless every avenue has been explored. Most situations can be improved—sometimes, all it takes is the determination to succeed, even when the odds are against you.

People who seem to be able to eat a great deal and never gain weight have faster rates of metabolism, which is probably determined by their genes. All raw food diets usually make weight control easier for most people. Addictive eaters may still gorge on all raw foods, but it is simply not possible to eat as much food when it is in its natural form—the very bulk of it is so filling. All-day-long snackers can still become obese on raw food—one should eat no more than two or three times daily.

Actually, the only way to improve one's health, or eventually achieve normal weight, is by healthful living. The fast only expedites the process, especially in its initial phases.

In those cases of obesity where fasting seems only to complicate the problem, the solution lies in motivation, mind control, and strict, uncompromising planning of an eating program that will produce a slight, gradual, but steady weight loss.

This usually requires a powerful incentive and complete commitment. It also requires a vocation, avocation, or pursuit that will effectively fill the days with the most interesting and enjoyable means of satisfying one's need for feeling productive and useful, and thus improving one's self-image.

It is a great idea to become involved in some cause, to commit one's self to a few deadlines which must be met, and thus end the preoccupation with food as life's best reward.

Regular, adequate and vigorous exercise is of the utmost importance, whether one is seeking improved health or a new figure. And all the other principles of Hygienic living, which we have repeatedly enumerated and emphasized, must be part of the daily program of living.

Fasting fanaticism is never successful in the long run. It may even produce pathological anorexia—loss of appetite, or inability to eat.

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18. Diet Fanaticism

Diet fanaticism may also produce anorexia, or the same weight seesawing which is sometimes the result of fasting fanaticism. This has been called the "yo-yo" syndrome—lose some weight, gain it back—down-up—up-down. The combination of pathological and psychological problems that are thus created can be very destructive.

Hundreds of reducing diets have been offered to the public over the years. Diet fanatics have tried them all. When reducing diets are tried and ultimately abandoned, it is frequently because they proved to be too difficult, too frustrating—or because they just didn't work. And the dieter wails, "I just don't have enough willpower!" Some of the dieters actually do slim down, some (rarely) permanently; and some temporarily, often seesawing between dieting and gorging.

But the dieters seldom give any thought to whether these diets may be inconsistent with their dietary needs, perhaps even dangerous. The repeated experimentation with diets that emphasize certain foods, and prohibit other foods which are necessary to health and well-being, do much damage. The foods prescribed are chosen for their weight-loss potential, with little regard for their other effects on the body. People may wind up with bodies that are unable to respond normally to the food that is taken, and unable to utilize necessary food elements.

18.1 The Only Safe and Correct Diets

The only correct diet for regular use is one that meets all the nutritional needs of the body in a rational manner, without threat or stress. The Hygienic food program does just that.

The only safe temporary therapeutic (or weight-loss) diets—other than correctly utilized total fasting periods—are the Hygienic elimination diets. Elimination diets are diets low in proteins and other concentrated foods, which cause the organism to accelerate the autolysis of toxins and fats (but never as efficiently as fasting on distilled water only).

18.2 Seventy Million Overweight Americans

Frost and Sullivan, Inc., a national market research company, noted that seventy million overweight Americans are willing to do almost anything to shed some weight; they use appetite suppressants, obesity prescriptions, reducing pills, diet books, mechanical devices, health spas and even surgery such as intestinal bypass operations, cutting of the vagus nerve, and gastric stapling.

18.3 High-Protein Diets

Many popular diets emphasize high protein. The high-protein diet may have a disastrous potential when utilized for long periods of time, whether used after a diagnosis of hypoglycemia (low blood sugar), or whether it is used in the mistaken belief that it is the best road to weight reduction or improved health.

The rationale of high-protein diets for weight loss is based on the fact that protein requires much more body energy for digestion and metabolism than it supplies. The danger lies in the fact that the end products of large amounts of protein, particularly flesh proteins, will result in degeneration of body tissues, producing liver, kidney and digestive disorders, as well as gout, arthritis, and other degenerative diseases.

Dr. Ralph Bircher-Benner, in an article in the September 1975 *Hygienic Review*, confirms these and other inevitable consequences of the overconsumption of protein, including hyperacidity, osteoporosis, dangerously high phenylalanine and tyrosine content in the blood, poor protein metabolism and irritation caused by uric acid. (Phenylalanine and tyrosine are amino acids, two of the building blocks of protein, excessive amounts of which are formed when protein is decomposed, as by putrefaction.)

Dr. Alec Burton, the brilliant Australian Hygienic doctor, says that the high-protein diet of seventy-five to one-hundred grams daily (or more) is beyond anyone's needs— or capacity to process without toxicity.

When protein is consumed in greater amounts than can be processed efficiently, the number of highly-toxic nitrogenous compounds are released. One such compound is ammonia; another is kinotoxin, which, accumulating in the muscles, impairs working capacity and causes fatigue. In addition, high protein consumption results in excessive carbon and sulfur in the blood, which also causes complicated problems. Acid end products of protein, such as urea, uric acid, adenine, etc., beyond a certain normal range, cause tissue damage, degeneration and destruction.

Dr. Gerald Benesh says, "A study of physiology shows that all excessive and unnecessary protein is processed by the liver. It subsequently goes through numerous biochemical changes until it is finally excreted as ammonia and other end products of protein metabolism via the kidneys. This excessive load and additional biological function leads to enervation and eventually the breakdown of these vital organs.

"The liver has to cope with the heavy load of uric acid and urea which has to be buffered (neutralized) at the expense of the alkaline salts, leading to an unbalanced body chemistry and disordered cell and body function. This continued abuse, in time, leads to serious pathological conditions. Nephritis (inflammation of the kidneys) has been reported to result from a very high intake of animal protein." ("The Protein Question")

Research by Professor Uri Nikolayev of the prestigious Psychiatric Institute in Moscow has confirmed links between mental disturbances and protein derivatives, and studies at the Institute for Cancer Research demonstrate links between high-protein intake and cancer.

Dr. David J. Scott, of Cleveland, and Dr. Robert R. Gross, of Hyde Park, New York, who, among others, have researched this subject extensively, are convinced that the individual who resorts to high-protein diets for weight loss may wreck his health in the process.

18.4 What A High-Protein Diet Can Do

I know a lady, a registered nurse, who was on a high-protein diet for twenty-two months (including massive amounts of food supplements), after a diagnosis of hypoglycemia. She steadily grew worse on the high-protein diet, and developed more and more symptoms. She visited hospital emergency rooms, in severe pain, three times. Her intestinal tract was packed with feces and she was given repeated agonizing enemas. Her body and breath odor were unbearable.

From 1974 to 1976, her weight increased from 125 to 162 pounds. Her personality and mentality had deteriorated so much she was unable to think or make decisions or drive a car. She had been treated by many doctors, including those in the hospitals where she worked, and the emergency room doctors, but only one of them suggested she was taking too much protein.

One, of the doctors, a D.O. who was a specialist in nutrition and hypoglycemia, prescribed the following diet and supplements (high protein, no fruit):

7 a.m. 8 oz. milk with protein powder and brewer's yeast
8 a.m. 2 eggs, 1 slice toast, glass chocolate milk
10 a.m. glass milk with protein powder
Noon meat or fish with salad and vegetable
2 p.m. Milk with protein powder
5 p.m. meat or fish, salad, vegetable
8 p.m. milk with protein powder
10 p.m. milk with protein powder
plus B complex, 75 mg. 3 times daily
Vit. C., 1000mg 3 times daily
Vit. E, 400 units once daily
Dolomite, 2 tablets daily
All these were taken with more milk—she drank a gallon of milk daily.

By the end of March 1976, she realized that she had reached an impasse—a dead end. She remembered she had read some books about Natural Hygiene in June 1973, but didn't believe what she read. But now, in desperation, she got them out and re-read them. They were *Fasting Can Save Your Life* and *Superior Nutrition* by Dr. Herbert M. Shelton and *The Mucusless Diet Healing System* by Arnold Ehret.

On April 1, 1976, she dumped all of the supplements and changed her regimen to a breakfast of fruit, a lunch of vegetables and a starch, and a supper of vegetables and a protein.

She went through six weeks of elimination and agony, but she did not give up. Then her energy started slowly to return. Her weight was down to 136 pounds. She was close to death at some points, but she made it back.

In the years since then, she has been able to function quite normally, though it is obvious that some irreversible damage was done by the twenty-two months of stuffing with protein and supplements.

She has been a dedicated Natural Hygienist since then, and has been reluctant to function in her profession as a registered nurse, since she no longer believes in the type of treatment she would be required to assist in implementing.

18.5 Low-Carbohydrate Diets

The "low-carbohydrate diet" is another name for a high-protein diet. Dr. Jean Mayer's (and Jeanne Goldberg's, R.D.) column, "Food for Thought," (*St. Petersburg Times*, June 24, 1982) says this diet is described as "historial," having been created more than 100 years ago by Dr. William Harvey, a British ear surgeon. The diet was immortalized by his patient, William Banting, who was delighted with his weight loss and wrote a best-seller, *Letter on Corpulence, Addressed to the Public*, in 1864.

Dr. Mayer (et al.) says, "Eventually it faded into obscurity, but the diet resurfaced around the turn of the century when the Earl of Salisbury's doctor used it to treat the Earl's weight problem. The basis of that diet was a big patty of chopped beef. It is, in fact, from this that Salisbury steak got its name.

"The low-carbohydrate diet resurfaced a third time in 1953, as the Dupont Diet, and has been with us continuously in literally countless variations since then. While it appears to be true that some people temporarily control their appetite—and thus lose weight—such diets are undesirable in the long run because they are generally higher in fat and may create a predisposition to high blood cholesterol and diseases of the heart and blood vessels."

18.6 The Atkins and Stillman Diets

The Stillman Diet (*Dr. Stillman's 14-Day Shape-Up Program*) and the Atkins Diet (*Dr. Atkins' Diet Revolution*) are variations of the high-protein, low-carbohydrate diets. Dr. Atkins advises using fats like heavy cream, butter, oils, etc. He calls his diet the "High-Fat, No-Carbohydrate Diet," though a very small amount of carbohydrates are permitted. Dr. Stillman, on the other hand, says the "high-fat" idea is all wrong, and calls his diet "High-Protein, Low-Fat, Low-Carbohydrate Combination."

Dr. Atkins recommends that "everyone should take vitamin and mineral supplements," and Dr. Stillman advocates the use of vitamin and mineral supplements "in optimum dosages."

Dr. Atkins' book has two paragraphs on exercise, one for hypoglycemics and one for "dieters who go astray." Dr. Stillman has a chapter on the benefits of exercise.

Both diets include all kinds of flesh foods and animal products, and permit condiments, coffee, tea, diet soda. Fruits are absent, and the use of vegetables is very small. Dr. Atkins says "no bread," Dr. Stillman permits "protein bread," toasted. Dr. Stillman permits alcoholic beverages, even wines in cooking.

18.7 The Scarsdale Diet

The Scarsdale Medical 14-Day Diet includes flesh foods, low-fat cheese, small amounts of fruit and green vegetables, no fat, "protein bread," toasted, coffee, tea, diet soda, but no alcoholic beverages. Carrots and celery between meals, seasonings, and spices are permitted.

Dr. Scarsdale says that all the vitamins and minerals needed daily are found in the foods in the Scarsdale Medical Diet; and gives a list of the vitamins and minerals and the foods in which they are found.

Dr. Scarsdale recommends brisk walking at least two miles daily, as well as swimming, tennis or other sports.

The Scarsdale Diet is essentially a high-protein, low-carbohydrate diet.

18.8 The Beverly Hills Diet

The Beverly Hills Medical Diet (Lose Ten Pounds in Fourteen Days) uses flesh foods, but it is recommended that not more than four ounces of meat daily be used; also the use of less red meat and more poultry and fish is advocated, as well as the use of one ounce daily of fresh raw nuts and seeds. Nonfat dairy products and egg white are recommended. Wholegrains and legumes are also used.

The diet also includes generous amounts of fresh vegetables and moderate amounts of fresh fruits. The use of "complex carbohydrates" is recommended (unrefined carbohydrate foods). It is "thumbs down on all unnecessary fats (any kind)" and salt, sugar, and processed foods are to be omitted, as well. Spices are permitted, but not coffee, alcohol or tobacco.

The diet calls for high-vegetable, low-fat meals. Lemon juice or vinegar are to be used as salad dressing, and as many foods as possible are to be eaten raw. This diet permits "eating-all-the-time on permissible foods. Eat all day long and eat in between meals and when hungry from the special list of the raw complex carbohydrates. Carry them with you all day (raw vegetables)."

Dr. Stillman criticizes Dr. Atkins' high-fat diet, and Dr. Arnold Fox (Beverly Hills Diet) criticizes the Atkins and Scarsdale diets. Each believes his is the miracle diet.

Dr. Fox says that the low-carbohydrate, high-protein diet causes bodily harm, such as calcium depletion, dehydration, sleeplessness, nausea, fatigue, atherosclerosis, gout, hypoglycemia, vascular, thrombosis, liver and gall bladder diseases, hypertension, cancer of the colon and breast, cardiac arrhythmia, postural hypotension and coronary heart disease, and says he does "mean to scare you."

The Beverly Hills diet is better than the high-protein, low-carbohydrate diets criticized by Dr. Fox, principally because it advocates the use of large amounts of raw fresh vegetables, and allows moderate amounts of raw fresh fruit. But the all-day-long eating plan (no rest for the digestive system) can result in a lot of damage if continued for long periods. And the generous use of dairy products and egg white, the use of vinegar and spices, and the daily use of flesh foods, will also eventually cause problems.

Dr. Fox recommends "wogging" for exercises—walk a bit, jog a bit, a minimum of thirty minutes, four days a week, and advocates the use of vitamin and mineral supplements.

18.9 The Pritikin Diet

This diet includes two kinds of whole grain foods daily, bran, beans, peas, potatoes, sweet potatoes, and a variety of vegetables and fruits. For vitamin B-12 it calls for six ounces of low-fat animal protein per week (or unwashed, unpolluted produce) or vitamin B-12 supplements. In addition to three full meals daily, the diet provides for snacking between meals: "Don't go hungry between meals." Spices are permitted, but not coffee, alcohol, or tobacco.

This is a vegetarian (or almost vegetarian) diet, but the good "track record" of the Pritikin Program is due more to the excellent exercise program than to the diet. Hygienists, of course, find the preoccupation with vitamin B-12 unnecessary, and find the frequent snacking inadvisable, giving the digestive system inadequate time to process the previous meal before ingesting more food.

18.10 Weight-Watchers

The popular Weight-Watchers Diet is essentially a low-carbohydrate, high-protein diet, which has been more or less successful, due to a great extent to its methodology—group supportiveness, public approval for accomplishment, and public disapproval for backsliders. Techniques for changing habits and self-control are also provided.

Liver, steak, veal, pork, turkey, chicken, frankfurters, fish, shrimp, salmon, tuna, sardines, eggs, and cheese are used for protein. They say "buy meat as lean as possible" and allow ten to twelve ounces of meat, fish, cheese, and eggs daily (a little more for men).

Three full meals and two snacks are permitted. A choice of cereal, bread, or potatoes is offered at meals. Two pieces of fruit daily are allowed, as well as generous amounts of nonstarchy vegetables.

They recommend using as little coffee and tea as possible, especially if it disturbs sleep, and consider the use of alcohol inadvisable. Nothing is said about seasonings, except for the role of salt in the retention of fluids in the body.

"Increased activity" is advocated, and emphasis is accorded the fact that the value of exercise "goes far beyond its impact on weight—improving the health of the heart and circulatory system, the general health, and the state of mind."

18.11 The Last Chance Diet

I am not sure whether the Last Chance Diet should be considered as "Fasting Fanaticism" or "Diet Fanaticism." Though it was not a true fast, the participants really received no food.

The only "food" ingested was a so-called "predigested liquid-protein formula" (a dark, syrupy liquid made from uncured cowhide, beef tendon, and artificial flavoring) which was said to contain all the amino acids (the building blocks of protein), no carbohydrates or fats, and very few calories. Vitamin pills, coffee, tea, and diet soda were also used, as well as drugs, depending upon the doctor's discretion.

In 1977, this "diet" was highly touted in the press and on television as a revolutionary, effective, safe way to deal with obesity. Individuals on this diet received no solid food for the duration (up to nine months), usually under the supervision of a medical doctor (although the liquid was also available in health food stores).

In November of 1977, twenty-six deaths of these dieters were reported, including the death of the wife of a specialist in internal medicine, commandant of the Air Force Base Hospital near Tampa, Florida.

The author of The Last Chance Diet, Dr. Robert Linn, a forty-three-year-old osteopath (whose diet book sold two million copies), convinced many people that this method of weight reduction was superior to another method which had been gaining recognition—a total fast, under qualified supervision, of usually a much shorter length of time, during which nothing but water is ingested—a Hygienic fast.

A Hygienic fast relies on the body's own indications that reserves are becoming depleted, so that the fast is terminated long before approaching any danger point.

Long before we began to get reports of deaths of people on "The Last Chance Diet," I alerted people to its dangers. Since, under the Last Chance Diet, the body is always receiving liquid protein, stimulants and medication, how can it ever be able to alert one with reliable signals that it has reached the time to call a halt?

Advocates of the Last Chance Diet still deny there is any proof that their product, "predigested liquid protein," caused the deaths. Dr. William H. Foege, director of the Center for Disease Control at Atlanta, Georgia, made a concentrated investigation of the cases of fifteen women on this diet who died suddenly of heart-related causes.

Each of the deaths was sudden and involved a person using a liquid-protein diet exclusively for a long period of time.

The deaths were attributed to ventricular fibrillation, in which the heart beats wildly and does not pump blood, but the cause of the irregular heartbeat is unknown. Dr. Foege said the fifteen women had dieted for an average of five months and had lost an average of eighty-three pounds. Twelve of the fifteen were under medical supervision. Foege concluded "there is a definite risk in using the product." (From a United Press International dispatch, *St. Petersburg Times*, January 5, 1978.)

Actually, it is not necessarily only the product, per se, that should be suspect, but the methodology as well.

18.12 Starch Blockers

What about the "new and revolutionary" starch blocker tablets that "have swept the country in recent months," according to a news article? (*St. Petersburg Times*, Jane Brody, p. 1A, July 2, 1982.)

The ballyhoo claimed that doctors had confirmed that they are perfectly safe. One can eat high-caloried starch foods without paying the price in weight gain, because the starch blockers act to prevent digestion and assimilation of the starch, which passes through the digestive tract relatively unchanged, much as does fiber or roughage.

It sounded plausible, but even though I had no means of disproving these claims, I would not dream of recommending such a product. I knew that, ultimately, it would be discovered that such unnatural interference with digestive processes would exact a price. It seemed to me that—since large amounts of roughage, such as are found in bran, inhibit absorption of minerals—this would very likely be true of starch which is eaten and not absorbed, but disposed of as unusable. And, I thought, "who knows what additional side-effects or problems would eventually be discovered?" A few days after I wrote the above comments about the starch stopper tablets, I heard on a newsbreak (at 9 pm on WEDU, Channel 3, Tampa, Florida, July 1, 1982) that the F.D.A. had announced that the starch blockers are untested and probably unsafe, and ordered them off the market. Some complaints of nausea, vomiting, diarrhea, and stomach pains after their use had surfaced. The F.D.A. was also investigating five emergency room hospitalizations that had been linked to the use of starch blockers.

As of two days later (July 3, 1982) the starch blockers were still being offered on TV, and the TV evening news said "they're selling like hot cakes." In the St. Petersburg Times, July 5, 1982, the American Medical Clinics, Inc., with branches in St. Petersburg, Seminole, Holiday, and Hudson (Florida), advertised, "Join now and receive one week free plus twenty-five free starch blockers—lose up to a pound a day. We're the proven, professional weight-loss method."

Jane Brody says, "The starch blockers are extracts of raw beans, usually kidney beans. They are said to contain a substance that inhibits the enzyme amylase which digests starch in the body. Consumers are told to take a certain number of tablets before eating starch-laden foods, such as bread, potatoes, pasta, rice, and beans. The pills are marketed under many different brand names and prices range from five dollars to twenty dollars for fifty tablets. By one estimate, in the course of a week, Americans are now swallowing more than ten million such tablets. Nutrition experts have reported that if the tablets work as described, they would result in large amounts of undigested starch reaching the large intestine. Intestinal bacteria could then digest the starch and produce flatulence, abdominal cramps, and diarrhea.

Manufacturers have been marketing starch blockers without federal approval under the presumption that, as an extract of beans, they were a food, not a drug. However, the drug agency said that, regardless of their source, starch blockers 'may affect the body's normal metabolic functions' and thus have drug-like effects."

A substance is classified as a drug if it is used for a nonfood purpose, and if it alters a body function. The manufacturers have refused specific information about the exact composition of the product, and no adequate effectiveness or safely data have been supplied.

18.13 Sucrose Polyester

July 15, 1982—The evening news reported another "breakthrough" (WFLA-TV, Tampa, 6:30 and WTVT-TV, Tampa, 7:00). "Sucrose polyester" is a fake fat that looks, tastes, and smells like vegetable fat. It can be used as a spread for bread, or for cooking, or for any purpose for which butter or vegetable fat might be used. It was said that one could save 500-600 calories daily by using it. No one said exactly what is in sucrose polyester, but it was described as a synthetic substance.

It is to be treated as a prescription drug, subject to approval by the F.D.A. Procter and Gamble holds the patent on the fake fat, and they expect to market the substance as soon as it is approved by the F.D.A.

Another miracle! (But don't count on it!)

18.14 The Golden Door

The Golden Door, a fabulously expensive health spa in California, uses a 579-calorie, one-day liquid diet, which they say can help take off some extra weight while refreshing the body and mind. It is used principally to start off a diet week. They warn: this liquid diet should not be followed for more than one day, and it is advisable to see your doctor before following this one-day diet or any other liquid "fast" or reducing program.

The ingredients of the liquid sound fine: fruits, vegetables, and nuts. But they are poorly combined; e.g. nuts are liquified with banana, vanilla, and nutmeg; pineapple is combined with cucumber and parsley; and raw onion is used in a vegetable combination drink. Four of the drinks are supplemented with one-third ounce of sunflower seeds and three or four pine nuts.

I seriously doubt whether this one-day liquid diet would produce any significant weight loss or other beneficial result. In any event, a better choice for a one-day preparation for a diet would be a thirty-six hour fast, or a day on whole fruit only, or a day on one kind of freshly-squeezed fruit juice.

18.15 Plastic Coating

A recent issue of *Healthful Living* (June 1982) described a new diet drink which performs its miracles by plastic coating the digestive tract to block absorption of food, believe it or not! It contains flavored fluorocarbons, which are the synthetic substances that give paints and plastics their coating power. The inventor believes the F.D.A. will give its approval.

18.16 Cambridge Diet

A question to Ann Landers (*St. Petersburg Times*, June 26, 1982) about the Cambridge Liquid Diet, on which an overweight girl was losing a pound a day, elicited the following response: "I do not know what the Cambridge Liquid Diet is....I know of several liquid diets that have caused a great many problems—such as serious skin rashes, fainting spells, respiratory trouble and the loss of hair and fingernails."

By contrast, supervised fasting, even for long periods, results in strengthening and hardening of the fingernails. This is due to the wisdom of the body when external supplies are temporarily unavailable, producing increased efficiency in the distribution of available nutrients. More details of this interesting phenomenon, and many others, will be provided in the lessons about fasting.

18.17 Staple In the Ear

Another relatively new weight-loss system is the staple in the ear, which some claim is successful and others have found useless. What are the side-effects and negative results likely to be—as a result of blocking natural stimuli?

18.18 Appetite Suppressants

All kinds of appetite suppressants are offered: Ayds candy, Dexatrim pills, Figurines bars, prescription drugs, etc. Needless to say, they are all harmful drugs.

18.19 How Ridiculous Can You Get?

I have not discussed some of the more ridiculous diets, like the egg diet (eating nothing but eggs for a week or so): skim milk and bananas; steak and eggs and tomatoes; cabbage soup and rice; the grapefruit diet; eating a half grapefruit before every meal "because it will reduce the weight-gain potential of other foods;" the high-calorie, weight-loss diet; the protein-sparing modified fast: eat nothing but about nine to ten ounces of meat or fish per day, plus supplements, coffee, tea, and diet soda; eat all you want of one or two foods.

Most of these have one thing in common, they reduce calories in a gimmicky way, and one learns it is possible to lose ten pounds in two weeks eating almost any crazy combination of foods, as long as calories are drastically reduced. But what happens afterwards? Back to the old yoyo syndrome!

18.20 I Have Made My Point

It would be a losing battle to try to research and describe all of the diets and weight-loss modalities which crowd the marketplace and compete for the dollars of the gullible. Although I have merely "scratched the surface," I believe I have made my point.

Magic formulae all eventually turn out to be wolves in sheep's clothing, but rational living and intelligent diet planning, working with nature, instead of trying to outwit her, never become obsolete.

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19. Bulimia

One pernicious result of diet fanaticism is a binge-and-purge eating disorder, called bulimia or bulimorexia (obsession with eating, but with a compulsion to be thin). It may start after a period of stringent dieting, subsequently degenerating into alternate dieting and binging. The person may eat up to 40,000 calories (or even more) in a couple of hours.

One lady described a typical binge: a couple of Burger Queen, burgers with French fries; then a repeat at McDonald's; followed by a dozen doughnuts at the doughnut shop; a couple of sundaes at Dairy Queen; then home to raid the refrigerator; after which she throws up all of it.

In the earlier stages, the vomiting is self-induced, but it later becomes involuntary. Bulimics may eat and throw up ten times in one day. Some bulimics take large amounts of laxatives and/or diuretics every day to prevent weight gain, or simply to relieve pain after the binge. They may starve themselves for a couple days afterward.

Eventually, the bulimia is so uncontrollable that every time they start to eat, it turns into a binge. It controls them completely. They are no longer doing it for the enjoyment of eating, or thinking about weight control, but because they can't help themselves. It develops to a point where it is a physical addiction in addition to a psychological disorder.

It becomes very, very dangerous, and can result in metabolic alkalosis, a destruction of the body's ability to maintain its acid-alkaline balance. It can damage the liver and kidneys, and can be life-threatening. The constant eating (food in their mouths for hours at a time) also results in tooth decay.

This disorder was discussed on the Phil Donahue Show, WTSP, Channel 10, Tampa, on June 28, 1982.

Most bulimics are women, only 5% are men. Most bulimics look normal and are not significantly overweight or underweight, but food has become their total preoccupation, and they spend six to eight hours a day in its involvement. A bulimic usually binges and purges in secret, and they have been said to spend as much as several hundred dollars on food in one weekend.

This behavior is epidemic in colleges; up to 30% of college students practice some form of bulimia, according lo the 20/20 TV program on July 1, 1982.

It is also common among dancers and actresses (very few men are bulimics). Actress Jane Fonda admitted to having been a bulimic for years. She said the more you do it, the more you need to do it. She said as she grew older and realized what she was doing to herself, she was determined to stop. It took her sixteen years to break the pattern. She accomplished it by the use of willpower and exercise.

Both anorexia and bulimia are severe and dangerous eating disorders.

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20. A Rational System Of Weight Control

Most of the people who are concerned about their weight need not necessarily fast, nor should they use any of the legion of "reducing diets" or "systems" that are offered from all sides.

For most people, the Hygienic diet itself is a rational system of weight control. It provides complete and optimal nutrition, with the least expenditure or waste of bodily energy—and without the surfeit or redundancy that gluts the organism and produces obesity and disease.

When a nutritionally-superior diet is maintained, the weight of the body tends to normalize. There is built-in weight control in a food program which includes a large percentage of fresh, whole, uncooked vegetables and fruits; Such a vitamin- and mineral-rich, high-residue, fibrous diet is not nearly as conducive to overeating as the conventional diets.

It may be worthy of note that, of the various programs which have been offered to the public, those which have been either harmless or least harmful, and have "enjoyed" even a modicum of success are those which include fresh fruits, fresh vegetables, and exercise in the regimen, and thus begin to approach the Hygienic system.

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20. Heroic Methods For Compulsive Eaters

In view of the pitfalls encountered by compulsive eaters who manage to overeat and gain weight even on such a superior food program, heroic methods must be devised to help them. It is hoped that the suggestions outlined in this lesson will prove successful.

This lesson contains an excellent article by Dr. Bass, giving specific ideas for developing willpower, mind control, and new habits.

20.1 Surgery for Obesity

Overeaters can be saved from suffering and disease. The misguided individuals who resort to cutting the vagus nerve, intestinal bypass surgery, or gastric stapling because they believe the Hygienic system and self-discipline are too difficult, will have a rude awakening. Their "easy way out" will prove to be their complete undoing.

In addition to the obvious insult to the organism by the surgery (and these are major abdominal surgical procedures), the side effects and problems that usually follow are even worse. And to add further "insult to injury"—these procedures are often no more "successful" than other "panaceas" for weight control.

"Many experts now feel that operations for obesity (such as intestinal bypass surgery) are not worth doing, because of the side effects and problems that usually ensue. A recent review by the Ottawa (Canada) School of Medicine suggests that the failure rate for gastric stapling may approach 50%. Furthermore, early results can sometimes be misleading. While there may be a sudden and dramatic initial weight loss, many patients find ways of regaining the lost weight, even though the stomach capacity has been reduced. In short, gastric stapling is still regarded by many as 'experimental'—at least until we obtain more long-term follow-up data on its effectiveness and possible side effects." (G. Timothy Johnson, M.D., "House Call," *Suncoast News*, 1/6/82.)

20.2 Overeaters Anonymous

So we are back to controlling the body by learning control of the mind. The easy ways out are dangerous myths. Those who are determined to succeed *will* succeed. They *must* succeed. The alternatives are too grim to contemplate.

"Overeaters Anonymous" has helped many people. Those who can't make it on their own should enlist their help. Be sure to read the inspirational article in this lesson entitled "Help—I Can't Stop Eating." The author is now a "truly high-quality vegetarian"—a vegan—and says in part: "Because we have come to believe that most of the fat is between our ears, the (Overeaters Anonymous) program works to help change our thinking, so that we no longer want to overeat. That's the beauty of it; it's the miracle every compulsive eater has long dreamed of, to eat all he/she wants and maintain a normal weight. It is only possible when all you truly desire is a normal amount of food."

The article tells how to reach a group nearby, or, for those in isolated areas, the same things can be accomplished by "loner kits" and mail sponsors.

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22. Knowledge And Wisdom

Overeating, fasting fanaticism, and diet fanaticism have physical and physiological overtones, but they can be controlled in the mind. The first and best tool is knowledge.

Dr. Keki Sidhwa says, "The study of Natural Hygiene may be viewed as a journey—a journey from knowledge to wisdom." He says that when you apply Natural Hygiene to your life, health and wholesomeness emerge, though it may take time. Ultimately, the supreme experience of wisdom comes to possess us, transforming us, so we may, in our turn, transform the world.

22. Epilogue

It is generally believed that, as long as an individual is in health, or apparently so, he is not injured by habitually eating more than is really necessary for the healthy nourishment of his body, but this opinion is utterly and dangerously false. It is, indeed, one of the most mischievous errors entertained by the human mind. For there is nothing in nature more true, more certain, than these propositions: that all vital action is necessarily attended with some expenditure of vital power, and draws something from the ultimate fund of life; and therefore all excessive vital action, all intensity of vital action, increases the expenditure of vital power, and necessarily abbreviates the duration of human life; and consequently, however long the vital economy of any human body may be able to preserve the general balance of action, between the composing and decomposing elements, and maintain a general health of the system under excessive alimentation, yet nothing is more certain than that, just in proportion as the alimentation has exceeded the real healthy wants of the vital economy, and thus caused an unnecessary Expenditure of vital power, life has been abbreviated—even though the individual dies from what is called old age, without a single violent symptom of disease. The error of opinion on this subject is common and mischievous; and the truth should be presented in its strongest light.

But we have as yet only presented the subject and contemplated it in its most favourable aspect. The case I have presented is a very extraordinary one. As a matter of fact, very few indeed who have constantly overnourished their bodies do die from old age, but as a rule they die from painful and exhausting diseases long before that period is reached. Millions of human beings perish by disease, in all periods of life, from excessive alimentation or overeating. Generally, they are cut off by disease long before they have lived out their lives, and often prematurely. And the chief cause of all such death is, I must insist, overeating.

This can readily be proved....Overeating is the chief cause of all diseases; and disease shortens and destroys life. Of that there can be no question. But even if no adventitious cause comes in to induce sudden and violent death, either local or general, the continued overworking of the system will almost inevitably exhaust, debilitate, and relax some particular organ, and so destroy the balance of action in the vital economy, and thus gradually lead to chronic disease. Adipose tissue is deposited in various parts of the body—causing ruptures of the heart and the blood vessels, and hence premature death.

It is therefore true, beyond all question, that in all countries where human aliment is abundant and easily procured, gluttony or excessive alimentation is decidedly the greatest source of disease and suffering and premature death known to man.

—Hereward Carrington, *The Natural Food of Man*, pp. 266-268

23. Questions & Answers

If we are to eat only when truly hungry, and should not eat late in the evening, how do we resolve a conflict between these two principles?

> The principle preoccupation should be the correction of the habit of overeating (or of eating undesirable foods). If the day's program prevents taking meals at customary times, or if you are simply not hungry when the meals are served, and then find yourself with a compelling desire for food during the evening, it would seem best to satisfy your appetite with a fruit

meal, which may leave the stomach in a half hour or an hour, depending on the varieties eaten. I sometimes do this when I am away from home during the day, do not wish to eat the food that is available, and prefer to wait to eat my good fruit meal at home.

Winston Churchill was a famous gourmand and cigar smoker, yet he lived past the age of 90. How do you explain this?

The first and more important fact that determines our longevity is our heredity—our genes. Winston Churchill's long life was not due to his gormandizing and cigar smoking—it was in spite of it. If a man with such genes were to live correctly, who knows how long he could have lived?

I would like more details about "homeostasis," so I may better understand its meaning.

Dr. Walter B. Cannon, renowned professor of physiology at Harvard University, wrote a book (*The Wisdom of the Body*) in 1932, summarizing and demonstrating the fixity of the internal environment. In this book, he coined the word now generally used to describe the state produced by the constant adjustments made by the healthy body: *homeostasis*, derived from the Greek words that mean *staying the same*. The dictionary definition of homeostasis is "a state of physiological equilibrium produced by a balance of functions and of chemical composition within an organism." Dr. Cannon described the intricate sequences by which the healthy body regulates and integrates its functions to maintain the stability of the internal environment within narrow limits of variation. Such vital matters as oxygen, blood pressure, mineral salts, body temperature, composition of body fluids and the blood sugar level all remain relatively constant. When all the homeostatic mechanisms are functioning efficiently, every challenge to the body is handled in such a fashion as to prevent disease and permit continuous functioning.

I have a good appetite, and I know I overeat. In fact, I usually have an uncomfortable feeling of being too full after a meal. Yet I don't gain an ounce. I would like to gain about ten pounds, as I am too thin.

Some people can eat a lot of food and not gain weight. It is a question of the rate of metabolism. However, in your case, the very fact that you are overeating may be what is preventing weight gain. The body is unable to cope with the large quantities of food, and, as a result, much of it is not converted by the digestive system into assimilable substances. If eating more rationally (stopping before you feel so full) does not result in the desired weight gain, you might try a short fast of three days or so, or even a seven- to ten-day supervised fast (if a professional Hygienist determines this is advisable). Oftentimes the fast improves the assimilation capabilities of the body, and the individual gains weight. Also, are you exercising? An adequate, vigorous exercise program is important in improving the efficiency of the metabolism of food.

Finally, perhaps you are trying to stuff yourself in an effort to gain weight. It may be that being ten pounds below what you consider your ideal weight is what your body has determined is the best weight for you at the present time. The important question is, how do you feel? Stop stuffing yourself, and then see what happens. If you do not lose weight, and feel well, stop worrying about it. Weight is an individual matter. If you stay on a Hygienic diet, and eat rationally, sometimes the problem adjusts itself.

After my 29-day fast, it took a year for me to get up to about 95 pounds (from my fasting low weight of 68 pounds), and then I stopped gaining. I stayed on a Hygienic Program, and tried to forget about my thin appearance. I really needed ten additional pounds to look my best. About two years later, my weight increased to around 100 pounds, for no apparent reason. Obviously, my assimilation has improved. About five years later, I experiehced another five-pound weight gain to around 105 pounds, my present weight, which I have maintained for years. If I fast, I lose some weight, but it comes back to around 105 when I get back to eating regularly. Sometimes, in periods of high stress, like meeting unrealistic deadlines, or American Natural Hygiene Society Conventions, my weight drops several pounds, but gets back to about 105 when things return to normal.

I have read that most adults need 1800 to 2500 calories (or some even more) per day to maintain their weight, and that it lakes 3500 accumulated calories to gain or lose a pound. How many calories per day do you recommend?

The effort to standardize calorie consumption is a fallacious notion. I can only say that these amounts are often much more than is needed; and the measurement of weight loss or gain in terms of 3500 calories per pound often proves to be inconsistent when put to the test. Even though many of the charts provide for differences in sex, height, size of frame, and rate of activity, there are other differences that influence food requirements. Since every person has his own rate of metabolism, efforts to standardize in terms of calories are frequently inaccurate. If one is trying to lose weight, it is useful to determine high-caloried foods, so that excessive quantities of those foods are not used. If we are discussing Hygienic eating programs only, there is usually no need to be concerned about calories. A diet of all raw or mostly raw foods would ordinarily not contain the number of calories listed in the charts as the daily requirements, unless inordinate amounts of food were taken at meals or unless the person were a habitual snacker. Hygienic eating and living produce gradual improvement in metabolism and assimilation. The initial result of changing to a Hygienic program is usually a weight loss, followed by a leveling off, which continues for varying periods of time, after which, due to improvement in assimilation, weight can be maintained on lesser quantities of food.

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Article #1: It's All In the State of Mind By Walter D. Wintle

If you think you are beaten, you are,
If you think that you dare not, you don't,
If you'd like to win, but you think you can't,
It's almost certain you won't.
If you think you'll lose, you've lost,
For out in the world you'll find
Success begins with a fellow's will—
It's all in the state of mind.

Full many a race is lost
ere even a step is run,
And many a coward falls
ere even his work's begun,

Think big, and your deeds will grow;

Think small, and you'll fall behind;
Think that you can, and you will—
It's all in the state of mind.

If you think you are out-classed, you are;
You've got to think high to rise;
You've got to be sure of yourself before
You ever can win a prize,
Life's battles don't always go
To the stronger or faster man;
But soon or late the man who wins
Is the man who thinks he can.

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Article #2: How To Make Yourself Over by Self-Programming

How to Resculpture Your Thoughts, Behavior, and Character

The moments just before falling asleep are important to every person. They contain latent power to transform one's mental, moral and physical existence in an effective manner which, if properly utilized, may gradually alter one's external environment and one's internal character for the better. Even more important, one may use the potential power of these moments to alter his consciousness.

This exercise is done at night while lying in bed and before going to sleep. After making oneself comfortable and while lying on the back, one begins to construct scenes in which you permit yourself to become emotionally involved with your behavior on the projected screen.

To break an undesirable habit which is upsetting your life, taking compulsive overeating as an example, you begin in a manner similar to the following.

You see yourself sitting down at a table to eat a meal containing the foods you normally eat. If the table has dishes which you have found irresistible up to now, you see yourself eating the desired amount of each and then putting each dish away to go on to the next. If you want to give up the article of diet entirely, and if the food is cake or ice cream, you see yourself being offered the dish which you immediately refuse without hesitation and with strong determination. You should tell yourself that you are through with this food forever and that you even dislike it and will never desire it anymore. Feel the strong dislike and intensity of your determination as you reject these undesired articles of diet. See yourself taking another food instead which is desirable in helping you reach your goal. If you want to learn to eat a food which is good for you, but which you don't like, then feel and see yourself eating and liking it. Instead of the cake you take an apple, for example, or if you prefer, you get up from the table, tell yourself you are satisfied to end the meal here and see yourself sitting down in a comfortable chair away from the table. If you wish, visualize yourself taking a walk, or doing anything that will distract your mind from food. Try to make these scenes as vivid and realistic as though they were actually happening. The key here is to feel that you strongly desire the good act and that you strongly dislike the one you wish to give up.

The sharply-focused clearness and constant intensity of the images you produce will imprint themselves or your consciousness as you remain in this relaxed state. Choose images which are vivid and don't allow them to become vague and dreamy. For best results, the imagination should be powerful, for here you are using imagination to make yourself over completely. This should be supported by a firm faith, secure feeling and confidence that success will follow your efforts. These suggestions should be repeated over and over with the clear visualization of success being achieved. These repetitions are to be perservered in until you reach your final goal—that of eliminating a bad habit and replacing it with a good one.

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Article #3: Say Goodbye To Compulsive Eating by Mehl McDowell, M.D.

The therapeutic breakthrough came when I was searching for a clear-cut, easily definable dietary rule that would simplify weight control. I needed a rule which would be healthy, easy to live by and readily taught by behavior therapy techniques.

The rule I selected to try was the complete avoidance of all foods containing refined sugar or white flour. Using the habit-retraining techniques with which I was familiar, I programmed my willing weight control patients to dislike the sugar-flour foods and completely eliminate them from their eating style.

Now the great surprise—the breakthrough—surfaced when patient after patient came to me following several days of eating a diet free of all sugar and white flour and joyfully reported that the irresistible cravings had disappeared.

Their irresistible cravings could now be understood as the typical cravings of addicts. The mysterious urges stemmed from the cyclic, biochemical processes of addiction.

Occasionally, a patient will report irresistible cravings for some other food not in the sugar-white flour group.

But the establishment of total abstinence from the foods identified as the culprits is only the *first* phase in eliminating the addictive-like, irresistible cravings for those foods. The second phase is extinguishing the *conditioned response cravings* for those foods.

How do I eliminate these conditioned response cravings in the case of sugar-white flour addicts? I use the term "glue" and "glue" foods" to mean all foods containing any highly refined sugar or flour.

If a patient has a desire for a dish of chocolate ice cream, for instance, I instruct him to immediately picture that ice cream "glued" into disgusting fat deposits on his abdomen. This picturing takes place while the patient is in an altered state of consciousness, such as that of deep relaxation, meditation or hypnosis. With sufficient repetition of such imaginary scenes, this "disgust" feeling becomes associated with that type of food in real life encounters.

The patient is further instructed to deliberately and instantly, throughout his waking life, react to every real life reminder of his enemy foods with this strong vivid disgust response. He then immediately rewards himself with a sense of being in control, "captain of my ship" and anticipating his trim self-image.

This use of an interference response coupled with disgust, and then immediately followed by a reward for deliberately feeling negative toward the enemy foods, has proven of great value in preventing relapse. We call that our "instant yuk" technique. It only takes a couple of seconds and it can be repeated for years.

Once the addiction is under control, it becomes much easier to retrain such fattening habits as eating too fast, eating until too full, and frequent snacking. it appears that these habits are fueled by the presence of addictive cravings. They fall away readily after the fire of cravings is extinguished.

Also, many patients find that they no longer have the habit of eating when under psychological and emotional stress. The cravings of an addicted person, regardless of the substance of his addiction, are regularly mobilized when the individual is in an excited state—when he is "turned on" by any challenging stress, joy, anger, anxiety, tense depression, tense boredom, etc.

Most patients who have successfully extinguished their addictive state, including their conditioned cravings, do not have a flare-up of their cravings under such psychological and emotional stress conditions.

These successful ex-addicts are frequently surprised and pleased to find that they are not as weak, insecure and neurotically self-destructive as they believed they were during their addictive period.

Since this therapeutic approach eliminates major sources of former eating pleasure, the treatment must stress that a successful outcome is a gain and not a deprivation.

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Article #4: Well! You Wanted to Know by Vivian V. Vetrano

How often should one fast to counteract bad foods that were eaten? Is it better to fast one day per week, or three days per month, or what way is the most beneficial for maximum health?

> First of all, one should not eat foods that are refined or that are not wholesome. If you happen to be in a situation that causes you to eat unwholesome substances then, of course, one has to do something to counter the detrimental effects of his or her misbehavior. There are several ways one may counter misbehavior. You may use one method, or either of them, according to the situation. After you have had a binge, you will be in high gear (stimulated for about a day), until the body has eliminated the poisons. You may not feel bad until the second day after the binge. In this case it is wise, especially if you have eaten refined products, to eat a salad at each meal, containing a great deal of lettuce, the day after the binge. Then the second day after the binge you may fast, for that is the day you are going to be in low gear. That is, you will feel miserable and tired from having been stimulated by the unwholesome substances. It will help to be able to stay at home and rest completely while fasting, the second day after the binge.
>
> Some people have their low the very next day after a binge. It is very similar to a hangover. They feel tired, out of sorts, depressed and their aches and pains, if they were suffering with any disease, will be worse. If your low comes the very next day, it is best to fast at this time and rest, for if you don't, having had junk food and not being very hungry and tired to boot, you will tend to go to junk food again to stimulate yourself to get through a completely terrible day. If you have a tendency to repeat the act, then it is best to cease eating altogether and rest and fast the very next day after the wrongful thing you have done to your beautiful organism.
>
> If you are eating bad foods all the time, you must not fast every other day, or even two or three times a week. You must not fast to counter this situation. You will keep yourself in a hungry state all the time and because you refuse to let yourself eat good food but continue

trying to force yourself to fast, each time you misbehave, you will set up a cycle of being hungry because you won't let yourself eat good food and you will always go out and binge. This is a similar situation to people who have a hard time losing weight. They can't lose weight while eating Hygienically when eating fruits so they deny themselves nice juicy sweet fruits only to get a carbohydrate hunger; so they go out and eat candy and other refined carbohydrates. Whereas, if they had permitted themselves a little bit of fruit, and fasted one day a week, they would lose weight, and would be preventing themselves from the cycle of binging on sweets.

if you get into the habit of eating poisoned and refined foods often and think you can undo the evils of this way of life by fasting, you are mistaken. Even though you may fast to help eliminate the poison, your body has done double work. It has to expend energy trying to digest the poisonous substances. Then it has to expend energy to eliminate the poisons. It has lost minerals and vitamins in both processes. The fast itself causes an extra expenditure of energy because of the extra work it has to do to compensate for the binge. The grand total is negative and equals enervation and a loss of reserves.

It is really a bad policy to think you can overcome the effects of wrong living by fasting. Even though the body can overcome many of the detrimental effects, normal cells are destroyed in the process and the end result is still negative. You cannot build positive vibrant health in this manner.

For maximum health one does not have to fast unless injured or unless there is an acute crisis of some sort. If you live genuinely Hygienically, all you need, because of a polluted environment, is a once a year rest and "tune-up" fast of about eight to fourteen days. If you live in the country, away from all types of pollution, you may not require a fast of that length.

Fasting one day a week may be too much for some people. They may not be able to gain weight, or muscle by fasting this often. Fasting three days a month, for no reason at all, is not necessary. Fasting should be used instinctively. When your hunger is absent, fast. As long as hunger is present and there is no biogony or physical or mental problem then there is no reason to fast. Just live *Hygienically.*

What about the most efficient cleanser to use daily—intestinal cleanser, yeast cakes, or granulated yeast, juice, lemon juice with salt water, vinegar and maple syrup and cayenne mixture?

You don't need an intestinal cleanser or otherwise. The lining of the entire gastrointestinal tract is self-cleansing. The mucous membrane, from the mouth to the anus, contains what are known as goblet cells. When filled with mucus these cells look like goblets. Their purpose is to secrete the mucus to keep the lining of our food tube moist and clean. Debris does not collect inside the intestinal tract because the mucus keeps the surface slippery, and peristalsis keeps the food waste moving along toward the anus, where it is voided.

Pay no attention to the sales pitch for colonics and intestinal cleanser, for our intestines are self-cleaning and crusts can't accumulate in the intestines. All of the substances that are considered cleaners are in reality dirtiers. They are not foods and do not belong in the intestinal tract where they may be absorbed and dirty the system. Salt is a poison; yeast cakes and granulated yeast are not digestible and are harmful; vinegar has acetic acid and alcohol in it which are poisons; maple syrup is a cooked product and not good for you; and cayenne pepper is a poison that damages the liver and kidneys and irritates all the tissues with which it comes in contact. The only substance that is not poisonous is lemon juice, but

> since foods don't cleanse the living organism, that is, the living organism alone cleanses itself, why fool yourself?
>
> Don't eat bulkless substances. Just eat natural fresh fruits, vegetables and nuts and your intestinal tract will always be clean.

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Article #5: Why I Don't Fast To Lose Weight By Marti Fry

I have a tendency to overeat because I, like so many others, greatly enjoy eating. I find it difficult to consistently control myself when it comes to how much I eat and how often. It takes determination. It also takes pursuit of other activities, such as studying, hiking and conversing, that give me my "kicks" in more wholesome ways than "recreational eating."

I was about ten pounds overweight a couple of years ago, and, on my small frame, it looked like a lot because the fat concentrated around my middle. I fasted every week for one to three days and lost my extra weight—but I gained it back when I stopped my weekly fasts because I was accustomed to eating too much on the days when I wasn't fasting.

Next I tried a single long fast for a couple of weeks. Again I lost my extra weight. But, again I gained it back, this time because I had such a raving appetite and experienced such a keen enjoyment of my food. (Food tastes better after a fast because of the enhancement of our sensory perceptions when we are less toxic.)

I spoke with Dr. Vivian V. Vetrano, a professional Hygienic practitioner, about my problem of keeping excess pounds off. She recommended that I stop fasting to lose weight. Instead, she said, I should develop good daily habits. She advised me to eat slightly less than I would for weight maintenance, to refrain from snacking, to engage in daily vigorous exercise, and to get plenty of rest and sleep. She said I would lose about two to three pounds a week and keep it off.

I didn't lose two to three pounds a week. In fact, I lost only about a pound a week because I didn't cut down on how much I ate as much as I should have. But I did lose weight—and I did keep it off!

In the last month or so I gained a couple of extra pounds. I fasted for 36 hours last week and lost them. But, after the fast my appetite was enormous. It took larger portions of food to fill me up, and I got hungry more often. This lasted for a couple days after my fast. My appetite was great and my eating capacity was temporarily increased.

Eating more heavily and more often than normal immediately after my fast got me started on a bad habit of overeating. Not only did I regain the weight lost, but I also gained an extra pound or two! So now it's time for me to forget about fasting and get back in the habit of moderate eating every day.

Note: Many people find fasting to be the easiest, quickest, and most effective way to lose weight. Others, like myself, find it better not to fast to lose weight. But all people keep their weight off by healthful living and eating habits.

Article #6: Help! I Can't Stop Eating

We often read that vegetarians, particularly total vegetarians, are slimmer than the population averages. Statistically, this may well be so, but anyone who is a compulsive overeater knows that whether on an omniverous or vegetarian eating plan, it is often impossible to stop pushing in the food.

Guilt and self-recrimination follow every binge, and well-meaning friends are always on hand with their favorite diet tips. But the tips don't help, even if pride allows us to accept them. That's because we've been on all the diets, to the doctors and the fat farms and the hypnotists and faith healers—but that first fatal bite always leads once again to uncontrollable gorging.

I would like to share what has helped me recover from this tragic illness: the 12-step program of Overeaters Anonymous taken directly from the time-honored Alcoholics Anonymous program. We use their steps to recover on the physical, emotional and spiritual levels, and we read the A.A. literature, simply substituting the word food for alcohol and compulsive eater for alcoholic. O.A., a fellowship which has no dues or fees, is wonderful for vegetarians because it is not a diet club and does not deal in diets, many of which would exclude a vegetarian from the start. Because we have come to believe that most of the fat is between our ears, the program works to help change our thinking so that we no longer want to overeat. That's the beauty of it: it's the miracle every compulsive eater has long dreamed of, to eat all he/she wants and maintain a normal weight. It's only possible when all you truly desire is a normal amount of decent food.

Overeaters Anonymous is listed in telephone directories of most major cities. No one is too fat or too thin to recover. O.A. recognizes that anorexia nervosa, self-imposed starvation, and compulsive vomiting are other aspects of the basic disease of compulsive eating: a physical allergy to certain foods and large amounts of food, combined with a mental obsession that enslaves the victim to his/her addiction.

My own recovery has resulted in a slender body (a 68-pound weight loss maintained for two years, quite a miracle for a former yo-yo dieter), the indescribable joy of freedom from cravings and food fears, an emotional poise that I would never have imagined possible, and truly high-quality vegetarianism. Prior to embarking upon recovery from compulsive overeating, I felt like a hypocritcal vegetarian: who would want to give up meat if I were their only example of a vegetarian, a person physically unhealthy and emotionally unstable? Recovery has also meant that I've been able to become a vegan, something I'd wanted to do for several years but was not able to accomplish because of my love affair with a variety of foods.

You will notice that there is no name given for the writer of this article. That is because O.A. members remain anonymous at the public level. (When I share my program, I as an individual am not important; it's a matter of "principles before personalities." I keep my program and further my recovery by giving away what has been given me. I am responsible for extending the hand and heart of O.A. to all who share my condition, and that service orientation expands to enrich my family and professional life and my work for vegetarianism.)

If your eating is destroying your world instead of nourishing your body, there is a solution. It's a tragic, disease, but a beautiful recovery.

—Anyonymous

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Lesson 45 - Introduction To Fasting

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1. What Is Fasting?

There are many definitions of fasting and there are many misunderstandings about fasting.

The word "fasting" is derived from the Anglo Saxon language and means "firm" or "fixed," the word being "faest," and during these early periods the practice of abstaining from food during certain periods was referred to as fasting. Therefore, it was related to a person firmly withholding food.

From our standpoint, fasting refers to abstinence from food in the total sense. Commonly, and in many religious organizations, fasting refers to abstinence from certain prescribed foods.

In certain quarters, the common language usage is to refer to certain specific foods, and a person may be said to be on a "juice fast" when they are subsisting on juices. In actual fact, these are juice diets.

Fasting in the broad sense may be regarded as negative nutrition compelling the organism to subsist on nourishment that it has stored within itself.

For the purposes of this course, fasting means the voluntary and complete abstinence from all food except water while nutritional reserves remain adequate to sustain life and normal function.

1.1 Fasting vs. Starving

It is important also to make a clear distinction between fasting and starving.

The word "starve" is also derived from the old English word "steorfan" which means "pestilence," "mortality." Therefore, to starve is to die, and this is what will quickly happen if nutritional reserves are exhausted.

Therefore, we must fully understand that fasting represents a process of utilizing nutritional reserves while abstaining from eating. Conversely, starvation represents a state where the nutritional reserves have been exhausted and the organism's vital tissues are rapidly being broken down.

2. History Of Fasting

Fasting has a long history, but much of it is associated with religion. There are over 30 references to fasting in the Bible. There are numerous references to fasting among non-Christian religious groups. As a religious observance fasting has been practiced for centuries, and it undoubtedly, as a practice, preceded recorded history.

It is evident from records that exist that abstinence, either partial or complete, from all food or from certain foods, existed in Assyria, Babylon, China, Greece, India, Palestine, Persia and Rome, and the records from the early civilizations of Mesopotamia and Egypt indicate that fasting of some type was an important part of religious practice. However, I would refer the reader to other literature to investigate this aspect of fasting because here we are more properly concerned with the utilization of fasting as a means of recovering and preserving health.

We are interested in therapeutic fasting and I use the word "therapeutic" in the original sense and this is important.

"Therapeutic" is derived from the Greek language and means "to attend," "to minister," "to tend the sick." It does not necessarily mean to employ a range of treatments called therapies.

So our preoccupation with fasting relates to the application of fasting as a health measure.

Aside from religious fasting it has also been associated with magic, with specific disciplinary practices, with exhibitions for the sake of notoriety, and also in the twentieth century especially with hunger strikes. The recent incident involving Bobby Sands and his comrades in Northern Ireland has given a lot of publicity to the subject. However, these and other uses of fasting have little to do with our consideration of fasting as a scientific procedure involved in the care of the well and the sick.

During the last hundred years or so, the subject of fasting has undergone close experimental and scientific scrutiny which was probably initiated by the famous physiologist, Dr. Francis Gano Benedict of the Carnegie Institute in Massachusetts. His book, *The Study of Prolonged Fasting*, is well worth close perusal today.

In more recent times, Dr. G.F. Cahill has made enormous strides in our understanding of the physiological and biochemical mechanisms of fasting. It has been only over the last 150 years or so since the development of the hygienic system that fasting has been employed as a serious and satisfactory health procedure, and the work of these remarkable pioneers has added greatly to our understanding of the clinical aspects of fasting and the remarkable benefits that are available to the sick through its employment.

A brief review of some of the giants of hygienic history may be relevant here, for it was through these people that the employment of fasting became a fundamental practice in the hygienic care of the well and the sick.

Dr. Isaac Jennings was born in Fairfield, Connecticut, in 1788, and after many years of conventional medical practice, he made an enlightened discovery. That was in the year 1822 when his ideas as a result of his experiences and observations radically changed and he came to the sudden conviction that "medicine is a gross delusion from beginning to end." He developed and taught a philosophy which he called "Orthopathy," which he claimed expressed his conception of the essential nature of disease. Dr. Jennings lies at the beginning of a new movement, a health reform movement, which took place not only in the United States but also in Western Europe. It was subsequently absorbed into the hygienic system. One of Dr. Jennings converts was Dr. William Alcott from Boston, a second cousin of Louisa May Alcott who wrote the classic novel *Little Women*.

Dr. Alcott was a prolific writer and expounded the principles of diet reform, vegetarianism, and other major ingredients of the health revolution.

Dr. Thomas Low Nichols and his wife, Mary Gove, were influenced by the reformatory and inspiring lectures and teachings of Sylvester Graham, a preacher of the early nineteenth century who based his health reform principles on basic physiology.

Dr. Nichols and his wife became avid supporters of the hygienic movement and its practices.

In the mid-nineteenth century a magazine entitled *The Laws of Life* was edited by Dr. Harriet Austin who was among the first four women to graduate in medicine in the United States. She was associated with another famous hygienist, Dr. James C. Jackson. Both of these fine practitioners were enthusiasts of hygiene and especially fasting, and Dr. Austin herself was vigorously active in women's reform movements.

Another contemporary was Dr. Susanna Way Dodds, and these two women brought about a great deal of health reform in the latter part of the nineteenth century.

Dr. Dodds actually established a major college in St. Louis, Missouri, in 1887, and she wrote extensively on the subject of hygiene.

Among all of these eminent figures arose one man who displayed a remarkable ability for referring arguments back to first principles.

Here, I allude to Dr. Russell Trall, a most prolific writer, who expounded his revolutionary ideas with vigor and clarity. His many books, some of which have been reprinted recently, make vitally important reading for the student of hygiene and fasting.

Among the many hygienists was Dr. Edward Hooker Dewey who was born in Pennsylvania in 1849 and developed a strong advocacy of fasting. He wrote a number of books, one being *The No Breakfast Plan* which introduced the subject of fasting. Even at this time the development of the science of physiology was supporting the employment of fasting.

In this connection, the famous Dr. Beaumont did a lot of useful experimental work on a North American called Alexis St. Martin. This gentleman has sustained a gunshot wound in the abdomen and the lesion was open into the gastric cavity. As a result of this, Beaumont was able to observe the digestion of various foods and the change in the gastric juice constitution under different conditions, and I quote Beaumont.

"In febrile diatheses very little or no gastric juices are secreted, hence the importance of withholding food from the stomach in febrile complaints. It can afford no nourishment, it is actually a source of irritation to that organ, and consequently to the whole system. No solvent can be secreted under the circumstances and food is insoluble in the stomach as lead would be under ordinary circumstances."

Beaumont reports that food had lain in the stomach of Alexis St. Martin from six to fourteen hours unchanged except by decomposition, that is, by fermentation and putrefaction.

Beaumont also made reference to the old adage "feed a cold and starve a fever." Unfortunately, this particular saying has undergone considerable change over the centuries. When it was first uttered, it stated "feed a cold and you will have to starve a fever." This was subsequently shortened which has entirely altered its meaning and implication.

Another illustrious hygienic teacher was Dr. Robert Walter, born in 1841. Like Graham, Trall, and many others, he had the exceptional ability to understanding the law of causality. He practiced in Pennsylvania, possessed a brilliant mind, was a keen thinker, and a careful logician. He made a great contribution to our understanding of health and disease.

Dr. Charles E. Page was born in 1840. He studied medicine during the Civil War and wrote extensively on the subject of hygiene and fasting. He also made valuable literary contributions to numerous magazines as well as extolling the virtues of fasting in the care of children.

In the late days of the nineteenth century a man arrived from Belgium, born in 1845. His name was Dr. Felix Oswald, and among his numerous writings was one book entitled *Fasting, Hydropathy and Exercise* which should be of more than passing interest to any student of the subject.

Dr. John H. Tilden was born in Illinois in 1851. He graduated in medicine in 1872 and wrote extensively on health, disease, diet reform, and numerous procedures and techniques employed in the care of the sick. Among these techniques was fasting. Most of Dr. Tilden's major work and writing took place during the twentieth century, and his magazines and books are full of epigrams and philosophies which depict his clear and penetrating mind. At his clinic in Denver, he regularly employed fasting as a means of care.

An Englishman, Dr. Henry S. Tanner, made fasting somewhat popular. He underwent a number of fasts, the first undertaken in 1877 which I believe lasted for fourteen days. Later Dr. Tanner experimented with a fast of forty days. His experience gave a clear understanding of the need and importance of water during fasting. From the information I have, his initial fast was without water, with rather serious consequences.

Discussing the work of many able men in the twentieth century, we should seriously investigate the work of Lief, Thomson and Shelton. Dr. Stanley Lief traveled from England and was educated in the United States. He returned to Britain around 1912, and throughout his life had extensive experience with fasting, conducting numerous clinics where the procedure was employed. He encouraged and recommended long fasts, but not without competent supervision and had remarkable successes despite strong medical opposition.

Dr. James C. Thomson, a Scotsman, also went to the United States for his education. He returned to Scotland around the same time that Dr. Lief settled in London. He practiced in Edinburgh for many years and later established the famous Kingston Clinic. While an advocate of fasting in the short term and especially in febrile conditions, he was not enthusiastic about long fasts.

Dr. Herbert M. Shelton, the leading American hygienist, has properly had more experience with fasting than any other living authority. He has written a number of books on the subject which are highly recommended, and for many years conducted Dr. Shelton's Health School in San Antonio, Texas, where fasting was the fundamental procedure employed in the hygienic care.

Another prodigious worker for the twentieth century with a wide experience of fasting was Dr. Linda Burfield Hazzard. Her book, The Fasting Cure, is valuable and expresses a wide experience of the subject. Not only was her experience of fasting extensive, but she was thoroughly familiar with the long fast, which demands much more understanding and supervision than those of short duration.

In our consideration of the hygienic movement with special reference to fasting, it would be incomplete and inexcusable not to mention the current hygienists whose knowledge and experience is both wide and detailed.

Dr. William Esser had been in practice for almost fifty years and conducted an institution in Lake Worth, Florida.

Dr. Robert Gross has been active in the movement for several decades and conducts an institutional practice at Hyde Park, New York.

Dr. Gerald Benesh, who has now retired, was for many years vigorously active in both Cleveland, Ohio, and later in Southern California. Today, in the Cleveland area, Dr. David Scott operates an extensive practice employing fasting as a basis for hygienic care.

As a result of the urgent need to exploit the experience and knowledge of a number of unique individual professionals, in 1978 an organization was established—The International Association of Professional Natural Hygienists. This comprises professionals who have specialized knowledge of the value and employment of fasting. They are familiar with its processes and they are competent to conduct fasts in all states of health and disease where indicated. A list of members of this singularly important organization is available upon request.

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3. Why We Should Fast

Fasting represents a physiological rest and to make this point more lucid, we may look at the process of bio-energetics. When we consume food, the initial process is of ingestion, the placing of food into the mouth. This is followed by the process of mastication and swallowing as the food initially prepared within the oral cavity departs for the stomach where it is once again acted upon by the mechanical pressures of the muscular contractions of the stomach wall combined with the chemical effect of the secreted products referred to as gastric juice.

After a period of time ranging from one to several hours, the food is then actively transported into the duodenum where it undergoes further mechanical and chemical processing before it traverses the canal to a point where it may be absorbed—a process referred to as "active transport."

Whatever remains behind travels through the tract to the bowel and is expelled. The nutrients which have been absorbed are circulated and processed by the liver and other organs. Some may be stored and others directed to the cells for utilization.

If we look closely at this whole process, we will observe that ingestion, mastication, transport, gastric secretion, and mobility, intestinal secretion and activity, bowel action, absorption, circulation, storage, distribution, and final assimilation within the cell are energy expensive processes. Right to the point where the molecules of the nutrients are enzymatically broken down and energy is liberated, right to this point energy has been expended.

We can now see that in fasting-much of this energy does not have to be expended. In fact it is conserved. First, the nutrients are already in the body. Although they may be stored and subject to reconversion, they are nevertheless beyond the point of absorption, and are therefore more easily available to the body with a minimum energy expenditure. At the same time another grand process of the body is elimination. That is, the particular process by which metabolic toxins (by-products of normal bodily processes) are eliminated from the body.

As you have learned, the living organism is constantly producing toxins. These are substances which are the end result of the body's chemical processes, and it is essential that may be removed from the tissues and the blood as rapidly as they are produced. This is the process of elimination which is accomplished largely by the kidneys in producing urine, by the liver in producing bile, by the lungs in exchanging gaseous wastes.

In this total process then, we can argue that fasting represents a physiological rest, in that less energy is required for the utilization of nutrients when fasting than under normal conditions of feeding, and that as a consequence, more energy is available for the restorative and recuperative effort that the body is to make which involves increased elimination among the many processes.

3.1 Accumulation of Waste Products

We must bear in mind that the average person in this country eats far more food than necessary, exercises far less than needed, and rests far too little. All of these changes result in a build-up of unwanted waste material in the body. For instance, consider fat. When a person eats too much fat, the level of fat in the bloodstream becomes elevated. When there is too much fat in the bloodstream, some of it diffuses into the space between the blood vessels and the cells. When there is too much fat in this space, called the intercellular space, some of the fat diffuses across the cell membrane into the cells.

The result of having too much fat in the bloodstream, too much fat lining the blood vessels, in the intercellular spaces, and inside the cells, is to interfere with normal functioning of the cells. This excess material partially blocks the exit of carbon dioxide and other waste materials from the cells. Poor functioning, called disease, is the inevitable result of this situation. The type of disease depends on the location in the body in which the greatest amount of fat has accumulated.

3.2 Chemical Wastes Commonly Found in Excess

There are many waste materials, excesses, and other toxins that accumulate in and around cells and blood vessels and cause harm. Consider some of the chemicals that are commonly present in the bloodstream, but cause harm when present in excess quantities.

Cholesterol is one problematic substance. A certain amount is needed for normal functioning. Excesses, however, set the stage for heart disease.

Triglycerides are the fats in our diet and bloodstream. When present in normal amounts, there are no problems. However, excesses also contribute to the cause of heart disease.

Uric acid causes harm when its concentration in the bloodstream rises too high. Gout may result when this occurs.

Glucose (blood sugar) is needed for normal functioning. But, when a person is diabetic and the blood glucose level remains abnormally low, much harm will result.

The fact is that any chemical substance, if present in too great an amount in the body, will cause problems, such as cholesterol, but also chemicals which are not normally present, such as cadmium (strictly speaking, this is a metal, not a chemical).

If any food, even protein (it might be more accurate to say especially protein), is eaten in amounts exceeding the body's ability to burn up or eliminate, it will accumulate and cause problems. When a person exercises too little, less food is burned and health problems can thus more easily develop.

Finally, when a person is under too much stress or gets too little rest, the body has little energy to devote to the process of elimination.

3.3 Unimpeded Elimination Essential

Consideration of the subject of fasting brings attention to a major, but usually neglected, area of nutrition and biochemistry—that of elimination. Most nutritionists are only concerned with supplying the body with enough food; they give little attention to the damage brought on by too much food and too little elimination of waste.

Imagine the body's metabolic systems as a funnel. Only a certain amount of food can pass through the small end of the funnel. In the body, this means that only a certain amount of food can be burned by the body to form energy, carbon dioxide, and water; also, the body's eliminative systems (intestines, liver, kidneys, lungs, skin) can only eliminate a limited amount of excess food. Therefore, when too much food is poured into the funnel, there is a backup. First the bloodstream, then the intercellular spaces, then the cells become loaded with excesses. This condition is called tissue constipation and toxemia.

In society, there is a tremendous concern for intestinal constipation. Yet, the scientific research shows that the main cause of discomfort from the intestinal constipation is from the pressure it causes, not from chemical poisoning from the colon. Compare this to the condition of tissue constipation: here we have a build-up of many harmful chemicals to which all our cells and tissues are exposed. Tissue constipation is hundreds of times more damaging than colon constipation.

And this is where fasting enters the picture. While fasting, the body can remove the chemicals responsible for tissue constipation and toxemia, the very chemicals responsible for a wide variety of diseases.

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4. The Body's Innate Wisdom Guides Us During A Fast

When a person is fasting, his heart and lungs and kidneys and other essential organs continue functioning. They must be functioning or death would rapidly ensue. To function, these organs need fuel. While eating, this fuel comes from ingested food, yet this source is obviously not available during a fast. While fasting, all nourishment is supplied from within the body.

Hygienists have long recognized the wisdom behind the functioning of the body. To maintain the blood acid/alkaline balance, or the blood sugar levels, or the body temperature, or the blood pressure level, requires tremendously complicated physiological systems. That the body is able to maintain itself in a steady state, called homeostasis, even when there are great pressures to deviate from this state requires properly functioning mechanisms which are far more complicated than the finest engineer or computer scientist could design.

Yet, there are some scientists who believe that when a person is fasting his body lacks the intelligence and self-protective mechanisms to break down nonessential material within the body first, and thereby spare the essential tissues.

Scientific studies, however, along with the accumulated experiences of 150 years of Hygienic doctors, testifies to the contrary. The body's innate wisdom continues functioning during a fast. The body is well aware of the fact that tissue constipation and toxemia are interfering with its normal functioning.

In fact, even while eating the body is attempting to break down and remove the waste material in and around cells and blood vessels. During a fast, however, this process is greatly accelerated. The body at this time needs to devote no energy to digestion and absorption of food. This energy, therefore, is devoted to elimination of waste.

4.1 Nonessential Matter is Utilized First

Fundamentally, fasting is as simple as this. While fasting, the body breaks down and burns for energy the least essential substances within it first. After a period of weeks (2-6 weeks in the nonobese person), this process is completed. When all waste material and nonessential substances (fat reserves) have been eliminated, the fast is finished. If a person continues not to eat, he will be starving. During this period of time, the body will break down and burn for energy its essential tissues. A doctor can easily tell when a fast ends. The way in which this is done will be discussed in future lessons.

Scientific research has totally confirmed this metabolic scenario. When the average person begins to fast, the body initially will burn for energy the glycogen which has built up in the liver and muscles.

This glycogen, formed from blood sugar (glucose), is present in only small quantities. Once the glycogen stores are exhausted, which occurs in just a few days, the body will burn mainly fat, a non-essential reserve material which has accumulated not only in the thighs and buttocks but in and around every cell and blood vessel in the body. After the fat is gone, the body will begin to burn the protein which is in excess.

4.2 The Body Conserves Its Vital Organs

For many years, scientists believed that the brain could only live on blood sugar. This is important in the discussion of fasting for the following reasons. First, the brain usually burns 20% of the body's blood sugar; it is, therefore, a major consumer of energy materials. Second, if it can only live on blood sugar, this must be supplied to it while fasting. Third, while fasting, after the glycogen stores are used up, the only source of sugar is from breakdown of protein. Fourth, if protein is used to supply the brain with sugar from the beginning of a fast, there must be a tremendous breakdown of liver muscle to feed the brain. And fifth, if this occurs, fasting for over a few days will be exceedingly dangerous.

It is for this reason that scientists criticized fasting prior to 15 years ago. But about 15 years ago, scientists found that during a fast the brain will undergo metabolic conversions so that it can burn fat. This spares blood sugar, which in turn spares body protein (mainly muscle and liver), which in turn vastly prolongs the amount of time during which a person can safely fast.

For 135 years, Hygienic doctors had claimed that the average person can safely fast for about 2-6 weeks with little or no loss of essential tissue. In the last 15 years, conventional nutritional scientists have finally come to adopt this view. But beware of those doctors and researchers who have not read a textbook or scientific journal published in the last 15 years; they will still say that the brain can only live on sugar and that fasting is therefore dangerous! You would be surprised to know how many doctors are not aware of the research which as been published in the last 15 years.

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5. What The Body Does When You Fast

So, what does the body do when you fast? Dr. Shelton lists four main activities.

1. Breakdown of body fat, thereby leading to rapid weight loss. This is beneficial because excess body fat increases the risk of heart disease, strokes, cancer, diabetes, arthritis, and many other diseases. Fasting is the "fastest" way to lose weight.
2. Diversion of energy from digestive processes to other tissues where needed for repair and rejuvenation. Dr. Shelton explains that "if you have the water running in your bathtub and somebody turns on the water in the kitchen sink, the rate of flow into the bathtub is immediately diminished. When the water in the kitchen is cut off, the rate of flow into the bathtub is immediately increased."
   When digestion is suspended for a period of time by fasting, far less blood flows to the digestive organs. This blood is then free to flow to other tissues in the body, bringing with it essential oxygen and other nutrients which are needed for healing. This extra blood also serves as the vehicle in which wastes can be carried away.
3. Physiological rest is secured. We all know the importance of rest after a hard day's work. At night, we fall into bed exhausted. If we do not secure a good night's rest, we will function poorly the following day. Our internal organs need rest also, yet we almost never give them rest since we eat every few hours every day. By fasting, an opportunity for complete rest is given, and the internal organs thereby are able to rebuild their strength.
4. Fast to eliminate wastes. Again quoting Dr. Shelton: "Nothing known to man equals the fast as a means of increasing the elimination of waste from the blood and tissues. Only a brief period elapses after food is withheld until the organs of elimination increase their activities and a real physiological housecleaning is instituted."

5.1 Cholesterol Deposits Break Down

In regard to elimination of wastes, consider the situation with cholesterol. Most of the cholesterol stored within the body is lining the blood vessels, setting the stage for a heart attack or stroke. While fasting, a person is obviously ingesting no cholesterol in food. Therefore, there is no added dietary cholesterol entering the bloodstream. Yet, blood tests show that the level of cholesterol commonly goes up during the first 7-10 days of a fast, then decreases afterwards. Where is this cholesterol coming from? Scientists believe the source is deposits of cholesterol in the blood vessels. The body, in an effort to cleanse its blood vessels, breaks down the deposits of cholesterol in the blood vessels and liberates it. This cholesterol is either used (to build new cell membranes, to form adrenal hormones, or other such functions) or eliminated by the liver in the bile. This is an excellent example of the body's accelerated elimination during a fast.

5.2 Fibrinolysis

Another body function that increases during a fast is fibrinolysis. Clots in the bloodstream are usually covered by a meshwork much like a spider's web called fibrin. These clots are extremely dangerous: if one lodges in a small blood vessel in the lungs, the blood supply to that part of the lung will be obstructed and part of the lung may die. The clot is called a pulmonary (for lung) embolism (traveling clot). The process is called pulmonary infarction (death of part of the lung).

While fasting, the body's ability to dissolve clots is greatly increased. This process, called fibrinolysis, does not permit such problems as pulmonary embolism and is part of the body's effort at healing such problems as thrombophlebitis (inflamed veins, usually in the legs, where clots often form and break loose to travel to the lungs).

5.3 Autolysis is Accelerated

Also during fasting, the process of autolysis is accelerated. Each cell in the body contains the seeds of its own destruction. When the need presents, itself, the cell will release its own self-destructive enzymes and self-destruct. This is autolysis. As stated earlier, the body will break down and burn nonessential substances first for energy while fasting. One source of nonessential material is diseased tissue such as benign tumors (fibroid tumors of the uterus are a good example). During the fast, the process of autolysis leads to the breakdown of this type of tissue which has hampered normal functioning.

5.4 Increased Diuresis

An important body activity during a fast is greatly increased diuresis. Diuresis is the excretion by the kidneys of salt and water. Medical doctors give diuretic drugs to high blood pressure patients in order to decrease the amount of salt and water in the body, which will then result in lower blood pressure. Diuretic drugs, however, damage body tissues. While fasting, the body spontaneously and automatically eliminates salt and water without damaging body tissues. This diuresis is of tremendous health benefit.

5.5 Phagocytosis Is Accelerated

The list could go on forever. While fasting, the ability of the body's defensive army of white blood cells to destroy virulent bacteria and digest waste material is accelerated. An experiment compared the ability of these cells to destroy virulent bacteria when taken from the bloodstream of someone who had been eating, versus cells from someone who had been eating, versus cells from someone who had fasted for a few days. The white blood cells from the fasting person were significantly more effective at killing virulent bacteria.

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6. Juice Dieting Vs. Fasting

There are some people who advocate juice dieting over true fasting, saying that it is safer and healthier. We can dismiss the safety claim, since true fasting is safe if done the proper way under experienced supervision. We can also dismiss the claims regarding health. (While it is true that much less energy is expended when a person is on a juice diet than when they are eating solid food, however, when no food is taken at all (solid or liquid), the conservation of energy is greatest and the healing potential is therefore also greatest.—ed.). Therefore, we have objective evidence that there are more health benefits from water fasting than from juice dieting.

The general conclusion is that while fasting, the body's healing and repairing and rejuvenating and eliminating powers have more energy and resources to do their work effectively, efficiently, and rapidly.

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7. What A Fast Cannot do

But can a fast do everything? Can a fast heal any health problems? First of all, let's consider the implications of this mistaken terminology which is in widespread use.

A fast does nothing! A fast only provides a condition during which the body can effectively build its health. Don't think of the fast as an independent actor with a life of its own. This is a carry-over from mistaken medical thinking which claims that drugs act on the body. Drugs do not act in the body. They are inert and lifeless! In fact, the body acts on the drugs. The one and only actor at all times, in health and disease, regardless of diet or drug, is the body. This is totally the case while fasting. The body acts, not the fast. The fast only provides the proper condition.

So, instead of asking "what can a fast not do," we must ask what can the body not do while fasting. The body does not have unlimited powers of healing. As the lifespan progresses, the powers of healing diminish. An adult, for instance, can only rarely display the physiological vigor seen in an infant in regard to fever. A fever is a defensive measure intelligently initiated by the body. When the body raises its temperatures to higher levels, greater amounts of waste are burned up. An infant's healing power is so vigorous that it can raise the temperature to high levels in a short time. Yet an adult, whose healing powers are relatively weaker, cannot mount such an intense defensive action. An adult's fever rarely reaches the height seen in an infant.

The limited ability of the body to heal itself determines the extent of healing during a fast. This power of healing is far greater than most people realize, so it could be a grave error to decide, without consulting a Hygienic doctor, that there is no hope in any individual case. Yet it is equally erroneous to indulge in inane optimism and claim that the body is capable of healing and resolving any problem during a fast. Totally destroyed tissue in a joint, as seen in very advanced cases of arthritis, can usually not be reconstituted even under the best conditions as provided by a fast. Hygienists have found that the body is not usually able to destroy malignant tumors while fasting, nor can it rebuild the "insulation" around nerves that has been destroyed in multiple sclerosis.

But the happy truth is that the vast majority of human illnesses can be helped by fasting. Fasting, in fact, provides the best opportunity for the body to heal itself. Yet the body does not have unlimited powers of self-repair. An experienced professional Hygienic doctor is able to judge in any individual case what the prospects are for recovery.

In future lessons, we will discuss the specifics of which conditions are helped by fasting; all the aspects of managing a fast; how to break a fast; and how to live after a fast.

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8. Questions & Answers

What is the difference between fasting and starving?

People who are ignorant of the subject say there is no difference. In fact, there is a large difference. Fasting is the period of time during which a person is ingesting no food, but is living off of nonessential reserve material inside his body. Starvation begins when all non-essential reserve material has been used up, and the body must therefore begin to break down and burn for energy essential tissues.

What does a fast do?

A fast does nothing. A fast only provides a condition in which the body can more rapidly and effectively heal and normalize itself.

Is there very much scientific research on fasting?

Yes. From the early 20th century up to the present time, a tremendous amount of research has been done on fasting. Many papers have been published in the finest scientific journals. Scientists have a profound understanding of the biochemistry, physiology, and metabolism of fasting.

Why do many people say that fasting is not safe?

Mainly because it is emotionally objectionable to go without food, since food means love and comfort and security to most people. Also because it was not proven until recently that the body will spare its protein reserves and burn mainly fat during a fast; this makes fasting essentially safe for most people.

Why consider fasting?

Because most people overeat, get too little exercise and rest, and are generally not mentally at peace, we get a build-up of toxins and waste material in the body. When a person fasts, the body will break down this material and either burn it for energy, or eliminate it. Also, during a fast, the body increases the level of repair activity, secures a complete rest, and rapidly loses weight.

Isn't it better to go on a juice diet than fast totally?

No, water fasting (going on water alone) is far superior to juice dieting. For one thing, the elimination of salt from the body which occurs so rapidly while fasting and results in health improvement will not occur at all while on juices. Don't think of juice dieting as fasting. While on juices, a person ingests large amounts of calories, vitamins, minerals, and other nutrients.

Can every disease be "cured" by fasting?

No. Remember, fasting is not a "cure." Fasting only provides the optimal condition for self-repair. This process of self-repair has its limitations also, depending on the case.

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Article #1: Living Without Eating by Dr. Herbert M. Shelton

In March, 1963, newspapers around the world described the almost incredible story of the seven weeks deprivation of food and the survival of Ralph Flores, a forty-two-year-old pilot of San Bruno, California, and twenty-one-year-old Helen Klaben, a co-ed of Brooklyn, New York, following a plane crash on a mountain side in Northern British Columbia. The couple was rescued March 25, 1963, after forty-nine days in the wilderness in the dead of winter, over thirty days of this time without any food at all.

By means of a fire, a lean-to and heavy clothes in which they wrapped themselves, they managed to withstand the bitter cold. During the first four days after the crash, Helen Klaben ate four tins of sardines, two tins of fruit, and some crackers. Twenty days after the crash, the pair took their last "food"—two tubes of toothpaste. Melted snow became their diet, for breakfast, lunch, and the evening meal. "For the last six weeks," she explained, "we lived on water. We drank it three ways: hot, cold and boiled." Varying it in this way helped reduce the monotony of their single item menu of snow.

Miss Klaben who was "pleasing plump" at the time of the plane crash, was happily surprised, at the ordeal's end, to learn that her weight loss totalled thirty pounds.

Flores, who was more active during their enforced fast, had lost forty pounds. Physicians who examined them after the rescue, found them to be in "remarkably good" condition.

Many thousands of men and women have gone without food for much longer periods, not only without harm, but with positive benefits. Periods of abstinence under such taxing conditions as the ones these two people endured and survived are extremely rare.

One of Sweden's distinguished biochemists, Dr. Ragnar Berg, a Nobel Prize winner and an authority on nutrition, says, "One can fast a long time, we know of fasts of over a hundred days duration, so we have no need of fearing that we will die of hunger."

The actual time period of abstinence forced upon Mr. Flores and Miss Klaben was of relatively moderate duration. The question is not how long man can fast, but what are the provisions of nature that enable him to do so.

Wear and waste, repair and replenishment, are continuous and almost simultaneous processes in all living structures, and none of these processes halt during a fast. The hibernating animal in the far north must produce sufficient heat to maintain body warmth. Both man and animal, while fasting, must breathe and the heart must continue to pulsate. The blood must continue to flow and the organs of elimination must continue their work of freeing the tissues of waste. The vital functions of life must be carried on, even if at a slightly reduced rate. Cells must be replenished, wounds must be healed. All of this, as I know from years of observations, goes on during a fast.

All manifestations of life—movement, secretion, digestion, and similar processes—depend upon the use of the materials of the body. If an organ is to work, it must be supplied with the materials with which to work. In the absence of fresh supplies with which to replace those that have been used up, the organ wastes and weakens. If life is to continue, a basic irreducible level of activity is imperative. Even the hibernating animal, with activities reduced to a bare minimum consistent with continued life, must breathe and the heart must pulsate.

An understanding of the process by which the body nourishes its vital tissues and sustains its essential functions during prolonged abstinence, and the sources upon which it draws, will help us understand how the body can survive periods when outside food is not available or cannot be digested.

The normal body provides itself with a store of nutritive materials that are put away in the form of fat, bone marrow, glycogen, muscle juices, lacteal fluids, minerals and vitamins. Always the healthy body maintains in store adequate nutritive reserves to tide it over several days, weeks, or even over two or three months of lack of food. This remains true whether fasting is enforced, as in the case of a plane crash or of entombed miners, or is brought on by illness where one cannot swallow or digest food, or by free choice as in voluntary fasting to lose weight. When food is not taken, the body draws upon its reserves with which to nourish its functioning tissues. As this reserve is used up, weight is lost.

Basic in the fasting process is the fact that our "built-in pantries" contain sufficient nutriment to hold out, in most instances, for prolonged periods, especially if they are conserved and not wasted. In the blood and lymph, in the bones and especially in the marrow of the bones, in the fat of the body, in the liver and other glands and even in the individual cells that make up the body, are stores of protein, fat, sugar, minerals, and vitamins which may be drawn upon during periods of scarcity or when food is not usable.

Neither animal nor man can survive prolonged abstinence from food unless he carries within himself a store of reserve food on which the body can call in emergencies. The fasting organism will not be harmed by abstinence so long as the stored reserves are adequate to meet the nutritive requirements of its functioning tissues. Even thin individuals carry a reserve of food in their tissues, to tide them over periods of abstinence. These people too, may safely fast for varying periods.

By a process known technically as autolysis, achieved by enzymes in the tissues, these stored reserves are made available for use by the vital tissues to which they are carried by the blood and lymph as required. Glycogen or animal starch stored in the liver is converted to sugar and distributed, as needed, to the tissues. It is significant that, even in prolonged fasts, no beriberi, pellagra, rickets, scurvy or other "deficiency disease" ever develops, thus showing that the reserves of the body are generally well balanced.

Fasting has been shown to improve rickets and calcium metabolism. In anemia, the number of red blood cells are increased during a fast. I have observed benefits in pellagra during a fast. The biochemical balance may be maintained and even restored while fasting. It is important to know this, for if it were not so, the fast would prove to be deleterious.

Numerous animal experiments have shown that underfeeding, as contrasted with overfeeding, tends to prolong life and to provide for better health. Other experiments involving fasting rather than underfeeding, have shown that fasting not only prolongs life, but results in a marked degree of regeneration and rejuvenation.

Thousands of observations of both man and animals have established the fact that when the physical organism goes without food, the tissues are called upon in the inverse order of their importance to the organism. Thus fat is the first tissue to go. The stored reserves are used up before any of the functioning tissues of the body are called upon to supply nutrients for the more vital tissues such as the brain and nerves or the heart and lungs. As it feels among its supplies for proteins, sugars, fats, minerals, and vitamins, and redistributes, utilizes, and conserves these stores, the fasting organism exercises an ingenuity that seems almost superhuman.

The aggregate of tissues of the organism may be regarded as a reservoir of nutriment which it may call in any direction or to any part as needed. But these tissues are not sacrificed indiscriminately. On the contrary, wastage of those organs that are primarily essential to life is repaired by withdrawal from less essential organs of materials required by the more important ones. Many of the necessary nutritive constituents, and this is especially true of certain minerals, are vigorously retained.

Studies made on men and animals to determine losses of various tissues and organs in prolonged abstinence from food have almost all been made on organisms that have died of starvation. Starvation and fasting are two totally different stages of abstinence. It should be quite obvious that the extreme losses seen at the starvation stage of abstinence are far greater than they are in a fast of reasonable length. Extreme weight losses are not experienced in any normal fast. Where they occur, the fast should be broken.

One must differentiate between fasting and starving. To fast is to abstain from food while one possesses adequate reserves to nourish his vital tissues; to starve is to abstain from food after his reserves have been exhausted so that vital tissues are sacrificed. We are not left unwarned as to when the reserves are nearing exhaustion. Hunger returns with an intensity that drives one to seek food, although during the fast proper, there is no desire for food. This differentation between fasting and starving should help to dispel any notion that starvation sets in with the omission of the first meal.

Contrary to popular and even professional opinion, the vital tissues of a fasting organism, those tissues doing the actual work of life, do not begin to break down the instant a fast is instituted. The fasting body does lose weight, but this loss, for an extended period, is one of reserves and not of organized tissues.

The efficiency of the living organism in regulating the expenditure of its resources during a fast is one of the marvels of life.

In periods of abstinence, the less important organs of the human being, although they waste consequent upon the withdrawal of substance from them with which to nourish the more vital tissues, do not undergo degeneration until the starvation phase of the period of abstinence is reached. The atrophy of muscles may be no greater than that seen to occur from a lengthy period of physical inactivity, while there is no loss of muscle cells. The cells grow smaller and the fat is removed from the muscles, but the muscle retains its integrity and a surprising amount of strength.

Loss of weight varies according to the character and quality of the tissues of the individual, the amount of physical and emotional activity engaged in, and the temperature surrounding the faster. Physical activity, emotional stress, and cold and poor tissues all provide for more rapid loss. Fat is lost faster than any of the other tissues of the body.

Bodily condition is, perhaps, the chief determiner of how long one may safely fast. In the case of the two who survived the plane crash, and went four weeks without food, for example, they had snow which is water and this kept them from the danger of dehydration. They could live without food; the lack of water would have been fatal. Voluntary or involuntary, the faster must have water.

It is clear then that fasting must be carried out intelligently, with proper precaution, and with common sense.

Precisely as a novice swimmer would seek expert guidance and advice before starting on a long swim, so the inexperienced faster must obtain reliable guidance as a precautionary measure before launching upon a fast of any extended duration.

Reprinted from *Fasting Can Save Your Life*

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Article #2: Fasting In Nature by Dr. Alec Burton

When we closely examine the animal world we discover that fasting is almost as common as feeding.

But aside from fasting per se there are two similar conditions which are related to our subject. They are hibernation and aestivation.

It is a universal verity that animals have some means of adaptation to food scarcity. Obvious examples of this are squirrels storing nuts, bees, storing honey, chipmunks storing roots and nuts, beavers storing twigs, and finally other animals capable of storing significant food reserves within themselves. These are the animals which hibernate. They undergo a period of winter sleep. Their metabolism is slowed down and they take no food for long periods of time. Bats, mice, hedgehogs, woodchucks, toads, lizards, snakes, flies, wasps, bees, bears, crocodiles, and alligators are among those that undergo some degree of hibernation. True hibernation is a dormant state of existence accompanied by great diminution of respiration, circulation, and metabolism. At this time, the animals' functions are almost suspended. Body heat is little. Action of the heart is almost imperceptible, and as much as 40% of the animal's total weight may be exhausted by the time it recommences feeding.

True hibernation is restricted to only a few animals: hedgehog, doormouse, marmot, and bat. This is a state where most of the essential vital functions continue at a very low level or degree. They are referred to by biologists as "imperfectly warm blooded types," which are unable to produce enough heat to make good their losses in cold weather. It is probable that the biologists' conception is inaccurate because in a number of species it is only the female that hibernates, which would suggest that it is food scarcity rather than temperature that precipitates hibernation.

Conversely, aestivation is a similar process which occurs in the summer time, and quite obviously these are not cold blooded animals. An example is the tenree of Madagascar. This climatic dormancy requires that the organism makes a variety of gradual physiological and biochemical adjustments that apparently correlate with temperature, light, and food scarcity.

Different hibernators adapt to different sets of conditions. Some store food, others do not. Some accumulate a great deal of fat and food reserves, others do not. However, there is a general preparation for the period of hibernation. An increase in fat deposition and adjustments of body temperature or what appears to be a "resetting" of the body thermostat are common. Metabolism adjusts, the heart and cardiovascular system show generally lower levels of activity.

A number of biochemical changes associated with the nutritional adaptation are evident. There is an increase of the element magnesium in the blood and the endocrine glands reduce their activity. This is especially so of the gonads. It is generally agreed among experts and observers that hibernation follows normal sleep. In other words the state is entered via sleep.

If, however, hibernation is to be looked upon as a type of sleep, it is an extremely complex one. But one factor which is dominant is energy conservation. All the adapted devices conserve the energy of the organism concerned.

One extremely interesting feature of hibernation which is of particular interest to us in our studies of fasting is the apparent improvement of health experienced by hibernating animals. According to observers, they do not develop "infectious" diseases. They are said "to have a greater resistance to disease," or at least some of its causes. It is claimed that the host's defensive mechanisms against parasites and their proliferation is substantially increased, it has also been demonstrated that the hibernating organism is more resistant to radiation and especially are the tissues rejuvenated and more capable of healing following the period of hibernation. Hibernation is in many ways an important survival mechanism.

As I mentioned earlier, hibernation and aestivation are interesting examples in our quest for understanding the biology of fasting; but as it is not possible for man to significantly reduce his physiological and metabolic processes, we cannot extrapolate from the lower mammals to man knowledge which is gained in this way.

It need hardly be said that the living organism requires materials with which to work. It requires nutrients to fuel its biological processes. It requires nutrients as a source of energy and to provide the needed materials for the repair of wear and tear, for healing or regeneration, and for reproduction. It also requires a variety of other essential substances, minerals and vitamins, which are necessary for the regulation of the body's processes. Simply stated, it is not possible for an organism to survive without nutrients.

Professor Morgulis states that during a fast, an organism is living off the fat of the land. The Gila monster, a large lizard of the southwestern desert in Mexico, in fact a poisonous reptile, has a conspicuously large heavy tail. This is a source of nutrients in times of food scarcity and it is well known that the lizard is capable of going for extended periods of time without food. In one observation, one fasted in excess of two months.

It is commonly thought by people that the camel, having a large hump, is capable of travelling long distances without water. It is more true that the camel is capable because of its hump of going for long periods of time without food. The fat-tail sheep of Iran has an enormous reserve of nutrients available to it during times of scarcity. During periods of abundance, it stores food in the tail which is utilized when scarcity prevails.

As we would expect, there are many and diverse differences among the different species of animals so far as fasting and stored food reserves are concerned.

As we have seen, some animals hibernate—they are inactive for long periods, perhaps six or seven months. Conversely, there are animals that engage in vigorous physical activity while fasting. The Alaskan fur seal bull and the salmon are common examples. The fur seal engages in tremendous and relentless sexual activity over a period of twenty to thirty days during which it takes no food. During their long upstream swim salmon do not take food. It is also claimed that whales are capable of abstaining from food for long periods of time.

Professor Morgulis states in his book, *Fasting and Under Nutrition* that "active growth and regeneration are not incompatible with inanition and the wear and tear at least in some organisms is so completely repaired as to evade for a long time the effect of nutritional stringency. Inanition does not preclude the ability for extreme and sustained exertion."

It should be stressed that so far as our own discussion is concerned, we are advocating fasting as a means of physiological rest and this should be associated with physical, mental, emotional, and sensory rest so far as practicable.

One of the most unusual and fascinating examples of fasting is that it takes place during metamorphosis which represents a complete change of form during the life of an insect or other living creature. A good example of this is the tadpole during its period of transformation to a frog. It does not shed its tail, the tail contains nutrients; proteins, carbohydrates, fats, minerals, and vitamins. It is a source of nourishment for the changing organism.

We observe the process of "autolysis" which is the breakdown of stored nutritional reserves by the inter and intracellular enzymes. The nutrients are not usuable as glycogen, fat, protein, etc. They must first be digested inside and thus supply the changing organism with basic materials to develop its new form. We will observe in this that the process of "autolysis" is a rigidly controlled series of events. The developing frog does not suddenly lose one of its newly formed legs or part of an eye. It only breaks down the needless tail.

Another example of this important biological process, which in life is going on all the lime, is the common aspect of healing with the absorption of a ring of calus, which temporarily supports a fracture, when a bone has sustained an injury. By this remarkable process, this supporting ring is slowly removed. We see evidence of the same thing where congestive deposits surround a lesion, cut, or surface on the body—how these are rapidly broken down and removed. There are literally thousands of examples of fasting in nature, and it is indeed almost as common as feeding.

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Lesson 46 - When To Employ Fasting; Determining Who Should Fast; How Long And How Often

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Part I: When To Fast

Regarding the proper time to fast, Dr. Shelton maintained that the time to fast is "when it is needed." He states, "I am of the decided opinion that delay pays no dividends; that, due to the fact that the progressive development of pathological changes in the structures of the body with the consequent impairment of its functions does not cease until its cause has been completely and thoroughly removed. Putting off the time for a fast only invites added troubles and makes a longer fast necessary, if indeed, it does not make the fast futile. I do not believe that any condition of impaired health should be tolerated and permitted to become greater. Now is the time to begin the work of restoring good health; not next week, next summer, or next year."

So it is agreed that, when needed, fasting should begin as soon as possible. But how do you determine when fasting is needed? There will be definite indications that will manifest themselves, and at this point, there will be no question that a fast is required.

1. Absence Of Hunger

We can assume that when there is no hunger, there is also no physiological need for food. Hunger will be absent when: (1) there is no need for food, such as soon after a meal, and (2) when there is an inability to digest and assimilate food, such as occurs during acute diseases (e.g., colds, flu, etc.). When hunger is absent, therefore, no food should betaken.

If food is taken when the body lacks the ability to digest, putrefaction or fermentation takes place. This will result in the liberation of toxic by-products from the decomposition within the stomach. Toxins thus liberated enter the blood and tissues and contribute to toxicosis.

Pain, fever, inflammation, and abdominal distress cause one to lose his normal desire for food. Under such conditions you should refrain from eating until hunger returns. In acute disease, hunger is not present because the vital energy of the body is diverted into other channels. Since all energies are directed toward healing and repair, there is none to spare to carry on digestive work. Blood is also diverted toward the parts requiring healing. Under these circumstances, digestion is completely suspended. Yet, food is often taken under medical advice. It is said that we "must eat in order to keep up our strength." In such cases, the food is often vomited or expelled through the digestive tract by means of diarrhea. If not, the food becomes a burden adding to the poisoning of the body.

Even when these unwanted food materials are expelled from the body, precious vital energy is used up during the process. Forces are diverted from the work of repair and wastefully expended in an effort that could have easily been avoided by fasting. Recuperation is thus slowed.

In many cases, during acute and chronic diseases, a person may feel hungry. In reality, it is not hunger that he feels but a morbid craving for food. Hunger is often misinterpreted by a headache, irritability, restlessness, lassitude, drowsiness, faintness, a feeling of emptiness, gnawing pains in the stomach, etc. In fact, none of these symptoms indicate true hunger. Hunger is a normal, pleasant physiological demand for food that is felt in the mouth and throat as is thirst. Since it is a normal occurrence, it is not accompanied by pain or discomfort.

1.1 Hunger vs. Appetite

One simple method of determining true hunger is to think of how much time has elapsed since the last meal. If you desire to eat while the last meal is still digesting you are not hungry. If your last meal was a heavy one that included nuts or avocado, your next meal should not be for at least four to five hours.

Remember that genuine hunger is not associated with pain or discomfort. A healthy individual can easily miss a meal or two without feeling weak or experiencing pain. If he does, it is a sure sign that a fast is indicated, followed by a change in eating habits.

People who feel faint or experience headaches upon missing a meal are going through "withdrawal symptoms" from the addictive substances that they ingest with their foods. The more one is addicted to salt, condiments, coffee, tea, etc., the more severe the symptoms. The quickest, surest, and safest method of ridding yourself of these addictions is through a fast. Dr. Susanna W. Dodds stated that "the sense of all-goneness in these cases is not from a lack of nutrient material, but owing to the absence of the habitual stimulus."

The hunger of the poorly-nourished individual (one who consumes processed foods such as refined sugar and flour; cooked foods; meat; etc.) is of the same nature as the drug addict who is deprived of his drug. They experience such symptoms as gastric distress, pains in the stomach region, a gnawing in the stomach, weakness, headache, etc.

On the contrary, normal muscular contractions are not painful, they tend to be pleasurable. Hunger is not a pathological state and is not manifested by symptoms of disease.

Dr. Shelton says, "The truly hungry person has no consciousness of his stomach and does not suffer any morbid symptoms. Indeed, genuine hunger is such a delightful sensation that it is worth going on a fast merely for the pleasure of experiencing it."

2. Fasting In Acute Disease

The rule of nature in acute disease is *go to bed, keep warm, and abstain from all food until hunger returns*. Fasting in fevers was commonly employed by Neapolitan physicians over one-hundred-and-fifty years ago. They frequently permitted their fever patients to go for as long as forty days without food. Dr. Shelton states, "When in pneumonia and pleurisy, the patient is fed, not only is the toxic saturation kept up, but feeding retards resolution; that is, it prevents the inflamed lungs and pleura from returning to normal."

When animals become sick, they instinctively refrain from eating. They remain quiet and rest until their appetite returns and at that time, it is a sure sign that they are recovered. The same requirements apply to man. That is, quiet, rest, and fasting, with a little water as demanded by thirst. But often, man refuses to allow himself to be guided by instinct as the animal does, and eats in spite of lack of hunger. By so doing, he weakens his body even more.

In all types of acute diseases, the whole organism is occupied in the task of eliminating toxins. It is perfectly natural that the body should rebel against food during this time. Such symptoms as anorexia, bad breath, coated tongue, nausea, vomiting, excretion of mucus, diarrhea, etc., indicates that the body is occupied in the work of elimination and is not able to digest food.

2.1 Feeding The Sick

During acute illnesses, it is often advised that meat broths be served. These broths *not* only do not contribute to health but produce the "soil" for disease. During my bacteriology classes at school, we often used meat medias to culture our bacteria. This media proved excellent for producing large colonies of various types of bacteria since the "soil" or "food" for these bacteria was close to ideal. While we know that bacteria do not cause disease, they are present in many disease conditions. When the "soil" is ideal for bacteria to proliferate, they will do so. This is an excellent indication of toxicosis due to the decomposition of food and bacteria in the stomach and digestive tract.

Since acute disease is an effort on the part of the body to rid itself of excess toxins, you should not interfere with or abort that effort by adding more toxins to the body by ingesting the exact food that resulted in excess toxins to accumulate in the first place. Actually, even the best foods are potential toxins during acute illnesses.

Dr. Shelton says that one of the rules for the sick is to stop the absorption of all toxins from the outside. He states, "Feeding during acute 'disease' does just the opposite. It keeps the digestive tract full of decaying animal and vegetable matter, which the body must void or absorb. Putrescence arising from gastro-intestinal decomposition, grafted onto the pre-existing enervation, toxemia and dyscrasis, form the cause of practically all the so-called 'diseases' from which man suffers."

During acute gastritis, the mucous membrane of the stomach is red and swollen. There is little gastric juice and very little acid excreted, with considerable amounts of mucus present. With the stomach in this condition, and with appetite lacking, it would be senseless to eat. Fasting in such a case is the only rational procedure. Without the irritating presence of food and its products of decomposition, the body will proceed to heal and health will be restored.

2.1.1 Peptic Ulcer

An example of feeding during disease is demonstrated in the peptic ulcer patient. Peptic ulcer is the general term given to an eroded mucosal lesion in the stomach or the duodenum. It is claimed that excessive excretion of hydrochloric acid is the cause of this condition. While this may be the irritating or immediate cause, the underlying reason the hydrochloric acid is secreted above normal is due to general enervation and toxicosis. The generally accepted dietary "therapy" involves a "bland" diet. This diet consists of exactly those foods that contributed to the general enervation and toxicosis in the first place. Foods often recommended include milk, eggs, cooked refined cereals, custard, Jell-O, ice cream, white bread, cheese, and creamed soups. These foodless "foods" do not contribute to health.

Complete abstinence from food is indicated in such cases to allow the body to heal without the irritation of food. This, is the quickest and surest manner to recover health. The strong "hunger pains" that are said to be felt by such patients are not true hunger.

Another example of feeding in disease is dietary therapy for such intestinal disease as diverticulosis and diverticulitis. Instead of searching for the underlying cause of this condition, physicians palliate symptoms and make matters worse. Dietary therapy in such cases would make any well man sick. It includes milk, coffee, tea, carbonated beverages, eggs, cheese, meat, soups, cooked strained vegetables, cooked strained fruits, white refined bread, refined cereals, white rice, macaroni, noodles, spaghetti, and other refined products. Man could live many times longer on water alone than he could on the diet described for diverticulosis. Any value found in the fruits and vegetables are cooked away, and straining and pureeing makes them worse. Again, a fast is indicated followed by correct eating habits and the body will once again be restored to normal.

2.1.2 Pain

Any pain that a person may experience is known to lessen while fasting. Dr. Shelton has witnessed many patients with pains of acute articular rheumatism subside and the patient became comfortable after three or four days of fasting.

3. Fasting In Chronic Disease

The time to fast is before a disease becomes chronic. If a fast is undertaken when the symptoms of acute disease first manifest themselves and a more healthy lifestyle is adhered to, chronic diseases will not occur. What often happens, however, is that when symptoms of acute illnesses arise, they are suppressed by various drugs, etc. The body is never allowed to eliminate its toxic overloads that have accumulated over a period of time due to unhealthful living habits. Due to this constant suppression and continued bad habits, chronic diseases develop. At this point, many people turn to fasting as "a last resort."

In spite of all the abuses that the body has been put through previously, beneficial results occur through a fast at this time. One important feature about fasting in chronic diseases is the marked acceleration of eliminations that occurs. The body is thus speedily freed of its accumulated toxic load. Symptoms disappear that were sometimes of years standing. In this regard, Dr. Shelton says, "A properly conducted fast will enable the chronically ill body to excrete the toxic load that is responsible for the trouble, after which a corrected mode of living enables the individual to evolve into a vigorous state of health."

Fasting has been instrumental in bringing about the recovery of persons suffering from asthma, arthritis, diabetes, various tumors, heart disorders, and numerous other diseases. Why was fasting so effective in all of these diverse diseases? The reason is that the diseases may differ as to the symptoms that they manifest but the underlying causes remain the same. Two people practice bad habits for years, one of them being about as indulgent as the other, and one of them develops asthma, the other develops arthritis. Health may be restored in each case by the same means—fasting.

Dr. Shelton cites a case of a young singer who had developed a serious asthmatic condition and could no longer sing. The doctor gave her no hope and told her that there was no "cure" for asthma. She finally had to give up singing, and she retired to her farm. Then she heard about Natural Hygiene and the concept of the importance of the body's own healing capacity. She decided to give this system a chance. Upon consulting with Dr. Shelton, she decided to fast. In a matter of weeks, the asthma cleared; and within a few months, she was back singing. Her career had been saved and so was her health. Keep in mind, however, that fasting did not do anything, but provided the ideal conditions for the body to heal.

Another example of fasting in chronic disease is cited by Dr. Shelton. This case involved a man who had arthritis for twenty-eight years. Dr. Shelton describes the case:

"With the passage of the years, joint after joint became involved until the patient was a twisted and distorted man walking with the aid of crutch and cane, in a much stooped position. He was unable to turn his head from side to side, and he was in constant pain.

"He was told that there was a possibility that some of his joints would remain ankylosed. There is no way to unfuse ankylosed joints. They remain fixed, immovable. The good news was, in this case, however, that he could be freed of pain. He could be restored to usefulness and he could enjoy life.

"This man underwent a lengthy fast—one of thirty-six days. There was great improvement. He was freed of pain, witnessed the disappearance of swelling from some of his joints, its reduction in others, and the slow return of movements to joints that had long been stiff.

"It took four years to complete all the improvements possible in this man. During this time, he had a second long fast and several fasts of a few days each. His eating between fasts was carefully supervised. He was given daily sun baths; and after a certain amount of initial improvement had been made, he was given daily exercise.

"Result: his spine is almost straight, the use of his arms and legs is normal, he can turn his head, he walks in a nearly upright position, he does not use cane or crutch, he has no pain, he looks the 'picture of health,' and he works like a slave."

This case was an extreme one requiring a lengthy period for recovery but it serves to illustrate what the body can accomplish when given the proper conditions.

4. Fasting To Lose Weight

Dr. Dewey said, "There are no overweights who would not receive the greatest benefit by a fast that would diminish the pounds to that of the ripest maturity of life, a fast that would be determined by the time required to reach the desired number of pounds."

Fasting is not only a quick, safe, and effective way to lose weight but the added benefit of ridding the body of toxic debris is a bonus. Fasting will help the obese individual overcome his food addictions to sugar, caffeine, and junk food, and make a smooth transition to a more healthful way of eating.

When the overweight individual undergoes a marked reduction of weight during a fast, general improved health is indicated by freer breathing, greater ease of movement, increase of energy, cessation of symptoms of indigestion and other discomforts, lowered blood pressure, and lessening of the load the heart has to carry.

On the average, the individual loses about two-and-one half pounds a day on a fast. Since hunger is almost always absent during this fast, it is a much more pleasant way to lose weight than the popular reducing diets. These diets often include unwholesome foods, and weight loss is often minimal. The dieter soon becomes discouraged and once again indulges in his former manner of eating. If weight loss is obtained through such a diet, it often results in flabbiness or sagging of the skin and tissues. This does not usually occur during the fast. So fasting is rapid and fast, more pleasant than reducing diets, and no flabbiness or sagging of the skin results.

People often ask how much weight loss per day is safe in fasting? Dr. Shelton says that the body itself decides what rate of loss is proper. When fat tissue is soft and flabby, weight is usually lost rapidly in the early days of the fast. In other individuals, the rate of loss may be considerably slower, but the end result will be the same. That is, total weight reduction and improved overall health.

5. Drug Addictions

Any form of drug addiction is a foolish attempt to obtain relief from headaches, nervousness, irritability, and other symptoms through suppression. The craving for these drugs inevitably leads to enervation of the nervous system. Addicts will take their coffee, alcohol, tobacco, etc., to "calm their nerves" and they feel faint and weak without them. This is an illusion. The drug effect makes them unaware of their true condition. These poisons do not make them stronger but result in more weakness and enervation. It is not the drug that forms the habit but it is man. And it is he who must suffer the consequences from his unwise habits.

Nothing enables the drug addict to overcome his false "need" for his poisons better than does the fast. Few drug addicts have sufficient willpower or physical strength to overcome their addictions without help, and the fast will provide such assistance. These people will be able to abandon their former habits and their overall health will be markedly improved.

5.1 Alcoholism

The alcohol habit progresses slowly until it reaches a chronic stage. During this progression, all bodily systems have become enervated and damaged to a certain extent. The alcoholic is a chronically-sick individual. With this in mind we can readily see why fasting is of great benefit in this case. During this period of rest, the abused organism undergoes healing and repair and eventually regains its wasted vital energies. By the end of the fast, the body will have eliminated its accumulated toxins and the nervous system will be restored to health (as far as there was no permanent damage).

Alcoholism is an illness involving structural abnormalities. It has been found that alcohol causes damage to all tissues where it comes into contact. As a person drinks a glass of alcohol, it causes damage to the esophagus by direct chemical irritation to its mucosa, by inducing severe vomiting that tears the mucosa, or by interfering with normal motor functions thereby causing an upward movement of the stomach acid into the esophagus where it can erode the tissues.

As the alcohol passes into the stomach, it includes inflammation and bleeding lesions of the stomach. The degree of the damage it causes to the stomach lining appears to be related to alcohol concentration, with damage to the cells occurring rapidly after alcohol ingestion. In the small intestine, the impeding peristaltic waves are decreased by alcohol and propulsive waves are unchanged, resulting in an increased rate of propulsion through the small intestine. This effect is seen as a possible contributing factor to the diarrhea frequently experienced by binge-drinking alcoholics. Intestinal malabsorption may also result from alcohol ingestion.

As alcohol passes through the liver, it inhibits the conversion of amino acids to glucose. Alcohol can also stimulate hepatic synthesis of certain other proteins, including lipoproteins that transport fats in the blood. This effect may explain the elevated blood triglyceride (fat) levels frequently seen after alcohol ingestion. The alteration in fat metabolism may result in a gradual accumulation of fat in the liver and a "fatty liver." This condition can result in the liver failure and death. Alcoholic hepatitis is a major effect of heavy chronic alcohol consumption and may be a precursor stage of cirrhosis. Cirrhosis is a chronic inflammatory disease of the liver where functioning liver cells are replaced by scar tissue.

Alcohol has adverse effects on the nervous system. Brain nerve cells generate and conduct electricity, transmitting information to an adjacent nerve cell by the release of specific chemicals called neurotransmitters. The receiving cell provides feedback to the transmitting cell regarding the message sent. Each cell can receive and integrate information from many others, a function that alcohol can alter.

Electrical currents in nerves are transmitted from the membrane of the nerve cells to the inner cell. This mechanism is closed when the resistance of the cell membrane is reduced at any point, resulting in electrical changes carried by sodium and potassium ions flowing across the membrane in a movement called the action potential. Alcohol impairs the opening of the mechanism, so the nerve has difficulty refiring. Neurophysiologic studies have shown that ethanol inhibits the sodium current in the action potential.

Alcohol consumption results in heart enlargement, abnormal heart signs, edema, enlargement of the spleen or liver, noisy breathing, electrocardiographic abnormalities, and disturbances of cardiac rhythm and conduction.

Dr. Dewey maintained that the alcoholic can only recover his health through a fast. He says, "Only through a fast that shall let that distressed stomach become new from regeneration, that will let the brain accumulate rest in reserve."

When the alcoholic fasts, the tissues of the stomach, intestines, liver, heart, nerves, etc., begin to repair themselves and healing takes place. Glands and nerves that have been so enervated by overstimulation are allowed to rest. Nerve energy is restored; and by the end of the fast, the former alcoholic feels stronger and more vital than ever before. He will no longer desire alcohol as Dr. Shelton explains:

"When the alcoholic has fully recovered from his illness and hunger has returned, no form of alcoholic drink will tempt him and should he attempt to drink some form, he will discover that he no longer 'likes' it. It will *bite* and *sling* as it did when he first took it as a youth. He will be a free man again—no longer a slave to King Alcohol."

5.2 Tobacco

The use of tobacco results in symptoms of irritability, grouchiness, nervousness, and uneasiness. The user of tobacco may repeatedly try to discontinue this habit but fails and returns to his poison to supposedly sooth those same symptoms that were first induced by the tobacco. He lacks the willpower and determination to stick it out until the nerves have repaired themselves.

Fasting is extremely useful in these cases. It makes the discontinuing of the tobacco habit very easy, and in a few days, the very taste of this substance becomes repulsive. Dr. Shelton says, "I have seen heavy smokers who smoked half a lifetime, after a fast, become so 'sensitive' to the obnoxious fumes of tobacco that the odor of a cigar wafted to their nostrils from a block away was objectionable to them."

5.3 Other Drugs

In all other drug addictions (such as marijhuana, cocaine, heroin, etc.) rest—physical, mental, and physiological—is the greatest need. After a short time, the craving for these poisons will diminish and soon disappear. The gradual tapering-off process that is often resorted to for drug addicts is not a wise procedure as this process continues to injure, and no real benefits are gained.

At the very onset of the fast, often violent withdrawal reactions take place. It is recommended that these fasts take place under the direct supervision of one who is experienced in fasting. These withdrawal reactions soon cease as the patient continues the fast. The body will then proceed to repair the damage that was done by the drugs, and toxins will be eliminated. Of the many cases that Dr. Shelton has observed at his Health School, he states that none have ever returned to their former drug use.

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Part II: Determining Who Should Fast

Dr. Shelton says, "There, is hardly a time of life or a condition of body in which a fast cannot be helpful." There are some individuals who should only fast under supervision, but, in general, everyone can be benefitted by an occasional fast. You do not have to be acutely sick or suffering from some chronic ailment to profit from a fast. This physiological rest provides an opportunity for the body to restore vital energy that cannot be accomplished as well by rest alone. When the body is greatly fatigued, there is reduced ability to digest food. It would be unwise to eat under such circumstances. Rest is needed. When the body has regained vitality and hunger returns, the fast should be broken.

To eat a certain number of calories or a certain amount of high-grade protein will not insure health if the body is unable to properly digest and assimilate it. You may eat the best of organically-grown food but if the body is exhausted or under emotional stress, the food will ferment, and instead of contributing to health, there will be an opposite effect. Toxicosis will result from the decomposition of these foods. The proper response, under these circumstances, would be to fast until such foods can be digested.

Dr. Shelton states, "Our golden rule in eating has long been: *if not comfortable in mind and body from one meal to the next, miss the meal*. If the healthy individual overeats, eats under states of fatigue or excitement so that discomfort follows the meal, it is well to miss the next meal. If there is worry, fear, anxiety, grief, inner conflict, or other emotional stress, miss one or more meals."

1. Fasting For Children

Children often instinctively know when to fast and for how long. When the child refuses food, it is best to leave him alone until natural hunger presents itself, and he will demand food at that time. Children will lack all desire for food when they are ill. When they are enervated and toxicosis presents itself in the symptoms of gastritis, enlarged tonsils, constipation, diarrhea, gastritis, feverishness, etc., there will be no demand for food. Under such circumstances, the child should be allowed to fast until all symptoms disappear and hunger returns. These children should never be forced to eat as food will decompose in the stomach and its toxins will just make matters worse.

In dealing with the child, competent Hygienic guidance should be sought and followed. Sometimes a child may request food even though he is suffering from a cold or flu, but food should not be given until all symptoms have subsided.

Dr. Emmet Densmore says, "It is frequently, perhaps usually, said of this or that or the other baby that it is fretful or peevish. It is fretful because it is ill, and it is ill usually because of improper feeding. The same error that adult human beings make in regard to themselves is made in regard to the feeding of children—they are fed too often and too much."

Infants may suffer from indigestion due to excessive handling, overfeeding, or eating candy and other unwholesome foods. One of the first signs of such indigestion is noticed by white specks in the bowel movements. This indicates that the milk is not being digested. It is often wise to skip a feeding or two at this point. If the condition is corrected at this point, no other adverse consequences will develop and health will be restored promptly. If not corrected, inflammation of the stomach, small intestine, and large intestine may develop.

It is also important that the infants and children be properly fed after the fast. A diet of fresh raw fruits, vegetables, and nuts is proper for the child. Mother's milk is ideal for the young infant followed later by freshly-made fruit juices or fruit purees made from fresh raw fruits.

Regarding the proper food for infants and children. Dr. Densmore says, "Cereal or grain and all starch foods are unwholesome for all human beings; but this diet is especially unfavorable for children, and more especially for babies. The intestinal ferments which are required for the digestion of starch foods are not secreted until the infant is about a year old; and these ferments are not as vigorous as in adults for some years. All starch foods depend upon these intestinal ferments (enzymes) for digestion, whereas dates, figs, etc., are more nourishing than bread and cereals, and are easily digested—the larger proportion of the nourishment from such fruits being ready for absorption and assimilation as soon as eaten."

Concerning fasting in children Dr. Shelton states, "....while always acting under proper Hygienic direction with your child, do all that you can to let the natural tools of rest, and peace and quiet restore the child if there is upset or illness—or even if it is only a question of how much he wants to eat.

"For there are ways in which the instinctive wisdom of the infant or child in such matters may be far greater than we could possibly guess."

2. Fasting In Pregnancy

Pregnancy is a normal biological process that should not be accompanied by pain, discomfort, or any abnormal condition. In their natural state, animals do not suffer with nausea and vomiting during pregnancy. Primitive women are said to experience no sickness during pregnancy. This indicates that "morning sickness" and vomiting are not normal developments during pregnancy. If a woman suffers nausea and vomiting, it is not due to the pregnancy but to the toxicosis that was developed over a period of time before her pregnancy.

The body attempts to provide the ideal conditions for the developing fetus. It therefore goes about a "house-cleaning" to eliminate toxins that would make these conditions less than perfect. Many changes take place in a woman's body during pregnancy. Glands long dormant awaken to activity. Her whole body undergoes a strengthening, renovating process. If a woman has been living healthfully, there will be no trace of unpleasant symptoms. If renovating work is needed, then a fast is called for.

A few days' fast (longer fasts should not be undertaken during pregnancy) will enable the body to rid itself of toxins and thereby provide suitable surroundings for the fetus. After the fast, if a healthful lifestyle is led, health will be kept throughout pregnancy.

3. Who Should Not Fast

As Dr. Shelton points out, the dangers of fasting are so slight they are almost negligible or insignificant. He lists several contraindications to fasting that are often made.

1. Fear of the fast on the part of the patient—It is best to educate the patient of the purpose of the fast and what to expect during the fast. Let him do some reading about the fast and about other people's experiences. Once his fears are alleviated, a fast can commence. Also, the fast itself often dispels such fears.
2. Extreme emaciation—People who are extremely emaciated may go on short fasts with definite benefits. When such people do fast, it is wise to keep the fasts short, and this may mean breaking it before hunger returns. But with proper living between fasts these people can be restored to health. Dr. Shelton feels that it is only through the fast that such individuals can be restored to health.
3. In cases of extreme weakness or of extreme degeneration—Even in these cases short fasts often prove to be extremely beneficial but they should be supervised. In the later stages of cancer, even a long fast will not result in health, but may perhaps relieve some discomfort or lengthen life for a few more days.
   Weakness itself is not a contraindication for fasting but is a sign that the body is in a state of toxicosis and is ready for an eliminative crisis. In this case, supervised fasting is very beneficial. Persons with heart disease have been known to make full recoveries following a fast but close supervision is again required.
4. In cases of inactive kidneys accompanied by obesity—It is said that in such cases, the tissues may be broken down faster than the kidneys are able to eliminate them. Dr. Shelton has fasted obese individuals with inactive kidneys with successful results. Most often the kidneys are enervated due to high-protein diets and other dietary abuses and a rest is exactly what is needed. The rate of tissue breakdown is not more than the body can deal with.
5. Difficult breathing—If the breathing difficulty is due to heart impairment, the fast should be closely watched and if the heart shows signs of weakening, the fast should be broken. However, Dr. Shelton says that he has fasted many such cases with beneficial results.

4. Fasting In Deficiencies

Most so-called deficiency diseases are not due so much to lack of essential nutrients as they are due to inability to *absorb* and *utilize* those nutrients. Fasting will enable the body to eliminate toxins, restore vital energy, and readjust and realign itself so that all available nutrients can be efficiently utilized. If a healthful diet is eaten after the fast, no deficiencies will arise.

In fact, certain vitamin and mineral deficiencies have been known to correct themselves during the fast while no food is being taken. The body will normalize itself during the fast and utilize stored nutrients.

Part III: How Long, How Often

1. Fasting Vs. Starving

There is a difference between fasting and starvation. Starvation results from food being denied to a person whose reserves have been exhausted, and, in its extreme stages, leads to death. Fasting, on the other hand, is a period of rest and renewal with a potential for remarkable benefits with the body using its stored reserves as food.

We are not so much concerned with how long it will require a man to die from want of food, but how long he can safely and beneficially abstain from food. A little over three months are the longest fasts that have been recorded in man and these have been in overweight individuals. The man of moderate weight would not fast so long; and he would not need such an extended period of fasting. It has been said that a well-nourished adult can remain alive from fifty to sixty days without food, *provided, of course, that he has water*. Hundreds of longer fasts have been recorded and most of these have resulted in great benefit to the fasters.

2. Length Of The Fast Is Guided By Developments

The organism requires time to do its "housecleaning." If we were to arbitrarily set a time limit for this important work, we would stand in the way of recovery. The best way to determine the length of the fast is to be guided by the developments. It is not possible to know how long it will take a stomach ulcer to heal, or for an asthmatic to attain full recovery. Since it is not advisable to break the fast in advance of complete healing, you must be guided by certain signs.

When symptoms disappear, it is a favorable sign, but it still does not indicate that the fast is to be broken. One of the surest indications is a clear tongue, sweet breath, and return of hunger. This may occur after two days or two months or longer depending on the individual.

Occasionally, it is necessary to break the fast before these signs manifest themselves. A sudden fall in blood pressure; a rapid, feeble and irregular pulse; a disturbing dyspnea (difficult breathing) may indicate that the fast should be broken. The attitude of the patient and his emotional stability are factors that cannot be ignored. If the patient is unwilling to continue the fast or becomes excessively worried and anxious, the fast may have to be terminated.

Although it is always best to continue a fast until its natural termination, breaking the fast under such conditions will do no harm as long as proper feeding is carried out after the fast. After a while, a second fast may be undertaken with benefit.

2.1 The Tongue and the Breath

Soon after entering upon a fast, the tongue coats heavily, and this coat may continue to increase as the fast progresses. This coating will persist during the fast up to a certain point when it begins to spontaneously clean itself up. As long as the body is actively eliminating toxins, the tongue will remain coated, but when this elimination begins to decrease, the tongue will clear up and remain clear. Dr. Hereward Carrington says, "A short while before the return of hunger, this cleansing process of the tongue commences and continues until the tongue is perfectly clean, assuming a beautiful pink-red shade—rarely or never seen in the average man or woman; and the terminus of this cleansing process of the tongue is absolutely coincidental with the return of hunger and of health."

Carrington stated that this coated condition of the tongue indicates the condition of the mucous membrane throughout the alimentary canal since this membrane is so closely interrelated and connected. I would add that this foul condition of the tongue not only is an indication of the mucous membranes of the intestines but also of the health of the mucous membranes throughout the entire body.

If the fast is broken before the tongue clears, the tongue will become clean after eating has resumed. This indicates that elimination has been halted, but it does not necessarily mean that elimination has been completed. It is always best to fast until completion whenever possible.

The breath is also an indication of elimination of toxic debris. Although the breath may be somewhat foul before the fast, during the fast it becomes more so. This peculiar odor of the breath continues during the fast and only becomes sweet when the fast is ready to be broken after elimination has ceased. Dr. Carrington associates bad breath with elimination via the lungs. He says, "Precisely coincidental with the heavy coating of the tongue—following immediately upon the commencement of the fast—is the greatly increased foulness of the breath, showing unmistakably that the lungs are assisting in the speedy elimination of all corrupt matter from the system with the greatest possible speed."

The above two conditions serve as a unique and constant guide as to the condition of the tasting patient.

3. How Often

As regards to how often to fast, we again must say, rely on instinct. When hunger disappears or acute symptoms appear, a fast is needed. It is important to understand that fasting is a tool that enables the body to redirect its healing powers where needed. It is not a "cure." You should not use fasting as a crutch to lean upon every time you choose to live unhealthfully between fasts. Fasting is but one part of an entire way of living that will maintain health. In between fasts, the other conditions for health should be adhered to. This includes proper food and water, exercise, sunshine and fresh air, rest and sleep, and emotional poise.

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Questions & Answers

Does everyone undergo violent crises during the fast?

> Disagreeable crises only occur in a small percentage of cases. Everyone can fast for a few days without inconvenience. According to Dr. Shelton, most fasters go through even a long fast with nothing more dramatic developing than they experienced during the regular activities of life. Most of the work of excretion is carried on silently and without the production of troublesome crises. In the human body, it is the task of the excretory organs to expel all waste and all foreign material that may find their way into it. They continue to do this, usually with greater efficiency, during the fast.

Can older people fast?

> The older person can fast with beneficial results if done under supervision. Dr. Shelton has conducted numerous fasts in both men and women whose ages ranged from sixty-five to eighty-five. Many of these patients had long fasts from thirty to over forty days.

Could you review the basic rationale of fasting?

Dr. Shelton outlined four important facts about fasting; he says:

1. Fasting, as a period of physiological rest, affords the tissues and organs of the body an opportunity to repair, renew, and replenish themselves. Damaged organs are repaired; worn out and diseased cells are discarded and cast out.
2. Fasting, as a period of physiological rest, affords an opportunity for recuperation of depleted energy.
3. Fasting, because it compels the body to rely upon its internal resources, forces the tearing down (by autolysis) of growths, effusions, infiltrations, deposits, accumulations and excesses. These are thoroughly overhauled, their usable constituents are employed in nourishing the vital tissues, their unusable portions are excreted.
4. Fasting, by the foregoing and related processes, enables the body to regenerate itself to a marked degree. It becomes younger in physiological condition. Its functions are improved, its structures repaired, and its fitness to live increased.

I have heard that fasting has a rejuvenating effect. Is this true?

> Yes, this is true. The body is constantly going through a process of regeneration. This daily renewal of cells and tissues delays old age and early death despite the abuses that are imposed upon the bodies of most people. Fasting enables the processes of renewal to outdistance the processes of degeneration and the result is a higher standard of health. Regeneration of the muscles, tissues, and bones is possible through this method. During the fast, we may actually tear down much of the body and then rebuild it and have a renewed one.
>
> The rejuvenating effect upon the skin is visible to all. Lines, wrinkles, blotches, pimples, and discolorations disappear. The skin becomes more youthful, acquires a better color and a better texture. The eyes clear up and become brighter. One looks younger. The rejuvenation is also present throughout the entire body.

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Article #1: When To Fast by Dr. Herbert M. Shelton

Called the "hunger cure" by European nature curists and many early Hygienists, fasting has shown by "large experience," as Robert Walter, M.D., expresses it, "... that a moderate hunger-cure is exceedingly beneficial in the great majority of diseases. Indeed, in many of them the capacity to appropriate food is entirely destroyed, the very thought of it becoming repugnant to the individual."

"Rest and the hunger-cure," Walter regarded as the "proper treatment" of those who were suffering from overwork and overeating. He pointed out that when there was functional impairment, coated tongue, and bad breath, no food should be taken. When uncomfortable in any way, stop eating until feeling well, he advised.

Kittridge says, "If a person has a coated tongue, fetid breath, and bad taste in the mouth, you may be pretty sure it will do him good to fast—appetite or no appetite." Judgement is required, wrote Kittridge, to determine when to put a person who still has an "appetite" on a fast. "When they don't have a desire for food," he continues, "no sensible man will think of eating or giving others to eat."

It is a mistake to think that food is a daily need under all circumstances. To constantly feed an irritated stomach is like kicking a man when he is down. Constant tampering with the stomach when it is as much in need of rest as the remainder of the body is to invite disaster. It is no uncommon thing to find sufferers whose disease is largely due to overfeeding by their physicians in an effort to affect a *cure*. We see people gradually dying of malnutrition—malassimilation, starvation—in spite of the fact that they are eating regularly. We see physicians urging invalids to eat, urging the eating of foods that should be excellent for a well person; yet the patient, doing all he can to comply with the physician's instructions continues to waste. He lacks power to digest the food. The physician needs to know that continued eating under such conditions can kill. If eating does not prevent sickness, how will more feeding restore health? How will overfeeding be helpful?

Fasting is useful only because of wrong life. It is better to live right than to turn into excesses, and then fast. It is also better to take a short fast early than to permit yourself to get into a condition in which a long fast is required. If a fast is taken at the first signs of disease, perhaps ten days will be adequate. If, after years of suffering and considerable loss of weight, a man may still safely fast for more than forty days, surely a shorter fast would have been well borne at the beginning.

Writing in *The Hygienist*, June 1912, Dr. R. R. Daniels of Denver, Colorado, gave an expression to a view that has been widely held and that is still held in certain circles. He said: "... the sick should fast only when the system is unable to care for food. ... Always in acute disease when fever is present, or when in the absence of fever the patient is suffering from shock. ... In illness without fever but in which the appetite is entirely lost or the organs of digestion are entirely disabled ... frequent disturbances of digestion or elimination due to overfeeding in which the appetite is entirely lost or the organs of digestion are entirely disabled ... frequent disturbances of digestion or elimination due to overfeeding in which the appetite is temporarily lost. ... Except for the occasional 'storms' attended by intense pain or other distress which inhibits digestion to the extent that it is impossible to take care of food, fasting is not the best treatment for chronic disease. While in chronic disease, the power to take care of food is always impaired, often badly impaired, nevertheless there are usually some foods which can be digested and utilized, and these should be given ... fasting should be used only when disease is present to the extent that digestion is suspended ..."

This view was shared by Dr. Henry Lindlahr (Chicago) of Nature Cure fame, who held that fasting should be employed only in acute disease and during the crises that arise in chronic disease. Many others have accepted this view of fasting, despite the fact that, even in those many thousands of cases of chronic disease that complain of a lack of desire for food, and that everything they eat causes suffering, there is present the power to digest some food. Dr. Daniels gave it as his opinion that in chronic disease "if the feeding is limited only to the foods which can be utilized, chronic disease can be eliminated more rapidly and the nutrition built up faster than by fasting."

Although frequently employing and advising the fast in conditions in which there is considerable digestive power, Tilden often expressed views that harmonized with the view of Daniels and Lindlahr. For example, he once wrote that, except under certain circumstances (circumstances that are relatively rare) he did not believe in long fasts. Then he added: "It is better to adopt a rational and suitable diet and take from one to two and three years to assume the normal." His very language implies that a normal state may be attained earlier by the use of the fast, although he thinks that the slower method is preferable.

With this view I find myself in strong opposition. I am fully aware that a much longer time is required for the evolution of good health if the fast is not employed in preparation for and in initiating a new way of life, but I know of no valid reason why one should be content to take so long when, with the fast, he can safely and advantageously shorten the time required. Must we always await the development of a severe crisis before we avail ourselves of the advantages of a period of abstinence? Must we deny ourselves the benefits that accrue from a period of physiological rest merely because we have no fever and no severe pain? Or can we fast at intervals and prevent the evolution of a body-state that necessitates a crisis? This, to me at least, would seem to be the wiser plan.

To this end the practice, a very ancient one but followed by many people today, of fasting one day out of each week, is rarely adequate. The ancient Aryans abstained from all food and drink one day out of every seven; the Mongolians fasted every tenth day; the Zends rejected all food every fifth day; the *Bible* mentions the practice among certain of the ancient Jews of fasting one day a week. All of this is certainly beneficial, but our present view is that one day a week of fasting lacks sufficient cumulative value to be adequate to meet the requirements of the chronically ill.

Daniels says, "Missing a meal or two when 'out of sorts' or feeling badly ... is the most common use for fasting. A coated tongue, no appetite and general lack of vigor and energy mean that you should miss a meal or two and give the body an opportunity to right conditions. This simple treatment will frequently avoid attacks of serious illness." Thus, while he agrees that the fast may be employed as a means of preventing the evolution of crises, he too severely limits its use.

I am of the opinion that the rule he gives for determining the length of the fast should apply to the chronic sufferer as well as to the sufferer with acute disease. In discussing how long the fast should be continued, he says: "This is a difficult question to answer in a general way since each case is a law unto itself. One thing is certain, however; to get the best results, no food should be taken until the power of digestion and nutrition has returned. In those having fever, food should not be taken until the fever has permanently subsided. At this time, the appetite will return and the tongue will become clean and moist, indicating that the digestive fluids are present in the stomach and intestines. In general, a fast should be continued in the cases suitable for fasting until the above conditions of the tongue and appetite prevail, until the patient is free from distress, and until he can take, without disturbance, the foods mentioned in the following paragraph."

If the chronic sufferer has a poor appetite or no appetite, if his tongue is coated, his taste foul, if there is afoul odor to his breath and in general he does not feel good, if there is pain and distress, or as they often express it: "Nothing I eat seems to do me any good," why shall he not fast at once and not wait for the evolution of a crisis? If the body gives every indication that it has accepted the proffered opportunity to rest and clean house, what is the need for arbitrarily limiting the duration of the fast?

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Article #2: Physical Rest by Dr. Herbert M. Shelton

Commonly we say that the activities of an organism should be proportioned to its nutritive intake and, keeping this in mind, we should have no difficulty in understanding that with the shutting off of income of food, there should be some reduction of physical activity—although how much this reduction should be is not immediately determined.

On the whole, we adopt the position that the faster should rest—physically, sensorially, and mentally. Here we are thinking more of the needs of the sick than of the requirements of the fasting organism. It is the profoundly enervated individual who is in need of rest. The more he can relax and rest, the more rapid will be his recuperation and the more efficient will be the processes of repair that go on in his body. The relatively healthy individual, who is much overweight and who is fasting to reduce weight is certainly not to be placed in the same class with the sick and weak man or woman, who is fasting for physiological rejuvenation.

This, I think, well illustrates a principle that I want to stress at this point: namely that any rule that we can lay down for the conduct of a fast is in the nature of a generality and must be adapted to the individual faster. To insist that all fasters adhere to the same rules to the same extent is to ignore all the various individual factors that render possible or necessary certain modifications of the fasting program that fit it to individual needs and conditions. We cannot deal with people as though they are exact replicas of each other and as though the condition of one is identical with the condition of another.

The primary purpose of rest is the conservation and recuperation of energy. I make no pretense of knowing what "life-energy" is nor its source. I think that a knowledge of this is not essential to the understanding of our subject. We are all well aware that sleep, which is the most complete form of rest (there being the fullest rest of mind and senses, as well as complete physical relaxation in sleep), is a period of recuperation and replenishment. Rest and relaxation in a quiet place, with no worries or anxieties on the mind, but in the wakeful state, is almost equally a period of recuperation and replenishment. Rest and sleep are nature's grand representative, recuperative and restorative processes; activity and excitement are grand representative processes of expenditure.

Rest does not mean a complete suspension of all of life's activities, as in periods of suspended animation. Indeed, during sleep, certain of the body's most essential activities are most actively carried on. When, in *Life's Great Law*, Dr. Walter stated that the success of the work of the living organism is inversely proportioned to the degree of its activity, he had in mind only certain more obvious forms of activity. The fact is that, the success of the work of the organism is directly proportioned to the degree of its activity in certain basic functions. Witness the processes of growth and repair that are carried on very actively during sleep. Whatever replenishment may mean, in the final analysis, it is a process that is carried on most rapidly during sleep. It may be correct to say that the anabolic activities (that is, the building up processes) of life are most efficient during this period.

I fully agree with Dr. Daniels when he says that "rest from physical exertion is necessary when fasting for any length of time," but only if we limit this to the fasting sick individual. He says that "unless he is really ill the man of average vigor can go without food for twenty-four hours and continue his usual work, but if his condition is such that he should go without food for a longer time, he should rest absolutely." Thus he also makes a distinction between the healthy and the sick individual. I again agree that "if he (the faster) has fever he should go to bed and remain (there) until the temperature is normal and digestion has returned."

When he again stresses the need for rest, saying, "the man who is not possessed of the average physical vigor should not miss more than one meal without discontinuing his usual work and resting," he may overstate the case for rest while fasting. Missing two or three meals without going to bed and resting is not catastrophic in its effects upon the average chronic sufferer. True, it does not provide the benefits that the fast coupled with rest provides.

I do agree that "the idea that man should go without food for long periods of time and keep up his usual work, or indulge in walks across the country, and other athletic stunts, is all wrong." In the early part of this century, when Dr. Daniels was writing, many fasting enthusiasts accomplished stunts requiring extraordinary exertions while fasting. A little later, the marathon runner and man of vigor and endurance, George Hasler Johnson, attempted to walk from Chicago to New York while fasting. These feats of physical strength and endurance are of tremendous value as showing the resources and possibilities of the human organism and they provide us with a basis for confidence when we undergo a fast, but they have no place in any rational plan of caring for the sick man or woman.

Rest while fasting not only provides for comfort but it hastens the processes of recovery. It is important that we keep in mind that the sick man is enervated and that rest is the means of recuperation.

Article #3: Pounds That Slip Away by Dr. Herbert M. Shelton

The big business of losing weight, figure control, diet-in-comfort plans and similar programs have developed into one of the great industries of our age. Everyone considers himself an expert. Fad diets rage for a few months and give away to the next crash wonder. This week it is an ice cream diet. The next it is bananas. The week after that a protein diet, nothing but juicy steaks. Eat yourself *thin*!

Overweight is becoming an increasingly perplexing problem, not only for adult men and women, but for children also. Several facts are responsible for this, but, in general, we may say that the increased abundance of food, together with the increased income of the American people, on the one hand, and the changes in work resulting from the shortening work day, shortened work week, modern transportation, and the many labor-saving devices that take much of the burden off the shoulders of men and women, have resulted in the increase of weight. Just at a time when our reduced labors have reduced our need for food, increased production, artificially increased palatability, and increased income have served to increase our food consumption.

Hygienists are realists. Nothing can circumvent the fact that the quickest, surest, safest way to lose weight is by fasting, and the surest way of maintaining the proper weight level is by refusing to return to the wrong eating habits.

The disappointingly slow method of losing weight by "going on a diet" is rarely very successful for the reason that it is a long drawn-out process requiring more self-control and a much longer period of control than the average person is capable of. A not uncommon outcome of such programs is that, after a brief period, during which time a few pounds are lost, the obese individual returns to his prior overeating and puts back all the weight lost, and often additional pounds. Only rarely does one see an obese individual stick to a reducing diet for a prolonged period.

To begin with, as I have stated in many lectures, and will continue to remind the reader, do not enter upon a fast on your own without the guidance of an expert in the field of conducting fasts. While fasting is perfectly safe as a health and weight-reducing measure, it does involve the complex human organism, and it should be watched over and directed at all times by a qualified person who knows what he may expect, or what trouble signs to watch for during the fast.

How much can one expect to lose? The loss rate of course varies with the individual, but the average for a protracted fast runs around two-and-one-half pounds a day. Is this heavy weight loss safe? It is a long as it is conducted under proper controls and with proper and continuing rest. Let me cite here briefly the most striking advantages of fasting for weight reduction:

1. Safe rapid loss is registered on the fast.
2. The fast is far more pleasant than the reducing diet— the nagging desire to eat is missing.
3. Weight loss may be secured without resulting in flabbiness or sagging of the skin and tissues. However, this is not true of elderly persons.

When the overweight individual undergoes a marked reduction of weight, several indications of improved health follow immediately:

1. Breathing is freer.
2. There is greater ease of movement.
3. There is loss of "that tired feeling."
4. There is a disappearance of the sense of fullness and discomfort in the abdomen.
5. Symptoms of indigestion cease to annoy.
6. Other discomforts cease.
7. Blood pressure is lowered and the load the heart has to carry is lessened.

All of these evidences of benefit are noticeable, but the improvements are commonly out of all proportion to the weight loss, thus indicating that reduction of the amount of food eaten itself resulted in improved health. There is every reason for thinking that the greatly-reduced intake of sugar, starches, and fats and the overall reduction of the amount of food eaten is beneficial.

In 1962, a woman began to fast to reduce weight under my guidance. At the conclusion she told me: "It has been an amazing experience—the pleasure of seeing those pounds melt away. I never saw fat go so fast." Another woman remarked after a fast of fifteen days undertaken for reducing: "I was at a well-advertised health spa. They kept me on a diet of seven hundred calories a day. I was hungry all the time. This fast has been a pleasure."

A third woman said after a week of fasting to lose pounds: "This has been the most remarkable experience of my life. I have enjoyed this fast and rest. I never knew before that people fast, but I have enjoyed it."

Are these expressions typical? Hardly. Fasting is not always the pleasant experience these women found it to be, but it is rarely disagreeable enough to justify discontinuing it until one's goal has been attained. And it is frequently a far more pleasurable experience than many people have in their daily eating habits. In many conditions of life, every meal is followed by discomforts and even actual pain. In these states, the fast is often such a relief that it becomes a joy.

There is always great satisfaction in watching the fat melt away at the rate of two to four pounds a day. To lose nineteen pounds in a week is a highly pleasing experience (there are exceptions in which the weight loss is not so great) for the first several days of the fast. The rate of loss is not uniform and there are periods when the scales register no loss for a day or two at a time. The rapid loss registered at the beginning of the fast does not continue through the whole of a long fast.

Not only is there safety in fasting for weight reduction, there is also greater ease than there is in dieting. One reason for this is that unlike, almost all dieters, the faster is not hungry all the time. His taste buds are not constantly tempting him. The flood of gastric juices is not being constantly activated.

The faster may experience some desire for food during the first or second day of the fast or may not desire food at all. Hunger subsides usually by the end of the third day. And unless the fast is broken for some reason, the faster can continue without experiencing either weakness or hunger.

I state these facts out of my own personal experience but they are also verified by investigations. Two series of experiments carried out by regular medical men in accredited hospitals, have developed empirical evidence sufficient to satisfy the experimenter scientifically that fasting is not only a safe and speedy way of reducing weight, but is also the most comfortable way of reducing.

One of these experiments was carried out by Lyon Bloom, M.D., in the Piedmont .Hospital in Atlanta, Georgia, where he conducted a lengthy series of experiments on fasting in reducing weight. This was followed up by Garfield Duncan, M.D. of the University of Pennsylvania who is regarded as an authority on weight reduction and whose independent tests include Bloom's findings and conclusions.

These two medical investigators found that fasting men lose an average of 2.6 pounds a day, while women tasters lose an average of 2.7 pounds a day. Both Bloom and Duncan confirm that the fasters were not hungry. Instead, they reported an amazing absence of hunger with no apparent mental or physical strain. One of the fasters was quoted as saying: "I feel better than ever before in my life." A woman faster, after forty-eight hours without food, volunteered the information that she was not half so hungry as she used to be after missing a single meal.

Bloom is quoted, from the summary of the experiments: "The present preoccupation with eating at regular intervals leads to the misconception that fasting is unpleasant." He stated further, that, in his opinion, as the result of the findings of these tests, fasting is well tolerated by the human system provided there is free access to water. In a later series of experiments, Bloom permitted a faster to go four consecutive weeks without food, with no ill effects. In reading his report of experiments to the

111th Annual Meeting of the American Medical Association, Duncan declared: "although short periods of total fasting may seem barbaric, this method of reduction is marvelously well tolerated." He added that we have evidence that these obese persons fully enjoyed the total fasting periods, due probably in part to their elation that hunger is not a problem while major reductions in weight are being accomplished.

Both men reported that in longer fasts the weight loss levels off to about a pound a day. Bloom stated fasting has also proved to be an extremely effective method of weight control.

In the healthy individual who is fasting only to lose weight, I do not insist on rest in bed but permit considerable exercise—even at times giving a prescribed course of physical workouts. This does not increase the rate of loss as much as one might expect, but it does assist in retaining the tone of the tissues.

The amount of exercise required to reduce weight by exercise alone is far more than the average person is willing to undertake and more than many of them should undergo. To lose one pound of fat requires playing twenty-three holes of golf, sawing wood for ten-and-one-half hours, riding a horse for approximately forty-three miles.

Exercise always has the added hazard of increasing the appetite. During the fast it should be controlled and used only to the extent that the adviser feels desirable for the individual undergoing the fasting process.

While there are varying rates of metabolism, my experience indicates that most obesity is due, not to glandular disorders, but to habitual overeating. There is little truth in the idea that with some people everything they eat turns to fat. The real truth is that they are eating not only more than they should, but more than they really want.

How much weight loss per day is safe in fasting? The answer here is that since fasting is total abstention, the body itself decides what rate loss is proper. When fat tissue is soft and flabby, weight is usually lost rapidly in the early days of the fast. I have seen losses ranging from four to six pounds a day in fasting. The loss of twenty pounds in a week is not at all difficult in a great many cases.

With those who have a very low rate of metabolism, the rate of loss from the outset of the fast is slow—at times even disappointingly so. Let me reiterate once more, any fasting of more than a few days should be done only under experienced supervision. In all cases where there is any organic defect or chronic ailment, such as heart disease or blood deficiency, even the shortest fast should be supervised. Again let me say there is no essential danger in fasting but one must be properly safeguarded against any danger from hidden conditions that might reveal themselves when no food is taken.

I cite the possibility in order to give the rounded picture of fasting. Let me reassure the reader, however, that such dangers are rare. If the reader is in good health, and follows the proper procedures under proper experienced guidance, the fast should be not only a way of losing poundage, but an exhilarating and exciting adventure, the beginning of a new way of thinking about oneself.

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Article #4: Does Fasting Cure Disease? by Dr. Herbert M. Shelton

We do not claim that fasting cures disease, but simply that it enables the organism to heal itself. What, then, does fasting do?

1. It gives the vital organs a complete rest.
2. It stops the intake of foods that decompose in the intestines and further poison the body.
3. It empties the digestive tract and disposes of putrefactive bacteria.
4. It gives the organs of elimination an opportunity to catch up with their work and promotes elimination.
5. It reestablishes normal physiological chemistry and normal secretions.
6. It promotes the breaking down and absorption of exudates, effusions, deposits, "diseased" tissues, and abnormal growths.
7. It restores a youthful condition of the cells and tissues and rejuvenates the body.
8. It permits the conservation and recanalization of energy.
9. It increases the powers of digestion and assimilation.
10. It clears and strengthens the mind.
11. It improves function throughout the body.

When we say that fasting is neither a *cure-all* nor a *cure* at all, we do not thereby intend to limit its scope or its field of usefulness. Indeed, the more we learn about this element of nature's hygiene, the more useful we find it to be. As it is used as a rest and is employed where there is great need of a physiological housecleaning, it is effective in all states of disease, even in deficiency diseases, where it is commonly thought that more of certain food factors are essential, the fast has proved to be very helpful. Thus, what may appear on the surface to be an indiscriminate resort to the fast, turns out, upon analysis, to be no more indiscriminate than the employment of water or food or exercise in the same great variety of conditions. When we once grasp the fact that fasting is not employed as a cure and that it is not something that is good in certain so-called specific diseases, but may not be good in other so-called specific diseases, we understand that its use in all the conditions of impaired health is not an indiscriminate use.

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Lesson 47 - How To Preside Over A Fast

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- Article #1: Injury To Fasters By Dr. Herbert M. Shelton

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1. Establishing Your Credentials As An Authority

In the light of the great providence of the wisdom of the body as was so beautifully expressed in Lesson Six of this wonderful course of instruction, it is with great humility and concern that I even accepted the challenge of preparing this lesson. I am proud and delighted that the procedures that we have employed in working with people who have been fasting (at the Life Science Health School, Yorktown, Texas) have been sufficiently correct and constructive as to merit the consideration of the school faculty and staff to offer service in whatever way that is necessary.

We have found that the intelligence and wisdom which is an integral component of the body that is undergoing a fast is, indeed, quite able to handle the situation in a most efficient and awesome manner when we refrain from interfering in any way. We can recall one fast, in particular, in which a guest appeared in our presence more dead than alive. Her breath was coming in "thimbles-full" and the exertion of just trying to breathe seemed almost overwhelming. She had to remain in an upright position to be able to breathe at all when it was obvious that she was completely exhausted and should have been reclining in a restful position. We covered her with a blanket and propped her upright in a recliner with pillows.

Through the grace of God or the creative force or power or by whatever name you may call it and the exercise of what proved to be good judgment, the guest improved. Her improvement was slow and frustrating to those of us on the outside of her body that felt something should be done, and we were guided to do just that—we did nothing. We let the innate providence and wisdom of that frail and debilitated body do "its thing" as we sat by and observed, helping as we could from time to time.

In a matter of five days, the first two of which seemed twice their usual length, the "innate intelligence" within that woman's body completely healed her to the point that she was lying down completely flat upon her bed breathing just as deeply as she had ever been able to do in her life without so much as the slightest indication of apnea or difficult breathing.

1.1 Developing "En Rapport" With Your Guests

To preside over a fast requires many things, all of which are designed to instill faith and confidence within your "guests" that all is going to be uplifting and supportive of life. These guests come into your presence in a fearful state of being, because if they were not fearful for their life, they would not have come to you or the many other practictioners of so-called health before you in the first place.

'One of the greatest things you can do for your guests is to instill a feeling of hope and build a pathway to a faith in themselves to realize that they do, in fact, have within themselves everything that is necessary to bring them safely back to a state of near perfect health and well-being.

Many of your guests will have been in "fasting centers" or "health institutions" of one sort or another before coming to you. You will be "under the gun," so the speak, and your reactions and forthrightness in your responses to their questions, both voiced and implied, will determine how well they respond to your suggestions.

1.2 Your Conduct As An Operator of a Composite Personality

When you have established a condition of "En Rapport" with your guests, you will have formed a composite personality between yourself and your guests. If you have been attentive to their needs and have been responsive to them you will have gained the respect and cooperation of your guests and they will follow your instructions to the very letter. Your guests will thereby gain the greatest amount of good wholesome benefit from their time of fasting under your supervision.

To form this composite personality you will have to get to know your guests in a very personal manner without becoming overly intimate or concerned about their personal affairs, beliefs, and customs. They will share those things with you that they want to share and, as you begin to establish your trustworthiness as a pillar of strength and determination, your guests will begin sharing more and more of themselves with you. This can lead to some rather touchy situations wherein you will be hard pressed to maintain the supervisor-guest relationship to the nth degree, but you must prevail. You are the one who has set yourself up as being the so-called "well" person and the guest is the one who is "sick" or "not with it." You must be part of the solution to their problems as opposed to becoming a part of their problems.

We have found from experience that it is far better to give honest and straightforward answers to the questions you will be asked. If you do not know the answer to your satisfaction, it is far better to simply say you don't know the answer. Tell them you will try to find the answer for them and then make an honest effort to obtain it—one that is satisfactory to both yourself and your guest. None of us knows everything—as Will Rogers is quoted as saying, "We are all ignorant in different things." With the vast amount of knowledge available to the human brain in this day and age, it is no disgrace not to know everything. But you should make a real effort to try to know as much as you can in all subjects relating to Hygiene and Nutrition in their broad sense and application. Bluffing and insincerity are not the hallmark of a dedicated teacher of Hygiene.

1.3 Case Histories and Consultation

Case histories should be as complete and as detailed as necessary to get a good perspective concerning your guests. You need to pry into their affairs as well as you can to determine whether your guest is someone who can benefit from your services. Without their complete cooperation and willingness to turn themselves over to you to get the benefits of your expertise, you are going to be wasting your time as well as that of the guest. When you can find this out early in your program, you will be saving yourself a great deal of trouble and problems. The guest needs to know that fasting is not an easy thing to do, especially one of long duration. He or she should be given some idea of the new and different things that can be experienced, and at the same time, to not be unduly alarmed or frightened at the prospects.

In those cases where there is apprehension or concern, it could be in the best interests of all concerned to feed the guest for a few days while they visit with the other guests who have been fasting to let them learn a little about the effects of the fast. The main point is that you clear the air as much as possible so that the numbers of surprises that the guest experiences through the fast will be minimized.

Upon your acceptance of the guest, you have entered into a contractual agreement more often implied than written but nonetheless a binding contract defensible in a court of law where both parties have their clearly-defined responsibilities.

If for any reason, you feel that your guest doesn't trust you or is uncooperative with you, you will be well advised to consider not accepting him or her or accepting him or her under certain conditions which should then be clearly spelled out and agreed upon in the form of a written contract. A standard contract format can be made out selling forth the conditions under which you have agreed to work with the guest. This prevents the situation at some later date of "I thought you said I'm a no good so and so." All you have to do then is refer to the contract.

1.4 Procedures, Regulations and Rules (General)

These types of things (contracts, case histories, etc.) can be prepared in advance and kept on file. After you have accepted the guest following your consultation, you can hand him/her copies of the little packet of "dos and don'ts" so that he/she can immediately begin adjusting thinking to the kind of things you want him/her to consider as long as with you and under your supervision and guidance. These contracts need not be lengthy, cumbersome, or difficult of implementation. You should always operate on the KISS (Keep It Simple Stupid) principle, and then you are not later embarrassed by saying something that is obviously uninforcable or redundant.

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2. The Actual Conduct Of The Fast

2.1 Pre-Fasting Considerations

Many times you will find that the guests have had a long history of constipation or perhaps other troubles with the bowels that make regular bowel movements unpleasant and as a result are not indulged until absolutely necessary. When you encounter this sort of a situation, you should consider placing that guest on a pre-fasting dietary of nothing but fresh fruits high in water content for a period of two, three, four, or maybe five days before commencing the fast. Usually this guest will have had at least one and perhaps more bowel movements over this period of time. When some sort of a near normal bowel pattern has been established, then the actual fast can be initiated.

When you are mailing out your follow-up letters after receiving some notice of a guest's intentions of coming to you for a fasting situation, suggest that if he or she is or has been having troubles with his/her bowels or elimination, he or she should eat nothing but fresh ripe raw fruits with a high water content for at least a week before arrival in your center or fasting establishment.

The intent of the pre-fast dietary is to nave established a near normal bowel function to minimize the blockage of the bowels when alimentation is resumed at the end of the fast.

2.2 Fasting Considerations

By now you will have established a working relationship with your guest (or have dismissed him or her as someone whom you would rather not work with) and are ready to consider the starting of the fast itself. During the first few days of the fast, you are going to have many opportunities to get to know your guest even better as you continue to work together. You should immediately begin to emphasize the various things that the guest will begin experiencing in the beginning of the fast. Headaches (or other types of withdrawal symptoms) will be quite common with most of your guests, and they should be allayed as soon as possible.

As the guest moves into the fast with each passing day they need to be encouraged to do nothing but rest without any form of exercise or attempt of any kind to get up a bit and walk around "to keep the strength up," etc. You want him or her to want only to rest. It is when he or she has arrived at this state that the body is able to really begin its' housecleaning operation without hinderence or interference. The real true measure of housecleaning at its very best! When the guest holds on to that idea of reserving energy every day to get up and move around to keep the strength up, that energy is being withheld from the housecleaning procedure. The brain or computer is then in the position of being able to divert all of the efforts to the one job of cleaning out the debris that has been accumulating over the years.

When the housecleaning is finished, the body will again direct the energy back in the muscles and other functions as discussed later in this lesson. It is very important that you have responsible answers ready for your guest's many questions that will be forthcoming at those times when they are experiencing strange and bizarre feelings and symptoms. Your guest can easily become very apprehensive and concerned unless you have good answers and reactions to questions. The actions you take and the reactions you make to the guest's many ploys, whether fancied or real, will have a direct bearing upon his or her cooperation and willingness to follow your directions.

You have to remember that you are the "operator," the "thinker," the "originator" of the thoughts and actions that are being carried out in the "subject," the "doer," the "guest." The guests are very dependent upon you for their guidance and directions so long as the composite personality is maintained. When you lose that relationship, if it is destroyed in any manner, you the "operator" have lost the confidence of your "subject." This can be a devastating experience for the guest, because you have left him or her without guidance at a time when not thinking clearly. This is where self-mastery, control, and poise are necessary. These stem from knowledge, understanding, and a feeling of empathy for your guest and his/her problems. If your dedication to the cause of Hygiene and its wonderful results is not there, you can expect some rough sailing on the seas of public relations with storms aplenty in the forms of unhappy and troublesome encounters with lawyers, courts, and just plain irate former guests. If, on the other hand, you have demonstrated your forthrightness in dealing with the overall situation, you can expect rather smooth sailing with only an occasional storm of any consequence.

As your guest progresses in the fast, certain things must be given due thought and consideration. You very closely observe the guest's progress. If he or she is detoxifying in the usual manner after several days of fasting and resting, all is going well. The actual number of days required to last before the housecleaning is finished will depend pretty much upon the amount of adipose tissue that is available to be used as fuel during the fast. If the guest is well endowed with fuel reserves (obese), many more days will be required to attain the level of a guest less well endowed. In either case, the guest will remain in a state of relative weakness so long as the housecleaning is going on. If the fast must be broken ahead of time, that is before the housecleaning is finished, time must be allowed for the guest to gradually begin eating and making the necessary adjustments to post-fast eating allowing sufficient time for the body lo make its necessary adaptations.

Ideally, the guests should be able to arrange their schedules so that they can "fast to completion" or until the housecleaning is finished. On the other hand, there are many things that come into the picture that may mitigate against such an arrangement, in which case, adaptations will have to be resorted to that are in the best interests of the guest.

When the guest is able to "fast to completion," the energies that have been used in the actual processes of housecleaning will no longer be needed for those purposes and will be released. The brain, sensing all of the things that are taking place in the guest's body, will then start shifting energies back into the muscles and the skeletal system of the body. The guest will then begin to feel a new sense of strength and energy returning. The guest will then experience a desire to evacuate the bowels, and the arms and legs will become stronger. At this point in time, it is well to understand and to caution the guest that while he/she may actually feel a surge of strength returning to various parts of the body, it is of very short endurance or for very short lengths of time because there is no reserve to replenish it as it is used up. Many times this strength will be completely used up in a simple little trip to the bathroom or during any type of light exertion. A faster needs to realize his/her actual condition and not overtax him or herself at that particularly critical time in the fast.

As time progresses, the tongue will begin to clear, the breath and mouth will sweeten, and that nasty taste in the mouth will have changed into one of salivation and the dissolution of the phlegm and mucus of the mouth and respiratory passages. The guest is then ready to be considered for breakfast (breaking of the fast). It need not be broken on that particular day but should be done within the next two to three days when everything has pretty well settled down and the body is really ready for food.

When actually ready for food, the throat and sublingual glands will signal the desire for food, and then it is time to break the last—at the discretion of the supervisor in consultation with the guest.

2.3 Monitoring the Faster

All during the fast, it is a good idea to keep daily checks on the progress of the fast and its effect upon the guest. Each of you will be interested in various aspects of this procedure, but there are certain things that should be considered by all supervisors in the conduct of the fast. Among those things are notations of the guest's weight, blood pressure, pulse, temperature, urine color, bowel activity, if any, and how the guest is feeling along with your comments and observations of what you are seeing objectively along with the guest's subjective responses to your questions.

As you gain experience in these areas, you will soon find that what are considered to be standards among the usual and accepted standards of the medical establishment are above the standards of healthy people. Blood pressures of 100-110 over 60-55 are not at all uncommon in healthy people. Pulse rates of 50 to 60 are quite normal for guests in mid-life.

Another important item is the be ever alert to the possibility of your guest not taking enough water which can lead to a state of dehydration. He or she needs to be encouraged to drink water every time the urge is there. If that means providing fasters with warmed distilled water to increase its potability, by all means give it to them that way and encourage them to drink water every time they feel thirsty and to not put it off for any reason.

Some signs that your guest is not drinking sufficient water could include: scanty urine or a highly-concentrated nature; a sallow, light, loose skin that does not have the usual elasticity when lightly pinched and released (sort of sticks together); increasing pulse rate; lowering of blood pressure; lethargic or listless countenance and attitude—a detached or "not with it" response; and possible other signs.

If you note any of these things, start questioning your guest and observe closely the amount of water taken from his/her water dispenser. Don't wait for most of the signs to appear to start making your inquiries, perhaps the water is becoming intolerable to your guest and you may need to add a few drops of fresh lemon juice to enhance its taste.

In the course of monitoring your guests, you may have occasion to have questions concerning some of the readings or indications. It may help to get on the telephone and talk with a friend—anyone that you know who has some experience in these matters. Your peace of mind will be greatly enhanced. Reference to the section following "Generalities" regarding the slowing down of a fast can also have meaning for you.

2.4 Post-Fast Dietary

In breaking a fast of longer duration than three days, consideration should be given to the best methods for breaking the fast (see Lesson Forty-eight following) in the best interests of that particular guest. Many things need be considered in making these determinations. Some of these will include the age of the guest, the goals of the guest, the length of time he or she has fasted, the amount of toxic materials that have been eliminated, the stability of the guest from a physical as well as psychological point of view, and the state of rapport that currently exists between you and your guest (sometimes it is best to comply with your guest to salvage as much of a deteriorating relationship as is possible).

Following a fast of 15 days or longer, the post-fast dietary becomes more important with the passage of time in the fast. When a person has fasted that long or "to completion," his or her intestinal flora will have been largely depleted and require a little time to be regained after the realimentation period. An ounce or 28 grams of food may not appeal to the appetite of that particular person who is breaking the fast. This person needs to be encouraged to eat it as gently and easily as possible to reactivate his or her digestive system. Usually by the time he or she has had the second or third ounce (28 grams) of food he or she will begin to have an appetite. By that time, the intestinal bacteria have proliferated and have become active in their own right. The appetite of the guest then picks up gradually, and you can begin giving them slightly larger amounts of food so that by the second day he or she should be able to handle an orange every two hours or perhaps 100 grams (slightly less than four ounces) of grapes or of watermelon. When watermelon is in season and available, I personally think it is one of the finest foods available on which to break a fast.

It seems that from a consensus of opinion that a fast should be broken in the morning so that six meals can be taken—one every two hours between 8 a.m. and 6 p.m. to get the alimentary system working at its optimum capacity. There may be times and circumstances when it will be necessary to break a fast on something other than fresh ripe raw fruits but those occasions should be rare and only where absolutely necessary for some valid reason.

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3. Procedures Incidential To The Successful Fast

The conditions alluded to in the preceding materials are idealistic and seldom actually happen in such simplistic forms. Sometimes conditions develop during a fast where the guest will be experiencing unusual amounts of toxic release which may have to be slowed down to some extent. If the fast is causing so much toxic material to be eliminated that the body is unable to eliminate it as fast as it is being released through the usual channels of elimination (i.e., kidneys, respiration, perspiration, and the bowels) and does not resort to any of the vicarious avenues of elimination, the blood will become so toxic that the guest may lose contact with reality (become slightly disturbed or insane). That is because of excessive amounts of toxic materials in the blood that are flowing throughout the body and through the brain in the bloodstream creating an uncontrolled physical situation that is both undesirable and unnecessary. When that condition begins to manifest, it has been found to be a wise precaution to break the fast for a day or two on a fruit that is high in water content such as watermelon, grapes, or oranges and then resume the fast when the situation is back under control. This is one of the main reasons why it is so important that the guest have some appreciation of a few of the things that can happen to them while undergoing a fast.

Actually the above-mentioned toxic condition is that which most people in mental institutions suffer from. None of the people who are responsible for their care and treatment are aware of the cause of their problems, and as a result, nothing constructive is being done for them.

3.1 Be Alert to Guests' Needs—Physical and Mental

Another consideration of concern when all of the vital signs are within the normal range of variation, is to guard against apprehensions and fears that may be instilled in the minds of your guests by any of your other guests who speak of experiences they've had in various so-called fasting institutions. Many times they will relate their experiences in such a way as to create an illusion of pain, discomfort, or some other danger to the unsuspecting guest. This is another reason why you should pay close attention to your guests' questions and attitudes so that you can head off those things before they actually become problems (during your informative talks for example).

Also, you will occasionally encounter a guest that seems to have a lot of savvy, has read all of Dr. Shelton's books, and thinks he or she knows exactly what to do and when to break the fast. Usually it is a case where there is little knowledge, and it becomes a dangerous thing. This is especially so in the hands of an inexperienced individual. This is when your orientation talks (information talks) given every day (to those of your guests that feel up to attending them) can be a wonderful tool for de-fuzzing these potentially dangerous situations.

3.2 Educational Talks Given to Guests

Some general observations and suggestions include informative talks on a regular basis so that they become habitual. These talks should be very simple and direct on such subjects as disease; fasting; the 19 components of nutrition; the basic food categories; some discussion of vitamins, minerals, and enzymes; and an exposure to the providence and wisdom of the body. When that has been done, then the cycle should be repeated. Many of the long-term fasters will have an opportunity to hear the talks two or three times. They will not hear them too often, however, because during their fast they are very weak and many of them will not attend the talks until they feel stronger.

Repetition is good, and it takes a lot of it to get even the simplist ideas across. Look at how many times you had to repeat the multiplication tables to get them into your consciousness. The same holds true here. Your talks should be given from a minimum of notes or props so they contain as much spontaneity as possible, and try to avoid the planned or canned type of classroom presentation. Talks should be informal, informative, and as humorous as possible. They should never be longer than 60 minutes and preferably not over 50 minutes because your guests will be in various stages of fasting and eating. They may be readjusting to an eating schedule and will be unable to maintain a very long span of attention to the materials being presented. The fasters who are in attendance have, or at least may have, an even shorter attention span. The talks should be in the simplest language you are able to command, reserving your intellectual prowess for the more argumentative and dissident members of society who seem to look with great respect and awe at the speaker who can keep them spellbound with meaningless, but high-sounding phrases and innuendos.

Your guests will be people from all walks of life with educational backgrounds that vary just as much as they themselves vary as they are progressing through the various stages or phases of the fast and the recovery or rehabilitation program following the fast. Your talks must be geared to that type (variety) of an audience. You will have ample opportunity to express yourself more fluently as you are called upon to give talks before various church groups, fraternal, and social organizations along with various service clubs and others who are looking for an informative speaker—an innovative speaker who has a different story to tell than the one they heard at another meeting they have attended. That is YOU.

We have found that when we teach our guests new information and then tell and retell them this information time and time again, they begin to get the point. You will not, and cannot, make Hygienists of them during your attempts to educate them. The only thing you can ever hope to do is to instill the desire to learn more about the program after they get into it and begin to feel better. The guests will gradually start thinking as their health improves, and they are going to become more interested in the program if you have done a good job of selling them on its basics. It is just like any other program of learning in this sense.

This same rationale and reasoning applies in the case of your guests and the knowledge you may be privileged to impart to them. Most of them are ready to absorb the simpler forms of knowledge you will be able to provide them but will not be ready for the higher aspects of the program until they've had a chance to chew on and digest the basics first. And, for that matter, there is little or no need for them to know more than that unless they are motivated to learn and teach the program to others.

3.3 Give Guidance and Direction to Your Guests

Some other considerations to think about as you are working with your guests include the knowledge that no two fasts are the same. Explain to them that no two guests will have the same reactions and results from a similar fasting situation nor will a guest will have the same reactions and results from a similar fasting situation nor will a guest experience the same kind of a fast the next time he or she fasts. The reasons for this should be obvious, but to review our thinking a little we can suggest that no two objects occupy a single point in time and space so they are starting from different points. Some higher, some lower, some further to the right and some further to the left, etc. And the one individual that has previously fasted is not starting his or her second fast from the same particular point in time or space as the first fast, not even when he or she deliberately tries to do so. Your guests should be advised along these lines of thinking so they can understand what is happening to them when different experiences begin manifesting in this, their most recent fast.

Many of your guests will come to you with a mania or fetish concerning bowel action or the lack thereof. They may be wanting to use laxatives and a series of colonics and all of that kind of garbage. You have to be alert to these things. These guests may even have enema bags in their suitcases to use just in case you will not provide these things for them, and they will use them too until they learn better.

Your guests are looking to you for guidance and direction all during the fast and as long as you are providing that direction and guidance for them, they will follow your suggestions to the best of their ability. You must at every opportunity give them reassurances that there are no dangers involved in the usual fasting situation.

Many of your guests will have lost many pounds of weight and will begin to start worrying about this weight loss. It's necessary to reassure them that they do not need to worry themselves about their weight loss which will normalize shortly after they have returned to eating their regular meals—if they are living Hygienically. Sometimes this takes a bit of doing, especially with any of your guests who lean toward vanity as opposed to the healthy aspects of life. A little reassurance is usually all that is needed. On the other hand, it is important to explain to them that their weight is not going to come back immediately after breaking a long fast. As a matter of fact, it will come back rather slowly at first because their bodies are using just about all of the nutrients that are being provided for energy alone, and it is only when the input of energy in the form of raw materials exceeds the utilization that any weight comes back. So in those who have fasted to completion many times, it takes three to six months to gain their weight back. It is a matter of balance between energy utilization and energy supplied. We have to increase the energy input and increase the exercises just enough to strengthen the body, but not so much to use up all of the reserves that are being introduced into the dietary. If the guest doesn't exercise good judgment in the balance between weight gain and exercise, he will be in for a long siege of thinness.

3.4 Breaking Your Guests' Fasts

The breaking of a fast can be as important as the actual fast itself and must be observed rather critically. In many of your older guests who have had a history of constipation or other bowel irregularities such as hemorrhoids, polyps, or fissures, there will be a tendency for the bowels to be sluggish. If the bowels are not evacuated naturally by the end of the fifth day after the guest has broken the fast, you will need to observe him or her closely. If he or she suggests to you that he/she feels like having a bowel movement but finds it difficult or is having no results, then you should offer reassurance. Explain to them that their systems will normalize if they remain on the Hygienic program and exercise regularly. (I will not attempt to go into detail on the breaking of the fast as the next lesson will cover it precisely.)

3.5 How Long Should Your Guests Stay

Ideally, your guest should plan to stay with you and learn how to eat properly as you continue to look after his or her well-being, as you teach the various ways of combining foods Hygienically. The guest should plan to stay with you and accept your guidance for at least 2/3 of the time of the fast beyond the fast and the equal of that time would be even better. If the guest fasts for 14 days, they should stay with you at least 10 days and ideally 14 days after breaking the fast.

Another thing that is particularly helpful to those of your guests that can handle the situation is for them to observe various combinations of foods being served to those of the guests who have resumed eating while they themselves are still fasting. For some, this becomes overwhelming and they are not able to do it without great distress whereas with others it presents no problem at all.

3.6 General Information Worthy of Consideration

Your primary concern and intent should be in trying to make your guests comfortable and carefree during the course of their stay with you. There are a lot of little things that come to mind that can be of considerable comfort and solace to many of your guests, especially during some of their more tedious moments during the fast. These can include, but are not limited to the following items. You will think of others from time to time that you will want to share with your guests and other practitioners. There are times when a hot water bottle filled with hot water can be very comforting to the cold feet or the cold back. They can also do wonders in helping to relax the tense solar plexus (see definition). This application of heat to the area relaxes the musculature and allows the nerves to become much less constricted and bound up so that nerve energy is exchanged more freely.

The warming and serving of distilled water in thermos types of dispensers is many limes very comforting to the guest. Especially the first drink of water in the morning, and most particularly to that guest who has a habit of drinking something warm upon awakening in the morning. It doesn't have to be hot, simply warmed to about 120 degrees Fahrenheit, slightly warmer than the body.

3.7 Helpful Suggestions For Dealing With Your Guests

In the prolonged fast, distilled water seems to lose its appeal to some of the guests and it can be enhanced greatly by the addition of a few drops of lemon juice as it is warmed as above.

Night lights strategically located around the structure aide considerably in helping the somewhat disoriented guest find their way around at night.

Emergency procedures for obtaining help, especially during the night need to be worked out so as to provide a practical means of making guests wishes known to the staff.

Quiet hours during the day and after a reasonable hour at night can do a lot to add to the comfort of the guests and especially to those who are still fasting.

In your contacts with your guests prior to their arrival after you have made your initial contact with them you should provide them with as much information as you can concerning the types of things to bring along for wearing, recording talks, and listening to music and others that come to mind.

Television and radio should be limited as necessary to prevent their enervating effects upon guests, both themselves and others.

The golden rule applies both to the guests and their interactions between themselves and between the guests and your staff.

Your actual responsibility for your guests will end when they depart from your direct sphere of influence or control but you will want to encourage them to keep in touch with you and keep the communication lines open both ways. You will want to hear about their successes as well as the questions after they begin to live hygienically in their home surroundings. And most importantly you will want to hear about all of their friends and relatives that have been influenced by them after they returned home from their successful fasting experience with you and your effective and efficient staff. Because of this, prior guests may also want to come and spend some time with you to enhance their lifestyles and incidentally improve their health.

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4. Questions & Answers

What signs and symptoms do you watch for that would indicate that you should breakfast?

> Any of the usual signs of dehydration such as the drying of the skin, profuse sweating, lowering of blood pressure, lethargy, water not being consumed, increase in pulse rate, sudden extreme weakness and/or arrythmias, confusion, disorientation and/or anxiety neurosis.

How do you handle the family of a guest, all of whom are opposed to the methods and procedures used in conducting a supervised fast?

> It is a matter of education—if you have the time necessary to educate them, they will usually cooperate. If not, you have to place the monkey on their backs and let them know that they will have been responsible for the life and welfare of the person whom they have dissuaded from fasting. After all, fasting is the best way of detoxifying the body that is available to humankind. They will have deprived the person of a chance to do the thing that is needed, often desperately. More often than not the guest has already been exposed to the medical shenanigans which were of no avail and can be pointed out to the family members. Also, you can reassure them that, if for some reason the guest does not respond to the fast, they can always resort to the other methods that they have so much faith in. If the guest is to fast, it is important that he or she be isolated and insulated from the haranguing and enervating pleas of concerned family members.

How would you handle a situation where the guest suffers from angina pectoris and is on nitroglycerine?

> Angina pains are usually the result of exertion in some form or another and rest usually helps to correct the painful situation, without the use of modalities. If the guest can be reassured that all will be well and not become concerned with the various crises of elimination as being detrimental phenomena, all will go well with the guest. Every such situation will have its own particular set of circumstances that will have to be taken into consideration.

How do you determine if the particular disease of a guest is irreversible and how do you explain it to the concerned guest?

> When the situation seems to be quite irreversible, it is best to let the guest know that while it is quite probable that health in general will be enhanced as the result of tasting, there will in all likelihood be no more than slight improvement in the areas of damage or pathology that have been experienced. Any improvement in the body as a whole is going to take the load off of the deranged and impaired part or function and the overall effect is going to be one of improvement.

What about the desirability of having a person on hand who is trained in mouth-to-mouth resuscitation and CPR (Cardio-pulmonary-resuscitation)?

> There are always needs for people with emergency procedures expertise in any situation

whether it be at a fasting institution or anywhere else. It is something that all of the staff of a fasting institution should have some expertise in but is not essential to have one on the staff. The probabilities of requiring those kinds of services in a fasting center are no greater than in any other location and are probably even less under most circumstances. A person who is resting as they should while undergoing a fast is seldom exposed to situation that would cause them to need the services of anyone skilled in those procedures.

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Article #1: Injury To Fasters by Dr. Herbert M. Shelton

A man writes me about coming to the Health School. He says he wants to bring his wife with him. Then he adds, "'I am not certain whether she would care to be treated as her health is reasonably good, although there are conditions that should be taken care of. However, she was most unfavorably impressed with the methods employed in fasting at *Blank's Institute* at *Utopia* when I was there six years ago, and I might add that I was well. I cannot recall a single case that seemed to improve by means of fasting and there were patients there at the same time who had been at it for three months and over. Maybe your system is different than *Blank's* was, and I wish you would explain just what you mean by rational fasting."

What is a fast? It is entire abstinence from all food with the taking of one's water and air. It is not a juice diet nor any other restricted diet. Little driblet meals, as Dr. Page so appropriately pointed out, is not fasting. A fast, then, is a fast, no matter where it is undertaken; no matter who conducts it.

But there are innumberable conditions under which a fast may be taken and these determine results. A fast is physiological rest. But physiological rest is not possible under conditions of stimulation, even though one is fasting. In most institutions where fasting is employed, the fast is accompanied by so many enervating treatments that the effects of the fast are nullified.

To require of a fasting patient that he arise in the morning and go to the treatment room for a round of stimulating monkeywork is to enervate the patient and prevent the fast from resulting in an increased elimination of toxins. Massage, adjustments, manipulations of various kinds, electrical treatments, sweat baths, cold baths, sprays, the Blitz Gus, sitz baths, electrical blankets, laxatives, frequent enemas, and a host of other enervating practices prevent the faster from realizing the full benefit of his physiological rest. Only those practitioners who fully understand the role of these methods of treatment are in a position to take rational care of the faster.

The faster should have quiet, rest, and relaxation. Stimulation, excitement, and a lot of activity all produce further enervation and place an added check upon elimination. The faster should be kept warm in order to conserve his energies. Cold baths, cold douches, cold applications, etc., dissipate his energies. The faster who rests also loses less weight in a fast of the same length than the one who is active. This means that the resting faster is in a better physical state at the end of the fast. Also, conserving his food reserves enables him to fast longer if there is need for a longer fast.

The purpose of the fast is not to see how long a man can go without food, nor how thin he can be made, nor how weak he can become without danger to life, but to promote elimination and tissue repair. Every new source of enervation to which he is subjected during the fast helps to retard the attainment of these ends. We should dispense with, either the fast or the treatments, when caring for the sick, as these procedures are incompatible.

Along with the fast, which, as stated, is physiological rest, should go physical, mental and sensory rest. Rest is the opposite of stimulation. All stimulating measures prevent rest. Let no one suppose from this that sedative measures are restful. These are as expensive of nervous energy as the stimulating measures. Treatments of no kind are valuable while fasting, even should we grant their value under other conditions and circumstances.

In the early days of my professional career, I worked a few months in a sanitarium near Chicago that employed fasting in the care of practically every patient that came to the institution. These patients were roused out of bed early in the morning and put through their "course of sprouts." Three mornings a week, I gave each man a massage, followed by a sweat bath and then a cold splash over the whole body, but especially along the spinal column. Three mornings a week, they received electrical treatments followed by alternate hot and cold sitz baths. About eleven o'clock the whole crew of them were lined up on the lawn and put through a series of strenuous exercises. Three afternoons a week I gave them electrical treatments of a different character to those given in the mornings. In addition to this, some of them were given chiropractic adjustments and others were given a thorough streching on a traction table. All of them were given daily enemas. The rest of the day they spent walking around or sitting and lying around on the sanitarium grounds. They received a daily sunbath.

Many of these patients made remarkable improvement in their conditions despite the great amount of enervating monkey work to which they were subjected, but many of them made no progress at all. With some of those who progressed, their progress was short lived and then they began to slip back.

A few months later I accepted a position with a sanitarium in up-state New York. Here little fasting was employed, but treatment was given in greater abundance. We had a large hydrotherapy department in this place and much more electrotherapeutic machinery than at the first place. We really "gave them the works" in a very scientific manner at this place. The head of this institution was a very up-to-the-minute physician who had practiced medicine for 25 years and who knew about all there was to be known. In fact, he had quite a reputation among the medical men of the state as a specialist in nervous diseases. I never knew just what he was supposed to specialize in, but I became convinced that he specialized in producing nervous diseases.

I had ample opportunity to watch the enervating effects of these forms of treatment when applied to patients who were not fasting. I saw them, alter a few days treatment, become so weak they were forced to stay in bed. After a few days of rest they were able to get up and get around again. Then a few more days of treatment and they were back in bed. Not all of them went through such cycles of in-the-bed, out-of-the-bed performances, but those who were not forced to go to bed, showed their enervation nonetheless.

Later I took a position with a sanitarium further up state in New York. Here we had under care an ex-baseball manager. He was partially paralyzed in his left lower limb, so that he could only drag it along in walking and had to walk with a cane. I noticed that as his treatment proceeded his walking became worse. When he would come in for treatment (he was not in the institution, but lived in the city and came in three times a week for treatment), he walked very badly. He would be given electrical treatment and would walk out much better. In spite of this apparent benefit or more correctly, because of this apparent but not real benefit, he gradually grew worse. Then business carried him away for three weeks, during which time he received no treatment. Upon his return, he was walking much better. He resumed treatment and began to grow worse immediately.

I could greatly multiply these kinds of experiences. I could tell you of many such observations. They are the regular feature of the work in all institutions devoted to treating the sick. Every doctor of whatever school sees them daily. He simply closes his eyes to them or interprets them in some manner satisfactory to his mind and continues his enervating treatment of his patients.

Early in my career I learned of the evils of the many and varied forms of treatment that are employed and as I became convinced that a given method of treatment was enervating, I discontinued it. Result: I have eliminated all enervating palliatives from my work. I see not logic or reason in enervating a man because he is sick. He must first be enervated before he can become sick. How is he to get well if he is further enervated?

I know men who condemn fasting because of certain undesirable results which they say it produces. But I do not see these results coming from fasting. I do see these results coming from the treatment commonly employed while the fast is in progress. I see them also in patients who are fed and not fasted while they are being treated. I am certain that these results come from the enervating effects of the treatment and not from fasting. Fasting, rationally conducted, does not give rise to such results. Anyone may test this for himself by fasting under proper conditions *sans* the treatment.

Lesson 48 - How To Break A Fast; After The Fast

- 1. The Great Day
- 2. Easing Into A Varied Diet
- 3. Symptoms After The Fast
- 4. Transition To Rational Living
- 5. Drugs And Other Poisons
- 6. Take It Easy!
- 7. Fasting Does Not Make The Body Disease-Proof
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- Article #4: When to Break the Fast

1. The Great Day

> *I learned that a man emerging from a long fast should not be in a hurry to regain lost strength and should also put a curb on his appetite. More caution and perhaps more restraint are necessary in breaking a fast than in keeping it.*
> —Mahatma Gandhi

When the Great Day arrives, there may be a tendency to feel that the battle has been won, the struggle is over, the problem has been solved. From now on it's "enjoy, enjoy!" Both the fasting supervisor and the faster, with a great sense of relief that the waiting and the denial is at an end, want to get the faster back to the routine and joy of living as soon as possible. And what's the best way to do that? Why we must put some flesh on that scrawny body—we must feed and nourish him back to his normal size and strength. He's been denied long enough. Now we can make it all up to him!

Whoa! The end of the fast is only the beginning of the transition to normal living.

1.1 A Critical Period

Adequate, knowledgeable supervision in breaking a fast may be even more critical than the supervision in conducting a fast.

People who have been fasted for serious pathologies have an even more important period to undergo. What has happened during the fasting period is not nearly as important as what will happen when food is restored. And, if serious mistakes are made during this period, the consequences may be unpredictable, up to and including negation of the potential benefits of the fast, or—though extremely rare—losing the life of the patient.

1.2 When to Break the Fast

The decision as to when to break the fast is, of course, of major importance. The condition of the faster must be assessed from day to day, and a decision made as to the continuation or termination of the fast. This decision should be a mutual one between the faster and the fasting-supervisor.

1.3 The Return of Natural Hunger

If the fast is continued to the return of natural hunger, certain signs will be manifested. The coated tongue usually clears, the mouth tastes fresh and clean, the foul breath disappears. A sense of rejuvenation and well-being are experienced. The desire (or actual craving) for food becomes compelling—and there is a real sense of hunger, which is a mouth-and-throat sensation.

True hunger is not an uncomfortable feeling, but one is conscious of an urgent, but pleasant longing for food. The abdominal sensations, or all-gone feeling, that we usually attribute to hunger, are caused by irritation. Most people have never experienced true hunger. It is possible that one may not experience true hunger at any time during the fast.

Sometimes the tongue does not clear completely, but the indications of the return of natural hunger are visible to the fasting supervisor and the fast must be broken—or starvation will begin.

It is said that the best time to break a fast is when nature gives these signals of the return of true hunger. It is impossible to know in advance just when this will occur. *The fast must never be prolonged beyond this point*.

1.4 Premature Termination

Premature breaking of the fast is also undesirable—breaking it at any time before the return of true hunger is considered premature. Premature termination of a fast may sometimes result in unpleasant consequences. The patient may experience unfavorable reactions when food is offered, and be actually unable to tolerate the food. Or, a succession of unpleasant symptoms may be experienced for a few days. The fast may actually have to be resumed and terminated at a later date.

Most fasts are broken prematurely. Although the return of true hunger is considered to be the ideal time to break a fast, and Hereward Carrington maintains that it is actually dangerous to break the fast prematurely, it must be recorded that most fasts are broken prematurely (before the signs of true hunger). I (and others) have observed that usually, if care is exercised in the gradual return to eating, no great harm or serious problems are experienced. Actually, the phenomenon of the return of true hunger is seldom seen.

The majority of fasts are broken "prematurely" for various reasons. Fasts are terminated because of time limitations (the faster must return to work, or to other duties; or he cannot "afford" to stay at the fasting retreat for an indefinite period). Or the body may signal that its vital energy and resources have been depleted to an extent dictating the cessation of the fast (the fasting supervisor must be qualified to recognize these signals). Or the faster may have come to an end of his or her forbearance—mentally or emotionally. These considerations emphasize the importance of professional supervision of the fast.

1.5 Length of Fast Not Determined in Advance

When a fast is undertaken, it is best not to try to determine its length in advance. One should go along from day to day, without setting a definite time limit. It is best to determine to fast as long as necessary, so that the goal may be achieved.

Dr. Alec Burton says, "Some believe that a particular disease, e.g., gastric ulcer, requires a two-week fast, and that the length of the fast is in some way determined by the disease, whether arthritis, asthma or colitis, etc. This is not a consideration. We are concerned only with the requirements and capacities of the individual and not the 'disease' and its treatment. It should be apparent that the only person in a position to make a sound judgement about the length of the fast is the doctor in charge of the case."

Yet it must be acknowledged that there is a certain amount of validity to setting goals when fasting for the remission of certain pathologies, since experience has indicated that such remission usually requires a certain minimum number of fasting days. The professional Hygienist, while not infallible, is qualified to make such predictions, such "educated guesses," so that the faster usually has some idea as lo whether a short- or long-term fast may be necessary.

Although there is virtual consensus that fasting to completion has the best potential for producing optimal results, and that premature termination of a fast may make subsequent fasting necessary, some qualifications must be considered. As previously indicated, there are other unmistakable signs that it is time to terminate a fast, for physical, physiological, mental or emotional reasons—and these signs must be heeded.

Dr. Burton says, "Hunger usually only occurs in the very long fast and then only with the almost complete exhaustion of the nutritive reserves. However, it is something that the practitioner should not rely on too much, as it is entirely subjective and there are many questions unanswered about it. Furthermore, because people have never experienced 'true' hunger (i.e., the sensation that is said to accompany the exhaustion of the reserves), they really do not know what they are looking for. Many people say that they do not know whether they are hungry or not. Because hunger is subjective, it should be evaluated in conjunction with the more objective phenomena. For instance, hunger is invariably accompanied by a flow of saliva, whereas a dry mouth is inconsistent with hunger."

1.6 Don't Terminate a Fast During a Crisis

It is not advisable to break a fast while the patient is experiencing a crisis (a period of acute discomfort). It is important to let the crisis run its course before deciding whether it is time to terminate the fast.

A fasting crisis is the manifestation of a symptom, or group of symptoms, during the course of the fast. Such crises may be the manifestation of the release into the bloodstream of the (often morbid) stored by-products of metabolism, producing temporary irritation in various parts of the body. Fasting crises may sometimes be indication of remedial processes and the body's manner of initiating a correction.

Most fasters experience no crises during the fast. Some may experience one or two mild and fleeting incidents, which may run their course in an hour or two. The cleansing processes initiated by the fast are not usually of a violent or disagreeable nature. Most of the excretion of toxic materials is carried on without any discomfort or inconvenience. Extremely toxic individuals may expect to experience some discomfort—which is an indication that they were greatly in need of a fast.

Various crises have been noted in observing thousands of fasts—headaches, nausea, vomiting, skin eruptions, and others.

Headaches may appear early in the fast, and, except in some unusual cases, disappear in a day or two. Nausea and vomiting (or, sometimes, nausea without vomiting) occur in about 10% of patients, sometimes in the early stages only,, sometimes continuing for longer periods. If vomiting persists, dehydration may be a threat (especially if the faster cannot retain water), and it may be necessary to terminate the fast. In some cases (extremely rare), diarrhea accompanies vomiting, resulting in great fluid loss, and the fast must be terminated.

If pain is being experienced, the fast should not be broken until the pain subsides (as it usually does, in short order). It is best not to break the fast until the day after such pain is experienced. As a general rule, wait until well-being and comfort return before breaking the fast.

Sometimes (though this is infrequent), a mild malaise (a borderline nausea) will continue throughout the fast, and will not disappear until the person resumes eating. Obviously, this type of continuous mild malaise would not be a contraindication to terminating the fast, if such termination appears to be advisable.

Some people need very little sleep during the fast, but a return to eating soon results in a need for more sleep. Some people do sleep a great deal, especially during the first week or so of a prolonged fast. The body does not deprive itself of needed sleep.

Some toxic individuals experience a rise in temperature during the fast. Usually the temperature, pulse rate, and blood pressure are lower soon after beginning the fast. The heart rests, and there is a slowing of circulation. After the first week or so, weakness and dizziness are often experienced, concurrent with the inevitable loss of weight.

Dr. Burton says that the weakness experienced by the faster is "essentially a locomoter weakness—a weakness in the muscular system and the organs of locomotion. It is not a weakness in the vital organs." The energy of the organism is being diverted and utilized for detoxification and healing. Under these conditions, the muscles don't need the energy—they can wait for the time being.

Dr. Herbert M. Shelton says, "It seems that often (during the fast) there is a pooling of blood in the abdomen. There is less blood in the brain, although thinking is clear. Under these circumstances, to arise quickly from the horizontal position to the vertical, may result in dizziness and even fainting because the adjustment of the circulation in the head is not as rapid as the speed with which the change of position is made. To avoid possible fainting, which may occur in occasional cases (although it is of no consequence), one should arise slowly. Instead of forcing your organism, come slowly to a sitting position, sit on the side of the bed for a brief time, and then slowly rise to a standing position."

After eating is resumed, the weakness and dizziness gradually disappear—say, in about a week or so, concurrent with weight gain. The precautions about gradual change of position, and continuation of bed rest, should continue until these conditions improve.

1.7 Why Caution Is Necessary in Terminating Prolonged Fasts

There is a broad range of opinion as to the best method of breaking a prolonged fast—but all the experts agree that the reintroduction of food to the fasting organism must be gradual.

It must be understood that the fasting period, and the subsequent return to eating, has necessarily subjected the organism to two extremely stressful situations, within a relatively brief period of time.

When food supplies are stopped, the body does its best to adjust to the new conditions. The digestive organs are no longer required to perform their usual functions, and virtually cease to exercise them. No signals are forthcoming for the secretion of gastric enzymes and juices, or for the normal secretions in the intestines.

Without food to keep it expanded, the stomach contracts; the intestines and colon do the same. Bowel movements usually cease altogether after the first few days of the fast; although, sometimes, when debris is trapped in diverticula in the colon, it is gradually expelled, as it is "squeezed out" as the walls of the colon contract; in this case, small bowel movements may continue for a week or longer. In some colitis patients, who have been experiencing acute diarrhea, the diarrhea (at a reduced rate) may continue for a time during the fast.

In any event, the organs of digestion are almost completely at rest, while other organs and processes take over and work overtime. The organs of elimination initiate a heroic cleansing operation, through the urine, the lungs, (he mucous membranes and the skin (and sometimes, as has been indicated, through continuing bowel movements).

The organism mobilizes its reserves, so that the functioning organs and tissues continue to receive nutriments. Surpluses of stored materials in the body are utilized for this purpose. The vital tissues are nourished first from the food reserves in the digestive tract (where there is usually a three-day supply), and then the fat, deposits, and abnormal growths are broken down, so that the nutrients may be salvaged and absorbed, and wastes eliminated—by the process of autoloysis—the disintegration of tissues by the body's own enzymes. This is a normal part of physiology, but is speeded up and enhanced by fasting. The wisdom of the body is its own safeguard, and it uses first and least important stored materials; the essential organs and tissues of the body, such as the heart, nervous system, lungs, and other vital parts remain intact, and no cells are lost.

All of the resources of the organism are mobilized for this metamorphosis, and the body strives to utilize and maintain its available energy to perform the cleansing, nourishing, and healing functions initiated by the withholding of new food supplies. The organism proceeds in an orderly manner, always in the same direction, every part of the body cooperating for the preservation of life and for cleansing, nourishing, and healing.

When the last is broken—particularly when it is broken before the return of true hunger—the body is subjected to an even more stressful situation than that which occurred when the organism was forced to adapt to the cessation of feeding.

The body has temporarily lost its ability to digest food in the usual manner. When foods are again offered to the organism, it must be given an opportunity to gradually regain, its power of normal function. The longer the fast, the more care that is required in the method of its termination.

Methods of breaking the fast are designed to restore, intestinal function and reactivate digestive faculties which have been resting. The body must make changes and adjustments in physiology, to accommodate to the new situation.

If the first food is of such a nature that the organs are not able to handle it, the patient may become nauseated and vomit the food. This violent reaction can cause mental and physical harm; and the fast must be resumed, at least for a day or so longer, perhaps even more.

As a rule, however, the first food is welcomed and tastes delicious. If it is freshly-squeezed orange juice, or fresh fruit, it usually tastes like nectar or ambrosia, and the faster looks forward to the next meal with anticipation and delight.

If the wrong kinds of food are offered, perhaps the patient may enjoy the food, but there may be little or no digestive response, and the food may decay or ferment. If peristaltic action to move the food along the digestive tract is absent, impaction may occur, with the possibility of uncomfortable constipation.

As previously indicated, opinions differ as to the one best method to break a fast, and it is probable that there is no one best method. After a prolonged fast, only an experienced fasting supervisor is qualified to offer the first foods and to observe the reactions of the patient, and to modify the method, whenever indicated. This must be emphasized: the care that is necessary in breaking a fast is in proportion to the length of the fast and the condition of the faster.

Dr. Shelton says, "Almost every advocate of fasting has evolved his own techniques for breaking a fast. There seems to be a tendency for each man to assume that his own techniques are best. There may be several techniques, each one of which is as good as the other. The chief requirement in breaking a fast is to use simple, wholesome food and feed this in keeping with the limited digestive capacity of the faster. Time is required for the digestive secretions to begin to be produced in normal amounts and, until they are secreted in normal quantities, the ability to digest food is limited."

1.8 Examples of Methods of Terminating Prolonged Fasts

Some of the foods and methods that have been used in breaking prolonged fasts include:

Dr. Allan Cott, in *Fasting As a Way of Life*, page 27, advocates mixing a pint of boiling water with a pint of grape, orange, or apricot juice, and having the patient sip two or three teaspoons of this mixture every ten to fifteen minutes throughout the day, finishing the full quart by bedtime. The second day he gives up to a quart of undiluted juice, four ounces every two hours. The third day he gives whole fruit; the fourth day salad and some cooked food.

Dr. Otto H. F. Buchinger breaks the fast with apples, later (the next day) followed by salads and cooked food.

Paul Bragg breaks the fast with cooked tomatoes, later (the next day) followed by salad and cooked food.

Some fasting supervisors advocate breaking fasts with vegetable broths, especially for people who have been fasting for severe digestive problems (such as ulcerative colitis), followed in due course by small amounts (if tolerated) of salads and fruits.

Other foods are also advocated and used for breaking fasts, but they are so far removed from Hygienic concepts that I will only refer to them very briefly (flesh foods, milk).

Years ago, I heard a lecture by Dr. Theron Randolph, a renowned Chicago allergist, who fasted his patients for five days, and then experimented with offering various foods to determine the offending foods causing the "allergic" problems. He said that he usually broke these fasts with lobster! His rationale was that people usually become allergic to foods which they eat habitually, and this is not apt to be the case with lobster. He used lobster to break fasts in order to guard against allergic reactions from the first food offered. This is, of course, a far cry from Hygienic methods and principles.

Breaking fasts with sandwiches, popcorn, lobster, and a variety of difficult-to-digest foods may or may not cause overt negative reactions, but they will certainly add to the stress of an organism which can ill afford it. None of the above methods are utilized by Hygienic fasting supervisors, with the exception of the vegetable broth method, which is sometimes utilized by Hygienic professionals in certain unusual cases.

1.9 Hygienic Methods of Terminating Prolonged Fasts

For many years, Hygienic fasting supervisors have been breaking fasts with fresh, uncooked fruit juices or vegetable juices. Fruit juices have been most commonly used. Orange juice is generally preferred.

Some use four ounces of unstrained, undiluted juice for the first feeding—some strain and dilute (with distilled water) the first juice, strain (but not dilute) the second feeding, and give the unstrained, undiluted whole juice for the third feeding. Some give four ounces every hour, or eight ounces every two hours for the balance of the first day (the first two feedings having been four ounces each, one hour apart). If, as sometimes happens, the person becomes satiated after five servings, the frequency is curtailed. Some give eight ounces every three hours after the first two feedings, and a whole orange for feedings every three hours for the next day or two.

Dr. Vetrano has changed from juices to whole fruit for breaking most prolonged fasts. She serves one-half orange every two hours the first day; the second day a whole orange every two hours. Or she varies the second day by serving one piece of a different fruit every two hours—six servings. She sometimes breaks fasts with tomatoes for those who desire not to gain weight. For people with a history of digestive problems, she may still break the fast with juices.

Dr. Vetrano believes that good bowel action is established sooner when breaking fasts with solids rather than juices, and that most people prefer the opportunity for chewing.

Whether the first food is liquid or solid, it should be "chewed" or well insalivated. During the post-fasting period, proper mastication is extremely important to avoid overtaxing the digestive system at a time when it is under stress to regain its full-functioning capacity.

Dr. Shelton says he sometimes uses a warm vegetable broth to break a fast, in those rare instances when the faster has difficulty with raw juices.

Whenever the individual feels unable to take the amount offered, amounts may be reduced, or the feeding skipped.

Dr. Shelton says that on the third day the faster may be given an orange for breakfast, two oranges at noon, and three oranges for the evening meal. The fourth day a variety of foods may be given, such as melon or grapes or other fruit for breakfast, other fruit for the noon meal, and a vegetable salad for the evening meal, with a cooked nonstarchy vegetable, if desired. Dr. Shelton says that, beginning with the fifth day, a protein should be taken daily with the vegetable meal. He says that, after a few days, a cooked starch may be taken with the vegetable meal on some days, instead of the protein, if desired. (See subsequent discussion in this lesson relative to the inadvisability of offering cooked food so soon, unless absolutely necessary.)

My own experience and preference is for four ounces of strained, diluted orange juice for the first food. If well tolerated, four ounces of strained, undiluted juice is given an hour later; and eight ounces of whole (unstrained, undiluted) orange juice two hours later. Two or three hours later, one or two whole oranges are served, and again in three hours.

The second day—whole fruit at three-hour intervals; the third day—two or three small fruit meals, and a small salad in the evening, if desired by the faster—otherwise, continue the fruit. I do well on this regimen, so does my husband.

I like to start with diluted and strained juice to reduce the possible hazard of the insufficient mastication of the tough connecting citrus membranes; also, to reduce the acidity of the first juice.

I like to break a fast in the morning, but there is no compelling reason why a fast may not be broken at another time during the day, especially upon the return of true hunger. I like the morning best because of the opportunity to offer several "meals" before bedtime.

Some fasting supervisors recommend more stringent regimens, and some more generous ones. Arnold De Vries recommends five days of juice after a thirty-day fast, but qualifies this as a general guide.

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2. Easing Into A Varied Diet

Some people can be eased into a varied diet sooner than others—the fasting supervisor makes this decision, based on how the individual reacts. Most people are able to take only very small quantities of food for several days, and they should be given no more than they can comfortably handle. They are usually satisfied with small quantities of food at the outset, and, in truth, only small quantities are required.

The reason the faster is unable to take larger amounts is because the stomach has contracted during the fast. Some fasting supervisors serve four small meals daily for a week or more, to enable the individual to regain weight and strength somewhat faster: breakfast, lunch, dinner, and a small evening fruit snack.

Dr. Shelton says that by the end of the first week, the faster should be able to take normal amounts of food.

2.1 Overeating After the Fast

Some people soon demand large quantities of food to compensate for previous restrictions. Those who have a tendency to overeat after the first few days of eating should, of course, be restrained. Constant overeating will again distend the stomach, after which the person does not feel satisfied unless he eats to fill the distended stomach. Those who are allowed to eat too much may find that the overeating may delay the restoration of the body's normal ability to digest the food comfortably.

Most people have no digestive problems after a fast (if the fast is broken prudently)—some do have them, even if they have not been conscious of digestive problems in the past. Dr. Vetrano says that most people come for a fast with a slight inflammation of the digestive tract, whether or not they know it.

Such people are well on the road to making themselves sick all over again, if they are allowed to overeat in the initial period following the termination of the fast.

Charles W. Johnson, Jr. (*Fasting, Longevity and Immortality*) says that if a "monster of appetite" is turned loose after the fast, it becomes very difficult to control, resulting in a loss of much of the fasting benefit, as well as the probability of significant harm. Listening to the appestat at this time may misguide you.

Those who are very thin and slow to gain weight should ignore their weight. Gaining strength and restoring efficiency of body function is much more important. They should not overeat and try to eat fattening foods. They should be satisfied and accept the gradual weight gain that will surely come at the proper time. Even if one is gaining only a pound a week, that is twenty-six pounds in six months. In any event, the weight will stabilize in time.

Dr. Shelton says, "After a fast of considerable length, there is a period of several days, lasting up to two weeks, during which the individual feels hungry most of the time. If not carefully guided, he is almost sure to overeat. If he will control his eating until this initial period of hunger has passed, he will settle down to a more normal appetite and the danger of overeating will pass.

"Uncontrolled, he may eat so much during this period that he loses much that he gained in the fast. One important advantage of fasting in an institution is that control continues until the normal eating level is stabilized. In such an institution the patient's diet is carefully supervised; he is not permitted to overeat. At home, he must be a more self-disciplined man than the average if he is to avoid overeating."

Dr. Shelton also says, "The animal breaks his fast on whatever food is available at the time he resumes eating. On the whole, animals seem to be better controlled than man. They are not inclined to glut themselves when they break a fast, but may take but a small portion of food in doing so. A dog that has fasted for nearly a month, for example, may take but a few sips of milk at a time and may refuse all flesh for the first four to six days, after he resumes eating. If man's intuition was still as reliable a guide to eating as is that of the animal, I doubt that we would need to supervise the breaking of a fast." If possible, one should try to stay at the fasting retreat long enough to gain enough weight to look "presentable", to family and friends, if one is very thin. If not possible, it' is best not to worry about it. The family and friends will gradually observe the new bloom of health as the months go by.

Many people who had been chronically underweight before, the fast experience such an improvement in assimilation after the fast that they achieve a more normal weight by the lime the weight stabilizes. This is due to the increased ability of the cells to take up and appropriate nutrients, which always results from fasting. *Weight gain is often less effective after sickness*, because of damages from toxins and drugs.

Upton Sinclair, in *The Fasting Cure*, maintains that after a fast we "bounce" back to our "ideal" weight, sometimes less and sometimes more than the prefasting weight. Upton Sinclair changed himself, after several fasts, from a very thin "ectomorph" to an athletic "mesomorph."

On the other hand, people whose target is weight loss may be significantly benefited by fasting. Dr. Edgar S. Gordon of the University of Wisconsin Medical School, says that people who gain weight easily probably have a low metabolic rate. They convert glucose to fat much too rapidly and don't produce enough available energy. Dr. Gordon's experiments with animals suggest that a fast may "break the metabolic block," producing subtle endocrine changes that make food assimilation more efficient. A report in *Lancet*, a British medical journal, supports the view that hormonal changes brought about by fasting may continue to promote weight loss even after eating is resumed.

This does not consistently happen in all cases of obesity, but it is an important potential benefit of fasting for weight loss. Of course, nothing in the world will keep weight off if the individual resumes gluttonous eating habits.

Fasting does lead to a new awareness of the difference between hunger and appetite, and reeducates the taste buds. If the faster can be helped over the initial critical period, he can achieve an alteration in his eating habits. Many people come off the fast with a passion for fresh fruits and vegetables. A 1976 *British Medical Journal* report says almost all fasting patients "admit to a radical change in previous eating habits."

Although a fast does, for the most part, put appetite into alignment with the body's *real* needs, Dr. Allan Cott says (*Fasting As a Way of Life*, p. 25), "The wise person eases into a sensible refeeding program. Easy does it if you want to continue feeling wonderful. ... In effect, the body is reeducated by a fast. It 'unlearns' habits of overeating and 'polluting.' It is 'born again.' It inclines toward a natural state. It wants only as much food as is required for maintenance. It prefers the kinds of food that are natural to the taste and harmonious to the digestive system." He cautions that you should adhere to a careful refeeding schedule for the same number of days you fasted. If you do this, "the likelihood is that, when you return to a regular eating pattern, you will be eating more selectively and austerely, which is all to the good."

Alter about two weeks, or perhaps a little longer, the feeling of being hungry all the time tends to disappear, if the "monster of appetite" has been kept under control.

2.2 Permanent Control of the Eating Program

Dr. Cott says that after fasting, there is a much better chance for permanent control of the eating program than after any diet. He says, "The system now wants to reject food in excess of the needs of the body. You should now be able to gain a new perspective on food and a new relationship to food that can keep you from overeating or from eating undesirable foods. Fasting and a sensible refeeding program have led to this desideratum."

Dr. Cott also says, "After a long fast the palate is restored to pristine purity. It prefers the taste of foods that are simple and whole and natural. It tends to reject processed and fragmented foods, as well as alcohol and tobacco."

Dr. Shelton says that if fasting is being used for the alleviation of a chronic disease—even if the patient has undergone only a short fast (less than fourteen days)—it is usually desirable to utilize an eliminating diet for a period of time after the termination of the fast, perhaps for as long as a few weeks. An eliminating diet is a diet low in proteins, carbohydrates, and fats, which causes the cells to use stored reserves to meet their requirements. During such a diet, the body can eliminate toxic matters and accumulated wastes, but never as well as during a fast. Obviously, an eliminating diet would not be recommended if the person had previously fasted to completion.

2.3 Eat All-Raw Food As Long As Possible

When the individual progresses to a varied diet, a variety of *uncooked* foods may be eaten. Even if the person intends to return to the use of some cooked food, this should be postponed as long as possible.

Careful management of the food program should continue for at least two to three weeks after breaking the fast. The fragile situation in the body is only gradually eliminated, as the digestive system slowly returns to its normal efficiency.

Some extremely debilitated or anxious individuals are impatient with their slow and gradual regaining of strength and weight, and find it extremely difficult to stay on all-raw food. In such cases, it might be advisable to allow small amounts of cooked food, at the evening meal only.

But it is really much better to eat moderately of good, whole, raw food, and efforts should be made to allay the misgivings of the post-fasting individual. Adaptations are being made, and will be accelerated by the higher quality of the whole raw food.

During this period, it is extremely beneficial to stay on the all-raw-food diet, if at all possible. The longer the all-raw-food diet is maintained, the better start the person will have. One should refrain from polluting the relatively clean bloodstream with the pathogenic debris of cooked food indefinitely, if possible.

After the fast, the body needs whole, raw food, and will not welcome cooked food, in which all of the enzymes have been destroyed, along with many of the vitamins and minerals. In addition, the amino acids and fats have been changed and made less digestible and sometimes toxic, and the balance of nature has been altered.

An optimal diet of whole, unprocessed foods is especially important for the first, few weeks (or even months) after the fast, when the body is regaining normal weight, and new protoplasm is being built.

The body chemistry is basically determined by the foods that are eaten, though other factors, (exercise, sunshine, fresh air, etc.) have some influence. While the causes of disease include chemical, bacterial, mechanical, and mental factors, chemistry dominates the efficiency of the physiological functions of the organism, other factors being secondary to the chemical condition of the body.

The complex chemical balance of all food nutrients is altered by heating, and it has consistently been demonstrated that superior tissue, and superior health, result from a diet of uncooked food.

Remember that the nutrients available in raw food exceed those in cooked food by several hundred percent, and after a prolonged fast, this is a critical time to decide— with what quality of tissue will you replace the tissue you have discarded?

The faster and the fasting supervisor should make this decision cooperatively, always with the thought in mind that the faster has already made a tremendous investment, which can be either safeguarded or threatened by the post-fasting food program.

2.4 Protein Needs After the Fast

After a prolonged fast, a slightly greater amount of protein than usual may be necessary, *if not in excess of the digestive capabilities of the body*. Immediately after a prolonged fast, the body cannot handle a large quantity of protein foods.

Concentrated proteins are more difficult to digest than other foods, because they are the most complex of all the food elements, and their breakdown and utilization are most complicated. The body can utilize only a limited amount of protein in the immediate post-fasting period.

Dr. Shelton says, "Nothing is to be gained by overfeeding following a fast. The hurry to gain weight and strength causes many to demand excess quantities of protein, thinking that protein is utilized in direct proportion to the amount eaten. In *The Nutrition of Man* (1907) Professor Russell H. Chittenden of Yale University, detailing his experiments covering the establishment and maintenance of nitrogen balance at many levels of nitrogen intake tells us: 'The fasting man having lost largely of his store of protein can replace the latter only slowly, even though he eats abundantly of protein food. ... The human body does not readily store up protein and this is true no matter how greatly the tissues are in need of replenishment. Overfeeding with protein does not lead to corresponding results, owing primarily to the peculiar physiological properties of protein; its general stimulating effect on metabolism, the tendency of the body to establish nitrogenous equilibrium at different levels, and the fact emphasized by van Noorden that flesh deposition is primarily a function of the specific energy of developing cells. ... It is generally considered as a settled fact, that in man it is impossible to accomplish any large permanent storing or deposition of flesh by overfeeding. Similarly, it is understood that the muscular strength of man cannot be greatly increased by an excessive intake of food. ... We may call attention to the well-known fact that in feeding animals for food, while fat may be laid on in large amounts, flesh cannot be so increased by overfeeding."

Shelton continues, "It is obvious that there is nothing to be gained by the excessive intake of protein, following a fast. The body can make use of only so much protein in the post-fasting period, and must excrete all unused protein. ... Nitrogen retention is increased both by mineral and by carbohydrate intake and it is more important that the diet contain adequate quantities of these than that it contain an excess of protein."

2.5 An Interesting Phenomenon

An interesting and probably significant observation made by Charles W. Johnson, Jr. in *Fasting, Longevity and Immortality*, page 26, pertains to a fact (which I have often observed) that, subsequent to a fast, more weight may be gained than can be accounted for or justified by the amount of food that had been eaten. It is usually maintained that it takes three thousand accumulated calories to gain or lose a pound, and I have observed that this is far from a consistent result, either when fasting or eating.

Johnson says, "My notes show that I broke my forty-day fast on March 28, 1964, but four days before, on the thirty-sixth day of fasting, I put in a hard day's work getting the garden ready for planting. From March 22 to 28 my weight stayed at 135-136 pounds. This brings up what may be the most important mystery of fasting.

"We can calculate the energy that is needed to keep our heart, breathing mechanism, and brain functioning. Adding in a little for minimal physical activity, we can conclude that a moderately inactive faster should lose almost a pound of weight per day. That is, in the absence of food to burn for energy, the body must burn, or catabolize, almost a pound per day of its own weight to 'keep going.' During most of a fast this is a typical weight loss figure.

"Nevertheless, here I was, near the end of a forty-day fast, feeling more energetic than earlier in the fast, doing more physical work, and losing *no* weight! Impossible, of course, and I foolishly ignored the fact—the absence of weight loss—assuming it to be the result of faulty measurement or observation. (How often we scientists miss something important of this sort simply because we *know* it is impossible and therefore *refuse* to notice it.) Subsequently, however, I read that others had noted the same phenomenon, and in some cases with great concentration.

"There appears to be a clear-cut violation of a sacred law of physics here—the law of mass-energy conservation. Some mysterious source of energy is supplying its energy for our body's use."

Johnson says that after his forty-day fast, he realized that he was not eating and drinking enough to justify his weight gain. "The violation of mass-energy conservation, manifest in the last days of the fast by lack of weight loss, was continuing now that I was eating. It was now taking the form of greater weight gain than my food and water intake could justify ... *surely important research remains to be done here*."

Dr. Cott says, "Once you resume eating, some weight gain *naturally* occurs. The body retains fluid, which translates into weight because of the sodium content in food. For a time after any fast, this will be more weight than is metabolically balanced for the amount of calories being consumed."

This may be a partial explanation for the phenomenon observed by Johnson (and others), but does not by any means completely account for the inconsistencies in weight loss and weight gain and their relationship, to the calories consumed.

2.6 Beware of Cooked Food and Other Compromises

For those who do eventually return to a varied diet which includes cooked food—be on your guard! Compromise may follow compromise and you may find yourself back on the same destructive path that led to your problem which necessitated the prolonged fast.

A return to your old habits may negate all you have done and start you back on the downward path. This is the time to reinforce your decision to persevere in Hygienic living, and experience even greater health improvement in the years to come.

It may be as much as a year before you consolidate your gains and evolve into the health and strength you envisioned when you undertook your fast. But it will surely come to pass if you continue to study

Natural Hygiene and *live* in accord with your natural requirements.

Those who do use some cooked food must be ever wary of going too far. Once you cross over from nature's most perfect foods (raw and unchanged), it is all too easy to make this exception and that—desserts, processed foods, etc.

If you will be eating *some* cooked foods, wait as long as possible after the fast to start, and then:

1. Reserve at least some days for all-raw food.
2. Never eat cooked food more than once in a day, as part of a meal starting with a large raw salad.
3. Be certain that your overall diet includes no more than 20% of food that is not whole and raw—preferably no more than 10%.
4. Be very strict with yourself—at least during the first year after a prolonged fast. If some of your symptoms return, be sure to immediately "back up" and keep as close to an all-raw-food diet as you can possibly manage.

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3. Symptoms After The Fast

Sometimes fleeting symptoms will occur or recur for a short period after breaking a prolonged fast. Some people experience mild sore throats, canker sores in the mouth, edema (usually slightly swollen ankles). Sometimes there is a mild recurrence of the original problem—or a very temporary painful episode.

These usually are manifestations of the organism's efforts to affect necessary adjustments during the period of transition from the fasting state to the necessity for processing renewed food supplies.

No palliation of such symptoms should be attempted, and *it is not necessary (nor advisable) to start fasting again at this time*. Get a lot of rest, and continue eating carefully, *preferably all-raw food*, and these symptoms will gradually recede.

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4. Transition To Rational Living

Usually the transitional period is not really difficult—most of the time there are no real problems.

The first bowel movements may be normal and easy—they are usually very dark and malodorous, gradually changing to a normal color and losing the foul odor. If you experience some difficulty, don't strain or worry—tell your fasting supervisor, who will help you.

After you resume eating, your bowel movements will probably be quite soft, but will gradually progress to the normal consistency.

After a few meals, the faster begins to feel better, and may experience a sense of euphoria. S/he is so happy to have successfully culminated the fast—so happy to be enjoying the pleasures of food again. There may be delusions of returned strength and well-being, and the desire to do something foolish, like indulging in strenuous activity. But, actually, the dizziness and weakness retreat only gradually. One must come back slowly. The body will appreciate being allowed time to gradually adapt to the new situation.

Johnson says that the miraculous power of the fast produces "unquenchable exuberance" and enthusiasm for life, especially for a period immediately after breaking the fast. He says, "The gourmet does not know the true feeling of tantalized taste buds until he has broken a fast of at least several days on any simple food." All fasters and all fasting supervisors will agree with Johnson's eloquent expressions of the euphoria experienced after the fast.

If one has not fasted to completion, the tongue will gradually clear—it usually takes several days (sometimes longer) to eliminate the coated tongue and bad taste.

Dr. Shelton says, "Bed rest should be continued through the first week of eating and activity begun very gradually. It is common for the faster to want to become active as soon as he resumes eating. This is unwise. He is not so strong and he does not have the endurance he thinks he has. Some fasters want to take long walks as soon as eating is resumed. Such activity is often indulged in to the extent that it retards recuperation and causes the individual's weight to stand still. One must take it easy for a few days before becoming normally active."

As vigor gradually returns, one should begin—cautiously at first—taking short walks, and some easy exercises. It is very important to gradually build up the capabilities for vigorous exercise, in accordance with the condition of the body, as this will assist restoration of the normal digestive ability.

The ability to process and assimilate food will be greatly enhanced following a fast and its proper termination, and after an initial period of adjustment. Resting after each meal will also greatly enhance digestion, weight gain, and renewed vigor.

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5. Drugs And Other Poisons

Very important! It must be remembered that drugs and other poisons are a greater threat after the body has been cleansed by a fast, because the "calluses" are gone. The tolerance level has been lowered—the body no longer tolerates toxins and will react strongly for their elimination.

When the individual was tolerating toxins, he (or she) was developing disease and gradually killing himself. A lower tolerance level is a tremendous step forward, but it leaves one more vulnerable. So it is important to stay out of hospitals and stay away from drugs and all other toxic materials. Avoid smokers, carbon monoxide fumes, and polluted air to the greatest extent possible.

It is, of course, not necessary or advisable to use food supplements after the fast, nor at any time. After the fast, it is even more important not to burden the cleansed body with such questionable substances. The body is apt to react violently to their use and, even if it does not, the organism is subjected to the necessity for breaking down these substances, attempting to utilize whatever nutrients are present, and eliminating the excesses and waste products. The resultant stress and expenditure of energy is often more than can possibly be obtained from the pills.

It is true that, following a fast, there is an urgent, an imperative, need for proteins, minerals, and vitamins—not from pills or powders, but from whole natural fruits and vegetables and from raw, unsalted nuts and seeds. These contain all of the nutrients, in the best and most available form.

After the fast, one should learn to live in such a manner that the low tolerance level will be retained. Toleration of toxins interferes with the normal functioning of the body, inevitably leading to the first stage of toxemia (enervation, lack of sufficient nerve energy) which is followed later by disease and death of tissues.

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6. Take It Easy!

After returning home, one should not be in too much of a hurry to return to the full schedule of responsibilities and obligations. One should resume activities gradually; get plenty of rest and eat carefully, so as not to dissipate the benefits that have been achieved. The investment in health will not pay off if one does not "follow through."

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7. Fasting Does Not Make The Body Disease-Proof

The fast is but the first step in combating disease and must be followed by correct living. People who have suffered from chronic degenerative ailments should never make the mistake of trying to keep one foot on each side of the fence that divides the conventional and Hygienic rationale. After the prolonged fast, they should never regress to conventional eating patterns or return to the "prevention syndrome" of health management, lest their problems return.

It is difficult to imagine that anyone who has experienced the wonders of a prolonged fast could ever be persuaded to turn away from Natural Hygiene, for such a mistake could be serious, perhaps disastrous.

The principles of Natural Hygiene and the use of fasting are grounded in the study of cause and effect. Remove the causes of ill health by Hygienic living and the effect will be improved health. Remove the accumulated effects of previous irrational living (by fasting), and the body will tend toward healing and rejuvenation.

Fasting does not insure the body against disease. It is true that some symptoms and manifestations of disease disappear during the fast and do not return. But there are some diseases that have a tendency to return swiftly after the fast if the faster returns to the old habits which caused the disease. Much depends on the type, extent, and gravity of the degeneration, and on the strength and vitality of the individual.

During the first weeks or months—perhaps even during the first year or two after a prolonged fast, the mode of living and eating may be critical in the preservation of the health improvement which has been achieved.

8. Compounding The Benefits Of The Fast

If Hygienic living is maintained after the fast, the benefits of the fasting period will continue to be noted for weeks, months, and even years after the termination of the fast.

The relationship between fasting and nutrition must be recognized. Recovery from a pathology can often be accomplished through fasting, but permanence of the recovery is dependent on the subsequent mode of living, particularly the food program.

Some people accept the fast as a more or less dramatic and drastic necessity—but think of it as a cure-all, after which all their problems will disappear.

Subsequent to my 29-day fast in 1967, my unrealistic expectations gave rise to a feeling of disappointment. I expected to experience perfect health immediately. Actually, it was not until a year had elapsed that I realized the full consequences of my fast, and knew the fullness of the miracle that had occurred in my body.

Years later—in 1979—I had a similar experience. I had been bothered with a slight but persistent pain in my side for almost two years. Although I had been fasting thirty-six hours twice monthly, and had taken several three- and four-day fasts, the slight pain persisted.

Then I decided on a longer fast but, because of time limitations and prior commitments, I broke the fast after nine days. (You see, I am subject to the same pressures and human failings that I may deplore in others. Ideally, I should have fasted longer, possibly even to completion.)

In any event, the small pain persisted during the fast, and subsequent to the fast. I was busy, and decided to ignore it for the time being, and really forgot about it most of the time.

About six months later, I suddenly turned to Lou (my dear husband) and exclaimed, "It just dawned on me—I don't have that pain in my side any more—and I don't know when it stopped!" It has never returned.

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9. New Habits Must Be Formed

Fasting is a means of promoting health by eliminating the disease-causing conditions—by cleansing the body of accumulated toxins and allowing it to heal itself.

Perverted appetites can be normalized by fasting, but new habits must be formed to supersede and overcome any pressures to return to the appetites that produced the disease.

The period immediately following the fast is the best time to form and maintain the habits that will give one the feeling of having been born again.

Dr. Shelton says, "The true remedy for all impairments of health is a complete correction of the way of life. When enervating habits are discontinued, the sick will begin to get well, and, once having recovered, to stay well unless the enervating habits are returned to."

The prolonged fast for the elimination of toxemia is but the initial preparation for a program for the restoration of good health. Health evolves out of correct living. The fast begins the reversal of the processes of disease, so that the self-healing powers of the organism may initiate the health-restoration processes.

But the most important factor in the progress toward optimal health is making the necessary changes in the habits of living. Unless the change to correct living is made after the fast, there can be no permanent good health.

Never forget—Natural Hygiene is a way of life. Fasting is not a modality to be employed to correct uncomfortable symptoms, after which one may return to the mode of life that produced the disease.

Hygienic living, especially if complemented by the use of regular, short fasting periods, as an instrument of health maintenance is the best assurance and insurance for good health and longer life.

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10. Questions & Answers

How soon after a prolonged fast could one plan to return to working full time?

> There is no way to give an accurate estimate of the lime required. The factors involved are the gravity of the pathology, the length of the fast, the physical condition of the individual, the rate of return to normal strength and weight, and the type of work. If the faster was obese, and fasting for weight loss primarily, that person would very likely recuperate very quickly. If the weight of the faster is quite low when the fast is terminated, it will obviously be necessary to allow considerably more time for recuperation. I would say that, after a 21- to 30-day fast, one should usually expect to need at least a month, and possibly two months or more, to be able to return to a full and demanding program. I have, however, known people who recovered full strength and vitality in less time. Essentially, it depends on the individual and other circumstances of the fasting situation, and is really more or less unpredictable.

How long after breaking a fast should one stay at the fasting retreat?

> Again, as for the answer to the previous question, there is not one general answer applicable to all cases. However, it is best to arrange to stay long enough to become established in the new eating program, and beyond the stage where one "feels hungry all the time." After a 21- to 30-day fast, two weeks of eating should be considered the minimum before leaving the retreat; if there are any unresolved problems, it would be best to stay longer.

Exactly what do you mean by fasting to completion, or the return of true hunger, and how many days of fasting do you estimate that would require?

> Fasting to completion, or the return of true or natural hunger, is considered to be a point at which the body has relieved itself of most of its toxic load, and has almost exhausted those reserves which can be utilized for salvaging nutritive materials. It is considered to be close to the point at which fasting ceases and starvation begins. The signs that this point has been reached are obvious to the fasting supervisor, and most of these signs are mentioned in the lesson. It is impossible to estimate how long this will take. I have known people who fasted 30, 40, and 45 days, with no signs of the return of true hunger. I even knew one very obese lady who fasted 92 days (after which she was still obese—she had lost 87 pounds) and there were still no signs of natural hunger at the termination of her fast. On the other hand, some of these signs have been reported at the end of 20 to 30 days of fasting, and even more at the

end of 40 to 45 days. The length of time it would take is essentially unpredictable, but it usually only occurs in the very long fast.

What is meant by nitrogenous equilibrium?

Nitrogen is the chief ingredient of protein, and every 6.25 grams of protein contains one gram of nitrogen. A protein deficiency, or negative nitrogen balance (where protein is being broken down more rapidly than it is being built) exists:

1. When the diet is not supplying adequate protein for maintenance and repair.
2. When the diet is deficient in some essential amino acid.
3. When the body is receiving an insufficient supply of carbohydrates and fats, and must deaminate necessary protein to supply energy needs.
4. When the body has lost its ability to properly digest, assimilate, or synthesize proteins.

Nitrogenous equilibrium (nitrogen balance) is normally maintained by a healthy organism which is receiving 25 to 50 grams of protein daily. A Hygienic diet, consisting mostly of raw fruits and vegetables, plus two to four ounces (maximum) of raw nuts and seeds taken 2-3 times a week, will adequately meet the protein needs of the body, and will result in nitrogenous equilibrium, unless a related serious pathology exists. In this case, a last may be necessary to reestablish the ability of the body to properly digest, assimilate, and synthesize proteins. If alternate sources of concentrated protein are used in addition to nuts and seeds (sprouts, cheese, legumes, grains), the amounts of nuts and seeds used should be reduced. People on all-raw-food diets usually require fewer concentrated proteins. Obviously during a fast, protein is not being supplied by the diet, and minimum protein needs are met through the process of autolysis, as the body disintegrates the least important tissues, and salvages nutrients to meet its needs. So long as the fast is not continued after reserves are depleted, nitrogen balance will not be affected. It is true that, subsequent to the fast, the body will have lost much of its store of protein, which must be gradually replaced in the weeks and months following the fast. As quoted in the lesson, Chittenden says that, although, after the fast, the body is greatly in need of replenishment of its protein stores, it can replace them only slowly, even though the person eats abundantly of protein food.

What do you mean when you refer to the pathogenic debris of cooked food?

A study by Swiss scientist, Paul Kouchakoff, M.D. (in the 1940s), revealed that leukocytosis is caused by a preponderance of cooked food in the diet. Leukocytosis—the augmentation of the number of white corpuscles, and the alteration of the correlation of the percentage between them—was formerly considered to be a normal physiological phenomenon, since it seemed to occur after every consumption of food.

An excessive number of white corpuscles in the blood (leukocytosis) also occurs in response to inflammation, the presence of excessive numbers of bacteria, and is, in reality, a *pathological* phenomenon

The white corpuscles are the defense organisms of the blood that prevent intoxification of the blood by bacteria, cooked food, or other toxic materials.

Kouchakoff found that pressure cooked foods produced greater leukocytosis than other types of cooking; and that wine, vinegar, and white sugar produced even more. Prepared or processed meats (cooked, smoked, salted) brought on the most violent reaction, equivalent to the leukocytosis count in poisoning.

> "After the consumption of fresh raw foodstuff, produced by nature, our blood formula does not change in any lapse of time, nor in consequence of any combination." (Viktoras Kulvinskas, *Survival Into the 21st Century*, p. 316.)
>
> When the diet is comprised of more than 20% of food that has been altered by high temperatures or other complicated treatments, leukocytosis is the result. Most people can tolerate a diet of 80% raw food, with 20% of conservatively cooked food. The largely raw food diet will offset the adverse effect of a small amount of cooked food, so as not to cause leukocytosis.
>
> Kouchakoff's conclusions were reached after more than three hundred experiments on ten individuals of different ages and sex.

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Article #1: Breaking the Fast By Dr. Herbert M. Shelton

An important fact that needs emphasis is that fasting is a very much more complicated process than is commonly supposed, even by its advocates. There is much more involved in the process than merely going without food. There is an art of fasting, but, if this art is to be properly executed, it must be based on the science of fasting. Its uses seem, at times, to be almost unlimited, its inconveniences are not great, its dangers are few and rarely seen, but for the most satisfactory results, it must be conducted by one skilled in its application. It is too vital and too important to be carried out indifferently. It is not a process that should be left to the guidance of those who have but limited knowledge of its proper conduct and who have had no experience in conducting fasts. Breaking the fast is one of the most important elements of the fast.

It is possible to break a fast on any food that is available—bread, flesh, eggs, nuts, etc.—providing a few simple precautions are observed. Animals follow none of our routines in breaking their fasts. They eat whatever is at hand and do not regularly stint themselves at their first meal. From this, it may be thought that we are unduly cautious, but I do not think so. Not only are there differences between what the animal does and what the average patient tends to do, if turned loose, but there seems to be great differences in digestive power, in favor of the animal. There is also the possibility that the animal would preserve more of the benefits of the fast if it broke the fast more carefully.

We do not employ the foods previously mentioned in breaking a fast for the reason that better means of breaking the fast are available to us. At the end of a long fast, digestive secretions are not abundant and small meals or small amounts of food are advisable. The amount of food fed to the patient is increased as secretion becomes more abundant. When this rule is observed, there is little difficulty in breaking a fast and no danger in doing so.

The proper conduct of the fast is vitally important. There are really very few practitioners of any school who know how to conduct a fast or how to properly break one. A naturopath in New York City broke the fasts of a mother and a daughter, who had been fasting sixteen and thirteen days respectively, on chocolate candy. The gastric and intestinal acidity resulting from this caused great distress thoughout their bodies. I was called in one these cases, and it required four to five days of fasting to get them back into a comfortable condition. This method of breaking a fast is nothing short of criminal.

A friend of my wife describes to me how she fasted seventeen days under the direction of a chiropractor in California and worked hard during the fast. She worked for the chiropractor and he would not permit her to leave from work while fasting. He broke her fast with toast and acid fruit. This woman immediately developed a case of malnutritional edema. This is one of the few cases of this kind I have ever known to follow a fast.

This case should thoroughly emphasize the necessity of placing one's self under the care of a competent and experienced person, if one is to take a long fast. A chiropractor who knows nothing of either fasting or dietetics, and few of them know anything of either of these, and who experiments with patients in this manner, cannot be too strongly condemned. If chiropractors want to practice Hygienic methods, let them qualify themselves for this by proper training. This goes also for osteopaths and medical men. I would not attempt a surgical operation without first qualifying myself for the work, and I am certain that no chiropractor, osteopath, or medical man should attempt a long fast, or attempt to employ any other Hygienic method without first equipping himself for the work. Chiropractors who go to school and learn to punch spines and then, finding spine punching to be inefficacious, attempt to prescribe diet, etc., after reading a book or two on these methods, are in the same position as would be the medical man who attempted to "adjust" spines after reading a book on chiropractic. He is really dishonest and untrustworthy.

Dr. Wm. F. Harvard records the following cases: "A young man of twenty-four years of age who had suffered from chronic constipation and indigestion, fasted 27 days after reading an article in a popular health publication. On the 28th day he ate a meal of beefsteak, potatoes, bread, and butter and coffee. He was seized with violent vomiting spells and could not tolerate even a teaspoonful of water on the stomach. When called on the case, I discovered an intense soreness of the entire abdomen and every indication of acute gastritis." "A young man about 30 who had fasted on his own initiative for 42 days attempted to break the fast on coarse bread with the result that vomiting occurred and the stomach became so irritable that nothing could be retained. There was marked emaciation and extreme weakness and every indication for immediate nourishment."

An Associated Press dispatch dated August 28, 1929, recounts the death of Chris Solbert, 40-year-old art model, following a 31-day fast, which he broke by "consuming several sandwiches." The sandwiches, a later report said, contained beef. Ignorance and lack of self-control killed this man. The dispatch tells us that "his fast (of 31 days) had reduced him from 160 to 85 pounds," or an average loss of more than two pounds a day. This loss I believe to be impossible. The average losses for a fast of such length vary between 25 and 36 pounds.

"Professor" Arnold Ehret tells of seeing two cases killed by injudicious breaking of the fast. He says: "A onesided meat-eater suffering from diabetes broke his fast which lasted about a week by eating dates and died from the effects. A man of over 60 years of age fasted 28 days (too long); his first meal of vegetarian foods consisting mainly of boiled potatoes."

Ignoring the absurd explanation for these deaths, given by the "professor," we would say that the diabetic patient threw too much sugar (from the dates) into his body and died as a result of hyperglycemia. He probably passed out in a diabetic coma. He explains that the second patient fasted too long for a man of his age, and that an "operation showed that the potatoes were kept in contracted intestines by thick, sticky mucus so strong that a piece had to be cut off and the patient died shortly after the operation." "Professor" Ehret was so fond of mucus he could never see anything else. This fast was badly broken but the patient, in all likelihood, would have lived had he not been operated on. The fast was not too long for a man of that age. "Professor" Ehret really knew but little of either fasting or dietetics.

These cases help to influence many against fasting and yet they are the results of the worst type of ignorance and inexperience. Who but an ignoramus would feed a diabetic case a meal of dates after a week of fasting? Surely fasting cannot be blamed for this result. Before we talk of the "evils" and "dangers" of fasting, let us be sure that these really belong to fasting and not to something else.

Sinclair says: "I know another man who broke his fast on a hamburger steak, and this is also not to be recommended." I had one patient break a fast of over 20 days by eating a pound-and-a-half of nuts the first day. Although no harm, not even slight discomfort, came from it in this particular case, this method of breaking a fast is certainly not to be recommended generally.

In some cases of fasting where efforts are made to feed the patient towards the latter end of a prolonged fast, but before hunger has returned, there has been noted a failure of the stomach to function. Dr. Dewey mentions such cases, who were induced by friends or physicians to eat, and who were absolutely unable to digest food but vomited everything eaten. Fasting was resumed and continued until the return of natural hunger, with the result that digestion proceeded nicely.

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Article #2: Fasting Not a Cure By Dr. Herbert M. Shelton

In 1959, a veterinarian who was employing fasting in the care of his animal patients and had done experimental work with fasting, wrote me: "In running down Dr. Pochedly's bibliography on fasting, I find that an extensive amount of fasting was done by medical men and osteopaths as recent as 1930, with excellent results being obtained in many symptom-complexes—the greatest factor in the subsequent failure of the laudation of fasting seems to lie in the fact that no one knew how to direct the patient to live so that he would not sink back into his symptom-complexes. Nothing is said about removal of causes."

The doctor here puts his finger on a vital point. The after-care of the faster is every bit as important as the proper conduct of the fast itself. All of the benefit derived from a lengthy fast may be wiped out in a few weeks or in a few months by improper living following the fast. The assumption, so commonly made, that fasting is a cure and that all one has to do is to fast and he will be well, has resulted in many failures. It is important to understand that health is rebuilt by a total way of life of which fasting is but a part.

It is also important to know that fasting does not make one proof against the effects of wrong ways of life. If one is addicted to smoking or drinking alcoholic liquors, the fast will not enable him to continue these practices with impunity. Only *"cures"* hold out to man the hope of recovery from the effects of causes while these causes are still in operation. Only *"immunizers"* hold out to man the hope of being made cause-proof. *"Cures"* and *"immunizers"* are *thaumaturgic* processes—they belong to voodooism, not to science.

The doctor's statement underscores the importance of proper supervision of the fast and the subsequent program of living which is vitally essential to full results. It also, by inference, stresses the importance of education in correct ways of living. Not merely should one eat correctly following a fast, but one's whole pattern of life should be brought into harmony with natural law. If this is not done, the results of the fast will not be lasting.

It is important, in this connection, to emphasize the fact that, if one is to maintain the gain made during a fast, one must rigidly adhere to a Hygienic plan of living, at least, sufficiently long to consolidate the gains made. Were it possible to wipe out the effects of a lifetime of wrong living by a few days to a few weeks of fasting and completely restore health by this means alone, it would mean that the wrong living was not so bad after all. It would mean that one may drink, smoke, overeat, overindulge, and neglect himself to his heart's content, and then take a fast and wipe the slate clean. Only cure-mongers would hold out such a promise and false hope to the suffering.

Altogether too many members of the *cure*-oriented schools of so-called healing have dabbled in fasting. It is a matter in which they are untrained and for which they are unqualified. No amount of training in drug therapeutics, in manipulations, in spinal adjusting, in electro-therapy or in surgery can possibly qualify a man to conduct fasts. Fasting is a subject that must be studied and in which one should have guided experience, before attempting to conduct a fast.

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Article #3: Breaking a Fast by Dr. Herbert M. Shelton

In his personal account of his fast of thirty-one days which he underwent in the Carnegie Institute in 1913, Prof. Levanzin says: "I have put under experiment nearly all the systems for breaking a fast. The *how* is as dangerous as the when. To mine I have added the experience of my wife, my daughters and of many of my friends. After a mature and long meditated study of physiological principles tested by practical methods, I think that I have arrived at the right solution. I had the intention of giving my system a thorough test during the breaking of this last fast, but I could not do it as I had to follow unwillingly somebody else's inflexible will."

The professor states his case when he states that the *how* of breaking a fast is as dangerous as the *when*. Breaking a last is very easily and simply done and there need be no danger associated with the process. A few simple rules need to be observed in all cases and the need for these is in proportion to the length of the fast and the general state of the faster. Many fasters have harmed themselves, and in a few cases have ended their lives by eating too much or by eating unsuitable foods and food mixtures.

Prof. Levanzin says, "Dr. Goodall, who was in charge of me during the fast from the medical point of view, insisted on having my fast broken on 'clam broth' and 'beef tea!!!' And because I told him that these would kill me he and Dr. Benedict gave up and put all the responsibility on my shoulders. I took it and broke the fast successfully without any inconvenience although it was afterward spoiled at the hospital."

It is not likely that clam broth and beef tea would have killed the professor, although, from where I sit, neither of these two slops is suitable human food under any circumstance of life. For death to have resulted from breaking his fast on clam broth and beef tea, he would have had to consume them in inordinately large quantities. Without proper supervision in breaking a fast, the individual may eat too much or too often or he may eat unsuitable food and bring harm upon himself.

In considering the inappropriateness of some foods and food mixtures for breaking a fast Upton Sinclair wrote, "Since leaving the Macfadden Healthatorium, I have at various times had occasion to fast, and have tried other articles of food upon which to break the fast. While I was down in Alabama, I took a twelve-day fast, and at the end I was tempted by a delicious large Japanese persimmon, which had been eyeing me from the pantry shelf during the whole twelve days. I ate that persimmon—and I mention that it was thoroughly ripe; in spite of which fact it doubled me up with the most alarming cramp—and in consequence I do not recommend persimmons for fasters. I know a friend who had a similar experience from the juice of an orange; but he was a man with whom acid fruit has always disagreed. I know another man who broke his fast on Hamburg steak; and this also is not recommended. I have another friend who fasted a week and broke the fast with rice and soft boiled eggs, and this friend also got no benefit to speak of from the experience, although the foods agreed with her perfectly and she had no temptation to overeat. This is about what I should have expected, as my own experience has led me to believe that the worst food that people eat are those highly concentrated pasty things which are deficient in natural salts and contain no waste to keep the intestines active. A person can eat food like eggs and rice for weeks and never have a movement of the bowels. I know it, because I have done it; and I can give myself as durable a headache by that means as other men can get with a hamper of champagne."

Macfadden broke fasts with fruit juices and followed this with the milk diet. This diet was very popular as the milk was taken every half hour during the day and fully satisfied the keen sense of hunger that follows a fast and provided for a rapid gain in weight. Macfadden says he has seen gains of three pounds a day and records he has seen instances of gain of twenty-five pounds in a week following a fast by means of the milk diet. My own observations of and experiences with the milk diet coincide with his. I have seen gains of three pounds a day and ten pounds a week. I saw one man gain twenty pounds in one week. The milk diet was not discontinued because of a loss of popularity, but because the dairy industry made it increasingly difficult to obtain raw milk, and because it was found impossible to obtain the same desirable results with pasteurized milk.

The weight gained on the milk diet was in large measure due to overloading the body with fluid, as shown by the puffiness of the face, feet, and ankles and the speed with which it was lost when the milk diet was discontinued. The milk diet overworked the heart, the digestive system, and the kidneys, and increased blood pressure. It was not an ideal diet with which to follow a fast.

In my recent book, *Fasting for Renewal of Life*, I have emphasized the fact that fasting animals in wild nature break their fast upon whatever food the season and locality afford. They do not have the advantage of electric machines to express the juice from foods, but eat their food whole. Man may do the same. A fast may be broken on any wholesome food that is available. Greater caution is required with some foods than with others. The chief requirement is simplicity and a small quantity at a time. If fed in great quantity or too often, the most suitable food may give trouble. Individual articles of food that may give no trouble in the great majority of cases, may give trouble in an occasional case. I have never broken a fast with persimmons but I doubt that most people would suffer cramps, as described by Sinclair, were we to break their fast with persimmons. The case is different with pineapple. This fruit frequently takes the skin off the lips and tongue of the eater. While I have never broken a fast with pineapple, I have fed pineapple two and three days after breaking a fast, and find it frequently causes distress in the stomach in addition to peeling the lips and tongue. Such experiences bring up the question: Is pineapple a suitable food for man?

Prof. Levanzin says: "I break my fast on acids and carbohydrates followed immediately by protein food. The ease and rapidity with which tissues are rebuilt, without any untoward accidents, is really astounding."

He gives no details about his technique of breaking a fast and we cannot do more than suggest that perhaps his plan of breaking fasts was not ideal. If he mixed the acids and carbohydrates together or if he mixed the carbohydrates and protein, his post-fasting feeding program could have been greatly improved.

It has been contended by many, the fast should be broken upon the food craved by the faster. The faster is likely to crave the foods he was in the habit of eating before he underwent the fast or he may crave some item of food that he sees or sees a picture of while the fast is in progression. The craving may be psychologically rather than physiologically conditioned. It will be better to break the fast upon some simple food the wholesomeness of which is undoubted, such as an orange, or a tomato, or a peach, or a plum, or a small piece of watermelon.

Article #4: When to Break the Fast

Early Hygienists said: when your tongue is clean, your rest peaceful, your skin clear, your eyes bright, there is no more pain, and you are very sharply hungry, you may select from the store of wholesome articles of food described in works of Hygiene, that which pleases you and eat with moderation. That is sound advice, but hardly detailed enough. The usual indications for breaking the fast (these help to determine the dividing line between fasting and starving) areas follows:

1. *Hunger* invariably returns.
2. The *breath*, which during all or most of the fast has been offensive, becomes sweet and clean.
3. The *tongue* becomes clean. The thick coating which remained on it throughout most of the fast vanishes.
4. The *temperature*, which may have been subnormal or above normal, returns to exactly normal, where it remains.
5. The *pulse* becomes normal in time and rhythm.
6. The *skin* reactions and other reactions become normal.
7. The *bad taste* in the mouth ceases.
8. *Salivary secretion* becomes normal.
9. The *eyes* become bright and eye sight improves.
10. The *excreta* loses its odor. The *urine* becomes light.

Besides the usual signs that it is time to break the fast, Prof. Levanzin lists a feeling of cheer and elation as a manifestation that the time has arrived for the termination of the fast. I cannot do better than quote Carrington's description of the feelings of the patient at this state. He says (*Vitality, Fasting and Nutrition*, p. 544), "A sudden and complete rejuvenation; a feeling of lightness, and good health steals over the patient in an irresistable wave, bringing contentment and a general feeling of well-being, and of the possession of a superabundance of animal spirits." Circulation improves, as is seen by the resumption of the normal pinkness under the fingernails. The increased rapidity with which the blood flows back into the skin when this has been forced out by pressure, is another indication of the rejuvenating effect of the finished fast."

The primary indication that the fast is to be broken is the return of hunger; all the other indications which I have enumerated are secondary. Often one or more of these secondary signs are absent when hunger returns, but one should not refrain from breaking the fast when there is an unmistakable demand for food, merely because the tongue, for example, is not clean. Inasmuch as all the signs do not invariably appear in each case, do not hesitate to break the fast when hunger returns.

Lesson 49 - The Organic Garden; Avoiding Commercially Produced Foods - Why?

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- 2. What Exactly Is Organically-Grown Food?
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1. Organic Gardening Is The Counter-Part Of Natural Hygiene

Organic gardening, or planned growing without poisons, is the best way to produce flavorful food that will build healthy bodies. The procedures in organic gardening utilize the concept of the cycle of plant life in a virgin forest—birth, life, death, and return to the earth for decomposition and enrichment of the soil for the ensuing cycles. The preservation of the ecological system in your garden can be a big factor in preserving the eco system in your own body.

Organic gardening is the counterpart of Natural Hygiene—it is a system of growing healthy plants in cooperation with nature by utilizing only naturally occurring materials for improving the soil and fertilizing, and for combating insect or disease problems.

They both, organic gardening and Natural Hygiene, work the same way—if you provide the body with the best possible conditions for optimal health, you can avoid disease; if you provide your garden with the best possible conditions for growing healthy plants, if you work *with* nature instead of *against* it, if you *maintain* the balance of nature instead of *destroying* it, you can anticipate success. You will harvest a bountiful crop of food of excellent flavor, high nutritional value, and free of residues of chemical fertilizers and poison sprays.

In the 1980s there is increasing interest in organic gardening because of its impact in the solution of environmental problems, and the growing awareness of the important role of organic food in the improvement of health.

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2. What Exactly Is Organically-Grown Food?

Organic gardening has been traditional in European countries for many years, but, by the 1940s, farmers and gardeners in the United States had gotten farther and farther away from earlier growing methods, and chemicalization had begun to prevail. About that time, a significant organic-gardening movement was pioneered by J. I. Rodale, of Emmaus, Pennsylvania, founder of *Organic Gardening and Farming magazine*. Since then, many of his followers have produced fruits and vegetables of extraordinary quality.

J.I. Rodale worked on many public projects in opposition to pesticides and drug cartels, made a significant contribution to agricultural sciences, and helped establish "organic" as a household word.

The Rodale organization formulated a scientifically-sound definition of organically-grown food which is today accepted as bona fide by most leaders of the natural, organic movement, and by officials of the U.S. Department of Agriculture.

The following is the official definition: *Organically-grown food is food grown without pesticides; grown without artificial fertilizers; grown in soil whose humus content is increased with applications of natural mineral fertilizers; and has not been treated with preservatives, hormones, antibiotics, etc.*

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3. Soil Analysis

Many advocates of organic gardening will tell you that the first step is to have your soil analyzed to determine what elements are missing, and to determine its pH—that is, the degree of its acidity (sourness) or alkalinity (sweetness), because the pH has a relationship to the ability of the soil to support the growth of various plants. (pH is a chemical symbol denoting the concentration of hydrogen ions per liter.) You might decide to bypass this step.

On a scale of 0 to 14, pH values from 0 to 7 indicate acidity; values from 7 to 14 indicate alkalinity; pH 7, the value of pure water, is regarded as neutral. Soil in most low rainfall areas tend to be alkaline; soil in high rainfall areas are usually somewhat acid.

The continual addition of organic material to the soil generally provides the necessary elements for plant nutrition, and tends to stabilize the pH, with the result that vegetables with a variety of pH preferences can be grown together successfully. Most vegetables prefer soils that are neutral or slightly acid (pH 6.5). See chart of pH preferences in supplementary section of this lesson.

A slightly-acid soil is best for availability of nutrients. I) the soil is too acid, calcium, magnesium, and phosphorus levels decrease, and manganese and aluminum may be too available, even toxic. The pH of a very acid soil can be raised by adding dolomite lime. In alkaline soils over pH 7.5, iron, copper, manganese, zinc, and phosphates may become less available. Organic matter is the best remedy for such very alkaline soils. Humus or organic matter tends to neutralize either overly-acid or overly-alkaline soils.

For simple pH readings, you can test your soil with a kit. If serious problems persist, professional soil analysis can point out sources of trouble. Most gardeners discover what will grow well in their soil by observation and trial-and-error.

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4. Basic Steps To Establish A Successful Garden

There are many ways to go about producing a living soil, containing all the known and unknown minerals, and billions of microorganisms. If the soil in your garden has been misused by pollution with chemical fertilizers, pesticides and herbicides, or by depletion of its organic matter without recycling anything back into the soil, it will take more heroic measures, and a longer period of time, to bring the system back into balance.

A virgin soil may have also been damaged. It may have been "robbed" of its topsoil by builders and graders, or decreased in value by mixture with the subsoil. The surface soil, or topsoil, usually is the top eight to fourteen inches of the soil, and is darker and more fertile than the subsoil. In any event, a new garden hasn't had time to build up a deep friable (readily crumbled) soil full of nutrients and microorganisms. But you can still have a successful first year crop, if you follow a few simple steps. There are three basic steps for growing plants successfully:

1. Produce a living soil, light and crumbly, granular, water retentive, and containing all the substances necessary to plant life. It must contain organic matter, living organisms, the proper soil "atmosphere," moisture, and nutrients for growth of plants and microorganisms. There are three basic soil types: clay, sand, and loam. Clay takes in water slowly, drainage is very low, and aeration is limited. Plant roots have a difficult time penetrating clay soil. Gypsum and lime can improve aeration and drainage of clay soils. Organic matter will improve air circulation (compost, ground bark, sawdust, leaf mold, peat moss).

   Sandy soils have the opposite problem—it lets in plenty of oxygen, and roots pass through easily. It has good drainage—too good!—the water and water soluble nutrients pass through too quickly. Add a finely-textured, spongy, organic material that will hold water and nutrients. Peat moss is such a material, and it has the advantage of slow decomposition, but it contains practically no nutrients. (Also, large amounts of peat moss may increase the acidity of the soil.) Compost breaks down faster, but supplies nutrients to the soil. Wood products and hulls are not much benefit to sandy soils. If you obtain clay to add to your sandy soil, this will help to create a balance.

   The addition of these and other organic materials will eventually change the sandy soil into good garden loam, containing a balance of different sizes of particles, and a good supply of humus (a dark sticky substance created by decomposition of organic materials). This loam will be loaded with valuable nutrients and capable of producing healthy vigorous food plants.

Loam is the ideal soil. Few gardeners are blessed with a naturally-loamy soil, but it can be gradually built almost anywhere.

2. Keep the soil in your vegetable garden and under your fruit trees covered at all times with approximately six inches of organic mulch. The mulch for gardens and vines should range in height from three to six inches, fruit trees from six to nine inches.
3. Supply adequate moisture. A deep watering once or twice a week is far preferable to a light watering every day. Light rain showers of less than one-half inch should not interrupt the regular water schedule. Shallow water encourages the roots to turn upwards towards the moisture and may kill the plants. Deep watering, encourages a deep, strong root system. Do your watering in the early morning or late evening. Do not overwater your garden or trees—it is not necessary to water every day.

Because it is often high in sodium, artificially-softened water should not be used. The leaf-tips of many plants turn brown from artificially-fluoridated water, or from water with a high natural fluorine content.

4.1 Getting Started

Clean out the grass and weeds in your garden area and do some digging to loosen the earth. Dig down about a foot or so, but avoid turning under the topsoil. You will probably have to do little or no digging in subsequent years, if you grow organically, with a permanent mulch, because the soil will be easy to work.

Sprinkle some organic compost thinly over the soil (or dig it in, if you wish), and cover with six inches of mulch. This should be done at least three or four weeks before the first planting. Tuck all your table scraps (preferably raw) in between the layers of mulch; this is called sheet composting. Start to do this immediately, and then continue this sheet composting after the garden is planted and growing. (Banana refuse is a particularly rich source of nutrients, and loved by earthworms.) These table scraps never become garbage. There is no odor or animal nuisance, if the scraps are hidden in the mulch—not too deep, say, an inch or two. As time passes, the organic matter in the soil will convert to humus, and biological activity of bacteria and earthworms will develop under the mulch.

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5. Gardening The Magic Way—With Mulch, Compost, Sea Weed Spray

5.1 Mulch

You can mulch with anything that will decay, if it doesn't contain toxic or poisonous substances. Some materials are better than others. A very good mulch material, easy to obtain (at no cost) is grass clippings, your own or your neighbors'. If possible, spread them out to dry, before using them to mulch your garden. If you do use green clippings, don't apply them directly to the soil, as this can rob the soil of nitrogen. Spread green clippings in a thin layer on top of previously-applied "cured" mulch; this will allow them to dry. If applied in a thick layer, they may mat down, become slimy, build up heat, and develop odors.

Piled up or bagged green grass clippings will get hot, but, when spread on the ground, they don't even get hot enough to hurt earthworms. But don't put fresh or green mulch up against tender young plants, as enough heat may build up to scald the plant. Of course, trees should never be mulched right up to the trunks, even if the mulch is "cured"—at least ten inches from the trunk for citrus trees and several inches for other fruit trees.

You should also use all the leaves you can get. There are many other mulch materials: hay, straw, wood chips, sawdust, cottonseed hulls, peanut shells, corn cobs, seaweed and sea grasses, ashes, and some others—almost anything that will decompose without being too messy.

Dried grass clippings mixed with leaves are often the most practical. This is clean and easy to handle, and enhances the appearance of your garden and trees. If you have oak leaves in your mulch, it will repel slugs, snails, cutworms, and June bug grubs. Alfalfa grass is an excellent mulch—it contains a valuable amount of nitrogen.

Maintaining a six-inch organic mulch at all times conserves moisture, and helps to produce the conditions for building a living soil and a top-quality garden. The mulch also creates conditions which discourage nematodes (microscopic worms which produce root knot, causing deterioration or death of plants). A permanent mulch also controls erosion, regulates soil temperature, and eliminates the necessity for spading, raking, cultivation, and weeding.

Cover crops will be unnecessary, you will need less compost, and fewer insect controls. The mulch encourages earthworms, which help to aerate the soil and enrich it with their castings. The soil will never get hard or muddy, the vegetables will be clean and pleasant to harvest.

Mulch makes "sheet composting" easy and practical—because you can tuck your table scraps in between the layers of mulch and there will be no eyesores, odors or other nuisance. It is not necessary to remove the mulch in the spring "so the ground will warm up" or in the winter when frost threatens. Because some weeds grow in cool weather, keep the ground well mulched all winter.

Mulch is indeed the gardener's "magic carpet," relieving him of many tedious tasks, and aborting a large percentage of incipient problems. If you make no other changes in your gardening methods, at least don't fail to take advantage of this easy "green thumb" idea.

5.2 Compost

Organic compost is a fertilizing mixture of various organic substances, which have been mingled and decomposed. Many people build their own compost in piles, pits or bins, and there are various methods of doing this, but it does take some space, lime and work, and you and your neighbors might also have to put up with some odors and flies, although there are ways to avoid both by careful planning and attention. If there are many citrus peels in the compost, there will be noticeably pleasant odor. Don't ever put in wet garbage without a covering layer.

One of the simplest method of building a compost pile is described in *Down to Earth Vegetable Gardening Down South* by Bullard and Cheek. Start with an eight-inch layer of grass, leaves and kitchen wastes (mingled or in any order); next a two inch layer of manure or other nitrogen source. Cover with a one-inch layer of earth, and sprinkle generously with water. Continue this three-layer series, building to a maximum height of five feet. If shredded materials are used, the compost will be ready in a few weeks, and no turning of the pile will be necessary. Occasional light sprinklings of dolomite lime will add nutrients (magnesium and calcium) and create a better balance, Greensand is another excellent soil conditioner. It comes from deposits laid down in what was once the ocean, and contains potash, magnesium, iron, silica and other trace minerals. Some other organic-fertilizing materials are rock potash, straw, alfalfa, hay, tobacco stems, peanut shells, and soybean meal. It is much better to include these fertilizing materials in a balanced organic compost than to try to use them individually.

5.3 Seaweed

Seaweed is a rich source of nutrients. If you can get seaweed or sea grass, use them. Some people prefer to wash the seaweed before using, or weather for three months, to reduce or eliminate the salt transfer, but these processes may also leach out other valuable nutrients.

If seaweed is not available, you can obtain a nutritional seaweed spray. One of these products is called "Maxicrop Liquid Seaweed (Kelp Extract)." It is a soil activator and conditioner, and its use results in a crop of higher yield and better quality. It helps to produce stronger, healthier plants with greater resistance to insects, disease, and adverse climatic conditions. The effect is cumulative and the soil improves with each application.

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6. Soil Requirements For A Successful Organic Garden

6.1 Nitrogen

A balanced organic compost should contain nitrogen, phosphorus, and potash (potassium). As a rule, calcium, sulfur and magnesium, as well as trace elements like zinc, boron, manganese, molybdenum, copper, and chlorine (and many other trace minerals, known and unknown) will be available in your soil for plant nutrition, if you are constantly adding a variety of organic materials to your soil.

Nitrogen is important in the production of protein; leafy, green vegetables, especially, need adequate supplies of nitrogen. Too little nitrogen will be evidenced by pale green leaves, progressing to yellowing and dropping of older leaves, and stunting of growth. Too much nitrogen will produce an excess of greenery and little or no fruiting, and the plants may be spindly and weak, and susceptible to disease.

Nitrogen is supplied by blood meal, castor pomace, soybean meal, cottonseed meal, fish meal, or feathers, or bone meal, or straw, alfalfa hay, or manure. If you use bloodmeal or manure, use it very sparingly.

Nitrogen is also supplied to the soil by growing legumes, which capture nitrogen from the air, enriching the soil in which they grown, as well as adjoining areas. (The air is almost 80% nitrogen.) Earthworms will also help supply nitrogen to the soil. See the article "Nitrogen Fixation" in this lesson.

Planet Natural carries "Alaska Fish Emulsion," an excellent source of nitrogen. *Do not* add concentrated nitrogen to plants when fruits are ripening. To encourage ripening, add either a balanced compost, or phosphorus or potash.

6.2 Alfalfa: The Best Source of Nitrogen (Plus Growth Stimulation)

In 1975, Dr. Stanley K. Ries, a horticulturist at Michigan State University, found that alfalfa treated plots produced increases far above what the nitrogen in the alfalfa could account for.

In the laboratory, they isolated the active agent—triacontanol, a fatty acid alcohol which occurs naturally in the plant's leaves. Triacontanol is not a fertilizer, but a growth stimulating substance.

The Rodale Organic Gardening Research Center tested the use of "greenchop" alfalfa in extremely small counts. Both Ries and the Rodale Center reported (*The Best Gardening Ideas for the '80s*) that the less alfalfa they applied, the better the yield—but, with no alfalfa, they got the lowest yield. The amount used which provided the best yield works out to about one cup of fresh chopped alfalfa for 100 square feet of garden. Simply spread it over the plot, work it in, and plant your vegetable seeds. Use mulch as usual.

The Rodale book says that the methods and rates of application are still in the experimental stage.

The main advantage of alfalfa is as a nitrogen-fixing legume. Fresh-cut alfalfa contains more nitrogen than any manure. Use alfalfa in the garden as a soil-enricher to be rotated through the garden, or as a patch to produce a high-nitrogen material for mulch.

6.3 Phosphorus

Phosphorus is necessary to the production of plant sugars. The symptoms of phosphorus deficiency are similar to those of nitrogen deficiency, but the leaves may be dull green with purple tints. Some phosphorus sources are rock phosphate, bone meal, granite dust, natural limestone, gypsum, and fish scraps.

6.4 Potassium (Potash)

Potassium (potash) is essential to the life processes of plants. It is helpful in hastening development and maturity. Symptoms of potassium deficiency are slow growth and leaves with mottled yellow tips and edges, and scorched-appearing edges on older leaves. Seaweed or seaweed spray provides generous amounts of potassium. Some other potash sources are wood ashes, granite dust, potash rock, citrus rinds, kelp, greensand, and bone meal.

6.5 Calcium

Enough calcium will usually be present in the soil, but bone meal will supply some additional calcium especially needed for grapes, celery, and sometimes tomatoes.

6.6 Sulfur

Like nitrogen, sulfur is a protein provider, and will usually be present in adequate amounts in the organic garden.

6.7 Magnesium

Magnesium is a vital nutrient, important in the leaves of living plants. It is necessary for the process of photo-synthesis—through which plants manufacture their own food and fuel—utilizing energy from the sun, carbon dioxide from the air, and water and nutrients from the soil. Usually there is enough magnesium present in the soil of an organic garden. However, occasionally, an acid-loving plant will indicate a deficiency, evidenced by yellowing leaves, which may be corrected by using dolomitic limestone or raw phosphate rock.

6.8 Feed the Soil Which Feeds the Plant

See the list of compost materials, with percentages of nutrients, in the supplementary section of this lesson.

Organic compost—and the various nutrients of organic origin which may be added to the soil—do not overwhelm plants with a tremendous amount of one particular element, as can happen with chemicals. The chemicals attempt to feed the *plant*, whereas the organic fertilizers feed the *soil* which nourishes the plants.

This more natural way produces the best food, and makes it unnecessary to be preoccupied with exact ratios of various elements, such as the 6-6-6 chemical fertilizers (6% nitrogen, 6% phosphorus, 6% potash). Generally speaking, these nutrients from organic sources should be added in approximately equal amounts, but be particularly careful not to use too much nitrogen from animal sources (such as manure, blood meal, or dried blood). Your soil will make the best use of the organic fertilizers for the nutrition of your plants.

Sand Mueller, instructor in horticulture at Triton College in suburban Chicago, says that seven years ago he was operating a conventional greenhouse in New Mexico. He visited greenhouses all over the Southwest, all of which used agricultural chemicals. All of them had insect problems, and all of them used powerful poisons.

Mueller had read claims by organic gardeners to the effect that their healthy plants had little or no insect problems. He says, "I believed these assertions were preposterous, as did every horticulturist I knew."

But he eventually decided to try the compost idea, and his insect and disease problems rapidly began to disappear. After he started to compost, he learned the law of survival of the fittest in the plant kingdom.

Mueller tells how, in 1936, a British agricultural scientist, Sir Albert Howard, grew half a field of alfalfa with artificial fertilizer and half with compost. His oxen devoured the compost-grown alfalfa first. Given a choice, animals will always select the organic food.

After building up the health of the oxen with the organic feeding, Howard deliberately exposed them to the hoof and mouth disease, but none of the oxen became ill. Dr. William Albrecht, professor of soil science at the University of Missouri, corroborated Howard's findings.

In 1976, Mueller offered his flock of chickens the choice of commercial feed or grains he had grown in composted soil. He says, "With a cacophony of cackling and scratching, my hens asserted the truth of Howard's claim."

Mueller says, "The horticulture establishment has only one response to compost and that is ridicule. It is the response of ignorance. I do not believe that there exists anyone in the field of agriculture who has tried organic agriculture who now advocates chemical agriculture."

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7. Approximate Amounts Of Compost, Mulch And Water

Before planting vegetable seeds, put in fifteen pounds of compost per one-hundred feet of row. Even if the compost is put in immediately before planting, the compost will not burn the seeds as does chemical fertilizer. If possible, however, put the compost in at least a week or two beforehand.

After the seeds are planted, soak the ground every day until the seeds sprout, then every other day. Put in one inch of mulch when the seeds begin to sprout. Add more mulch as they grown taller. Put more compost between and around the plants when they begin to bloom, and again when fruiting.

When setting *seedlings* or *plants*, put in the compost, then cover the ground with one inch of mulch, and then set in the plants. Soak the ground every day for two or three days, preferably in the late afternoon, then every other day.

8. Planting Your Garden

Select the sunniest spot for your garden, but near a source of adequate water. Morning exposure to full sunlight is the most beneficial. If part of your garden is shaded, that is the place to put leaf crops. Avoid low wet areas.

A good size for a family garden is 200 to 600 square feet in area, but smaller ones will also produce a lot of vegetables if planted with small seeds such as lettuce and carrots. Plant seeds in rows that are six inches wide, with six inches between the rows. This pattern will result in a harvest of approximately four times as much as you would get from single rows. Leave a walk space of about 16 inches between each 18-inch unit.

Map the layout of your garden. To minimize shading, arrange low-growing vegetables along one side of the garden, medium-tall plants in the middle, and tall ones on the other side. Design your garden with companion planting and crop rotation in mind. (Details later.)

Plan to grow the vegetables you like to eat, and be sure to get seeds that are suitable for planting in your area. Don't use seeds that have been treated or dipped in chemical solution. Look for the varieties that have been developed for resistance to disease.

Don't use last year's seeds—they seldom come up as well as fresh seeds. In most cases, it is not a good idea to save your own seeds. They often do not grow true to type, and the amount of labor spent collecting, drying, and storing these seeds will probably make them twice as expensive as buying new seeds.

If you soak your seeds for a few hours, or overnight, or even twenty-four hours, before planting, germination will be easier and more certain. Soak in plain lukewarm water, or, better yet, in a 1% solution of seaweed spray. If you sometimes don't take the time to soak your seeds, try using the 1% seaweed solution as a seed dip.

Don't sow the seeds too thickly, and be sure to cover them with soil to a depth of about four times their diameter. Firm the soil by patting or walking on it. Then stay off the planting area. The seeds must be kept moist until the seedlings appear.

For a steady supply of vegetables, make successive plantings, or plant several varieties of the same vegetables but with different maturity dates.

You might decide to use some started plants, especially if you are a little late in starting your garden. When thinning and transplanting plants, handle them carefully, allow as much earth as possible to cling to their roots, and give them a good watering after transplanting. Do your transplanting after the sun has gone down.

Be sure to plan for as many fruit trees as possible, limited only by the available space and your ability to care for them. If you harvest more fruit than you can use, you will have a good marketable crop, especially when organically grown. Offer your surplus fruit (at a fair price) to your friends, neighbors, health food stores, and supermarkets. If you have a large crop, it could even be advertised with good results.

Give your fruit trees what they need, but don't feel you must be doing something for them constantly. Mostly, you should leave them "intelligently alone"—the same advice as Hygienists give for the care of the human body. The trees can work out most of their problems by themselves, if you do not complicate the situation by the use of poisons.

Don't overlook grapes and berries! Be sure to select the proper varieties for your area. And don't forget to include some nut trees.

More details about fruit and nut trees will be given in the next lesson: "The Pluses in Orcharding: How to Get Started."

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9. Insects: Friends And Foes

An organic gardener does not try to destroy the entire insect population in his garden. Not only is this the epitome of futility, but it is neither necessary nor advisable. There will be some insect damage, no matter what is done. Ignore the early signs, and don't feel you must do something about it, unless your crop is threatened. Eventually, you will learn to recognize your friends in the insect population: the ladybug, the praying mantis, beneficial beetles, flies, wasps, lacewing flies, fireflies, dragonflies, and spiders. They are predator insects whose food is the scavenger insects, preventing them from increasing to dangerous levels.

The first step to insect control is, of course, the building of a living soil, containing all the substances necessary to produce healthy, disease-resistant and insect-resistant plants. Next, be sure to provide adequate moisture for your garden. Your permanent mulch will help to conserve the moisture, and will create conditions which discourage many insect pests.

9.1 Companion Planting

An important step in insect control is companion pluming. Wild plants almost always grow in mixed communities, where each type of plant contributes to the support of others growing nearby.

Even when plant species are mixed with no planned basis, insect problems are reduced. The more of the same plant you have growing together, the more insects are attracted, as they get the clear signals from the larger planting. Interplanting and aromatic herbs confuse their sensory apparatus.

Companion plants influence, complement or supplement each other, and grow in harmony together. Mixed plantings tend to create and maintain a natural balance between beneficial and destructive organisms.

Members of the same plant families, which are subject to the same pests and diseases, should be separated—like tomatoes and potatoes; cucumbers, melons, and squash; and cabbage, broccoli, and cauliflower.

Legumes capture nitrogen from the air, feed it to adjoining plants, and enrich the soil in which they grow. Beans, corn, and cucumbers like to grow together. Or plant beans with eggplant and rosemary. Soybeans, especially, deter chinch bugs and Japanese beetles. Plant peas, leaf lettuce, strawberries and cucumbers with carrots, radishes and chives; turnips with peas; onions and garlic with most vegetables except legumes. Beets and onions are compatible; so are leeks and celery. Plant cabbage, broccoli or Brussels sprouts with beets, kohlrabi, and cucumbers.

Tomatoes are good with onions, parsley, carrots, and marigolds, but do not like kohlrabi. Bush beans like beets and potatoes. The strong scent of marigold seems to act as a deterrent to insects throughout the garden, and their roots secrete a substance that kills nematodes. Be sure to plant some around tomatoes and beans.

Some plants need a lot of light and are excellent companions to those that need partial shade. Lettuce likes cabbage and beets, but can also be put under tall plants that provide some shade. Deep rooting plants bring up the minerals from the subsoil, enriching the top layer, and they aerate the soil for plants with a shallow root system.

Plant nasturtiums in your vegetable garden near broccoli, cabbage, cauliflower, and cucumbers, and between fruit trees, to repel aphids. Chives and onions will also repel aphids. Garlic will prevent bacteria damage and damage from peach borers. Garlic and onions will deter most pests, but don't plant any near beans or peas. Most strong smelling plants are useful in repelling pests.

There is a long list of companion plants, vegetable preferences and insect repellent plants and herbs. You will find such a list in the article section.

Companion planting, and the use of insect repellent plants, will not prevent insect damage, but will reduce it considerably; it will be a profitable investment.

9.2 Crop Rotation

Crop rotation can help to prevent and control perpetuation of many problems, such as depletion of particular trace elements in specific areas of your garden, and perpetuating insect problems or diseases that can survive in the soil from one year to the next. Implementation of the available information about crop rotation can contribute to a successful garden.

If you are maintaining a permanent mulch, crop rotation may not be absolutely necessary, but it is still an excellent idea, and it does not entail a great deal of extra trouble to relocate plantings each year. If you would rather not bother rotating, but will maintain a permanent mulch and keep building the soil, try doing without the crop rotation; you may find it will not be necessary in your garden. However, I believe rotation to be a good precautionary measure at least in the second and third years of your garden, even if you decide to abandon this procedure after your soil has been built up.

For those who do want to take advantage of crop rotation, here are some suggestions:

Avoid growing the same vegetables (or crops of the same family) in the same location more than once every three years. Plants subject to the same problems should not follow each other in the same bed. Don't use successive plantings of lettuce, cabbage, or celery in the same soil. They are subject to the same fungus attacks.

Cucurbits (cucumbers, squashes, pumpkins, gourds, melons) should not be grown near any other member of the gourd family, and there should be a lapse of at least three years between plantings of any of these in a specific area in order to reduce the risk of the fungus disease anthracnose.

Heavy feeders should be followed by light feeders. Leaf crops consume large amounts of nitrogen from the soil, root crops use up the potash, so don't plant turnips after carrots, nor lettuce in the same bed, year after year.

Legumes (peas, beans) are excellent to precede or follow potatoes, but not to precede sweet potatoes. Members of the cabbage family, or lettuce, are excellent choices to follow legumes.

A rotation chart for vegetables to follow legumes (*Organic Gardening*, March 1974) suggested cabbage, broccoli, Brussels sprouts, mustard greens, lettuce, and parsley, as first choices; corn, leeks, shallots, radishes, turnips, onions, and Irish potatoes as second choices; tomatoes, eggplant, peppers, and okra as third choices; and suggested that the following vegetables not be used behind legumes: carrots, beets, sweet potatoes, cantaloupes, pumpkins, cucumbers, squash. The varieties of legumes upon which the experiments were based were: Crowder, Purple Hull, Silver Skin, and English Peas; and Bush Lima, Pole Lima, Bunch Snap, and Pole Snap Beans.

Leaf vegetables or cucumbers that have had lots of compost may precede or follow potatoes. Potatoes should never follow tomatoes or vice versa.

Don't plant peppers where cucumbers have grown within the last year.

Be sure to grow a variety of vegetables and don't be afraid to experiment. Failures with some will be offset by successes with others, just as in any other method of gardening.

Crop rotation is so little trouble that it seems a shame to overlook this method of increasing the potential of your garden.

9.3 Biological and Logical Insect Controls

Start out with the idea that some insect controls will be necessary, especially in the initial period before your soil has been built up. You may want to try biological controls like praying mantis egg cases, Trichodrama wasp eggs, or imported lady bugs—success with these varies. The problem with these imported insects is that they may soon migrate to another location that suits them better.

Another very successful biological insect control is the presence of birds, toads, lizards, etc. Provide trees, bird-houses, bird baths and bird feeders, and shallow pans of water on the ground for the toads and lizards, who will also appreciate shrubbery and mulch.

Sanitation and good housekeeping in your garden will prevent a lot of problems. Carefully remove and destroy all diseased plants and wash your hands thoroughly before handling other plants. Remove all dropped fruit and garden trash. Watchfulness and handpicking is an old-fashioned, but effective, method of controlling some insects.

Cardboard collars around the stems of your plants help to ward off cutworms. Aluminum foil collars around young seedlings keep off fleas, reflect the rays of the sun and give the plant more warmth.

Other effective insect controls are wood ashes, black pepper, lime, or rock phosphate dust mixed with water, and a homemade spray or drench of garlic, onions, hot red peppers (and a little soap to make it stick). A good recipe is one cup hot peppers, three whole garlic bulbs, three medium onions. Blend with one pint water (or a little more). Strain, add enough water to make one gallon, and apply to both under and on top of leaves. It is easier to use this in a sprinkling can, as it may clog the sprayer, but you may have to use a spray for the undersides of the leaves.

Beer (or a solution of baking yeast, or any other ferment) in a shallow dish attracts slugs—and drowns them. Wet areas are their hiding places.

Rye flour or clay, dusted on plants when the morning dew is fresh, will trap soft-bodied insects and the sunshine will bake them.

Decayed insect sprays or drenches are useful. Insects are repelled by the scent of dead bodies of their own species.

A spray or drench of soapsuds is effective against aphids, mites, and plant lice. Rinse with clear water within a few minutes.

Some experiments made in 1979 at the University of California, showed that soap solutions can be used effectively to combat a number of plant-feeding insects. Among the soaps which were included in the experiments were "Shaklee's Basic H" and "Fels Naphtha Laundry Bar" soap. The least damage to plants was achieved when the liquid formulations were used at 1% to 2% (7 teaspoons to 5 tablespoons to the gallon); and bar soaps or powders at 1.5 to 2 ounces per gallon of water. More concentrated solutions provided more effective control, but also increased the potential for plant damage. Of course, soap solutions do not have any residual activity, and repeated applications are necessary. However, even when applied only once or twice a year, beneficial results are achieved. It is best to use soap, *not detergent*. Three tablespoons of "Ivory Flakes" to a gallon of tepid water is safe and effective.

9.4 Insecticides, Repellents, Fungicides

If you must resort to insecticides for your garden and trees, some which will not poison your food are available. A dormant oil spray, obtainable at nurseries, in a 3% miscible solution, may be used during the dormant period on certain fruit trees, and also, in a weaker dilution, as a spring and summer spray, to control certain insects. This is an effective control for many sucking and chewing insects, including aphids, thrips, scale insects, mites, red spiders, white flies, and mealy bugs. The eggs of codling moths, oriental fruit moths, leaf rollers, and cankerworms are also destroyed.

A one-time application of "Milky Disease Spore Powder" (called "milky" because it causes an abnormal white coloring in the insect) will prevent damage by Japanese beetles on your property and your neighbor's, since it spreads underground. It is supposed to be harmless to everything except the Japanese beetle grub.

An excellent multipurpose control of caterpillars and chewing insects is the product "Thuricide" (another spore-type pest disease, called Bacillus Thuringiensis) which is extremely efficient for use in the vegetable garden on vines and fruit trees, and kills more than 100 species of harmful insects. The instructions say this product may be used up to the day of harvest. To be effective, the leaves of the plants must be ingested by the insects, as "Thuricide" is a stomach poison for them. "Dipel" is another manufacturer's name for the same formulation.

Most diseases exhibit specific symptoms, so it is not too difficult to differentiate from insect damage. It is not difficult to identify insect damage caused by sucking insects like aphids or thrips, and chewing insects like caterpillars.

Sucking insects cause leaves to curl and become spotted, or they may turn yellowish, stippled white, or gray. These insects and their brownish eggs or excrement can often be seen on the underside of the leaves.

Aphids cause curling or cupped leaves, or round or conical protrusions. Thrips leave a black deposit of tiny specks, or whitish streaks.

Caterpillars, grasshoppers, weevils, and flea beetles are some of the chewing insects which eat the leaves. Flea beetles make tiny round perforations; weevils produce angular holes, beetle larvae (grubs) skeletonize leaves, eating everything but the veins.

Red spider mites, which are so tiny they are practically invisible, deposit tiny tents of fine cobwebs on terminal leaves, and can be found (with a magnifying glass) on the underside of the leaves—under a strong magnifying glass in a good light, you may see tiny specks about the size of fine meal.

Cyclamen mites cause deformed leaves; leaf miners produce blotches or tunnels. Round or coned protrusions can be caused by either midges or gall wasps.

Both nematodes and gall wasps can cause the partial or total collapse of a plant.

A useful product suitable for organic gardeners is "Neutral Copper" by Southern AG, a fungicide which, when used according to directions, will control many plant diseases, without poisoning your food. I have not found it necessary to use the neutral copper spray on any of our vegetables, but have used it on avocado trees, citrus trees, and some grape vines. It should be used, sparingly, at the first signs of disease. It may also be used as a precautionary measure on avocados, mangos, citrus, and some varieties of grape vines (not necessary for muscadine grapes) to avoid infection from scab and antracnose and some other diseases. These plants are subject to such diseases (which may be averted through the occasional use of a fungicide).

The best time to apply neutral copper as a preventive of disease is just before new growth starts in the spring, and when two-thirds of the petals have fallen. It is not advisable to use a neutral copper spray in the fall on your citrus or other fruit, as its use at that time of the year may prevent the fruit from sweetening. If disease problems occur at this time of the year, just prune out the infected leaves and dead wood.

Some of the specific symptoms of plant diseases are:

1. Brown circular spots on fruit, or dieback of twigs and loss of leaves about a foot from the tips

(fungus).
2. Rust—leaves look like they are covered with rusty powder (fungus).
3. Fire blight—drying up of blossoms, blossom stems, or fruit (bacterium Erwinia amylovora).
4. Dark brown spots in leaves with small pinpoint-like objects (fungus).
5. Grayish-white leaf with brown margin (mildew).
6. Discoloration of stem at ground level—slick and slimy (damping off).
7. Leaves that show watersoaked areas within leaf (bacterial infection).
8. Circular spots with definite color around the outside of the infected spot (fungus).
9. Leaf gall (azaleas)—thick growth causing excessive cells (fungus).
10. Mold on plants may be due to location in a cool, damp, sunless area.

One should use a little soap (not detergent) as a spreader-sticker for all sprays, so they will adhere to the plants, instead of running off. The products referred to above usually need to be used only rarely and sparingly. It doesn't take long to learn to recognize insect damage or disease and to evaluate the necessity for controls. Most healthy plants, however, rarely need controls.

Tobacco stem mulch will repel aphids, flea beetles, and thrips, but should be used cautiously, if at all. Some plants, like tomatoes, don't like tobacco; and the nicotine content of such a mulch may kill beneficial earthworms, insects, and organisms. Tobacco could also carry disease to some of your plants, especially potatoes, eggplants, tomatoes, or peppers. I don't use tobacco stem mulch.

Black leaf— a nicotine spray—may be used as an emergency treatment for aphids, thrips, or other small insects, but use it only if you must. It is subject to many of the objections listed above for tobacco mulch. I don't use "Black Leaf."

In extreme cases for emergency use only for a severe infestation, it might be necessary to use one of the insecticides made from rotenone, pyrethrum, ryania, or quassia, which are plant extractives. "Sevin" (available at nurseries and garden supply stores) is such an insecticide, and will control the bean leaf roller and the bean skeletonizer, and various other insects, but you ought to first try "Thuricide" for these problems.

The plant extractive insecticides, such as "Sevin," should be discontinued completely as soon as moderate control has been attained. They are not completely hamless, but there will be no residue if you wait fourteen days before harvesting. I have never resorted to these insectides, and, of course, would never even consider the use of a more dangerous insecticides like "Malathion."

If you would like acceleration in your recognition of insect damage, diseases, deficiencies, and problems in your garden, and want to study the subject, see pages 590-91 (deficiencies) and pages 340-51 (diseases) in Rodale's *How to Grow Vegetables and Fruits by the Organic Method* and *The Bug Book* by John and Helen Philbrick.

Gil Whitton, Pinellas County (Florida) Agriculture, recommends Cynthia Westcott's *Plant Disease Handbook*, which is available in libraries as a reference book. As Mr. Whitton says (St. Petersburg, *Florida Independent*, 3/6/75), "No one book or person can have all the answers."

If you have problems with "raiders" (rabbits or other small animals), this can be very frustrating. The best solution is a fence to keep them out. See the article in this lesson, "Containing Inhibits Raiders."

10. The Case Against Commercially-Grown Foods

10.1 Hazards of Chemical Fertilizers, Pesticides, Fungicides, Herbicides, Fumigants, etc.

The snowballing evidence against chemical pesticides culminated in Rachel Carson's landmark book, *Silent Spring*, led to the ban in the United States of D.D.T., and restrictions on the use of other poisons on food crops.

On December 25, 1975, an article appeared in the *St. Petersburg* (Florida) *Independent*, entitled "Pesticides Can Kill People, Too." Georgia Tasker, of the Knight Newspapers, wrote about the experience of Joan Cole with the insecticide "Sevin" (which is not supposed to be as bad as such insecticides as "Malathion"). She dusted a big tomato ring with "Sevin" on a dry day. A couple of days later, she decided to discard the plants altogether, and jerked them out on a windy day. The next day she felt as though she were having a nervous breakdown. She couldn't get up, she couldn't think straight. Ms. Cole said, "I had really panicky feelings. My whole body sort of went into limbo or something." The next day, when she felt a little better, she racked her brain, and then in dawned on her that she must have inhaled "all that damned stuff."

The article continues, "Dr. John Davies, a pesticide expert at the University of Miami Medical School, has been analyzing the tissue of a Fort Walton Beach (Florida) woman who recently died. Initial autopsy tests indicate Mrs. R.J. Clark may have become fatally ill after inhaling too much nemagon, a pesticide used to control nematodes. "Helen Lund, another Miami gardener, has given up using pesticides altogether. She was caring for the plants of vacationing friends and mixed some Malathion, used it, and decided to take the leftover mixture home. She drove home with it in the back seat of her car. By the time she reached her house, she was dizzy and sick to her stomach. She said, 'I got to thinking this is going to kill the birds—and me.'

"So while the Environmental Protection Agency continues to crack down on dangerous pesticides, banning in July of this year chlordane and heptachlor except for very limited use, the possibilities of severe sickness and death are always present when using any pesticide."

The World Health Organization has released figures disclosing almost 500,000 *reported* cases of pesticide poisoning in 1981. For every reported case, how many others do not report or even recognize the relationship of their ailments to pesticide exposure or ingestion?

As Hygienists, we are concerned about the hazards of ingesting chemical residues in our drinking water or in our food. How many thousands of workers are also exposed to the dangers involved in handling pesticides, or in growing or handling the crops?

10.2 The "Benefits"?

The chemical cartels maintain that the risk is small compared to the benefits achieved. *What benefits*?

Modern insecticides are nonselective, killing or injuring beneficial insects and animals, and persisting in the environment, upsetting the ecological balance. *All* chemical pesticides upset the eco balance so significantly that crop yields eventually diminish.

The National Audubon Society says, "Between 80 and 90 percent of pesticides used in homes and gardens do no good at all. More often, they do harm. These chemicals are a hazard to wildlife, pets, and humans. None of them are totally safe. And they often cause more problems than they solve."

10.3 Chemical Fertilizers vs. Organic Methods

Chemical fertilizers may initially increase the abundance of crops, but the eventual result of failing to replace the exhausted elements of the soil is depletion.

Tests made in the early 1960s on the Rodale crops in Emmaus, Pennsylvania, indicated a decided superiority in nutritional value of organically-grown food over the commercial varieties. Crops were grown side by side, half organically and half commercially (using chemical fertilizers and insecticides). Otherwise, the conditions were identical.

The crops were then tested to see how they compared in nutritional value. Six nutrients were measured, and the reports indicate the superiority in nutritional value of organically-grown food. The following comparisons between the organically-grown and the commercially-cultivated wheat and oats gives the higher percentages of these six nutrients in the organically-grown crops:

Nutrients	Organically-Grown Oats	Organically-Grown Wheat
Protein	28% higher	16% higher
Vitamin B1	92% higher	108% higher
Vitamin B2	171% higher	131% higher
Niacin	100% higher	63% higher
Calcium	25% higher	29% higher
Phosphorus	3% higher	1% higher

But the best proof is when we taste and enjoy the better flavor of the food.

An article in the *Palm Beach* (Florida) *Post*, July 29, 1974, by Bryce Nelson, Chief of the Middle Western Bureau of the *Los Angeles Times* in Chicago, tells about organic farmers who increased their yields, increased the quality of their produce, and improved their own health and the health of their stock. Most of them sold their products at regular prices on the open market. The organic farmers said their fertilizer cost was lower, they had to do less work to get as high or higher yields than chemical farmers, and they were happier.

In a 1976 study for the National Science Foundation, Dr. Barry Commoner determined that organic farming methods produce foods more economically, and of higher quality. The study, made with organic farmers in five states, showed that foods cost $16 an acre less to produce. (The claim is usually made that organic farming is more trouble and more expensive than chemical farming.)

More recently, Purdue University Agronomist Jerry Mannering reported evidence of the importance of organic matter to plants. The correct chemical and physical composition, of the soil, and the soil energy, can be maintained only by conservation and replacement of organic matter. Only organic matter can create and maintain in the water-holding and nutrient-holding capacity of soils.

10.4 No Differences? Use Supplements?

Numerous representatives of vested interests maintain that there is no difference in the .nutrient quality of safety between chemical food production and food produced organically.

Other vested interests maintain (and even exaggerate) the food deficiencies created by chemical food production, and offer a solution—vitamin and mineral supplements.

Hygienists must face these issues squarely, and determine how to resolve the contentions resulting from these claims.

Synthetic fertilizers may initially help produce *larger* fruits and vegetables, but they are often lacking in taste and lower in nutritional value. Vitamins and minerals, proteins and enzymes in foods that are produced organically have repeatedly been shown to be superior, qualitatively and quantitatively. And, inexorably, when the soil is depleted, exhausted by the use of chemical agriculture, what then?

In 1900, wheat in Kansas contained about 18% protein. Today Montana wheat (grown in virgin soil) also contains 18% protein. But Kansas wheat today contains only 11% protein, because the virgin soil is depleted and the farmers are using chemical fertilizers.

The late John Tobe, in *The Provoker*, November-December 1976, said, "The food processors and chemical corporations have arranged for various professors of great universities to go on the stump and make statements that there is no special value in organically-grown foods. Here I would like to tell you about some research that was conducted at the Massachusetts Institute of Technology. Many foods grown in the United States were compared with their counterparts grown in Mexico, Central America and Latin America. It was found that many of the foods grown in the U.S. are lower in nutritional value than the same foods grown in Mexico, Central America, and Latin America, where chemical farming has not been established." The caption of the article is "Sometimes It Pays To Be Blind."

Many people acknowledge that commercially-grown food is deficient in nutritional value, and it is well known that organically-grown food is more abundant in trace elements, which are necessary to life. One example is the deficiency of copper, a necessary trace element, which is destroyed by chemicalization. Too many people try to restore these deficiencies by augmenting their diets with food supplements (pills, powders, liquids) in the vain hope of supplying missing nutrients. It can't be done! In the lesson about food supplements, you learned that these products are useless, and even damaging.

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11. Four Methods

There are four methods of gardening:

1. Natural—This method does not poison the soil, but does deplete it, especially of nitrogen, and its productivity gradually decreases.
2. Chemical—This method increases the production the first and second years, at the cost of flavor and nutritional value (lower protein content and higher carbohydrate content) and destruction to the environment. The plants must rely on artificial chemicals to stimulate their growth, and, as time goes on, more and more chemicals are needed and problems increase. Insects mutate and develop resistant strains, the microorganisms and earthworms in the soil are killed by the chemicals, and the farmer or gardener develops neurological diseases from inhaling the sprays or absorption through the skin.
3. Organic—This method replenishes the soil, and is the method described and advocated in this lesson, to produce a better-quality crop, without poisoning the food, the environment, or the gardener. The organic gardener uses only organic materials (organized living matter).
4. Biodynamic—The term "biodynamic" refers to "working with the energies which create and maintain life." This method of agriculture uses organic methods, including compost, but also uses

> herbal preparations to spray the plants and trees. The basic ingredient of the biodynamic spray is a specially-prepared colloidal clay compound. The spray flows into all small cracks and crevices of the plant and forms a protective film, to help in healing minor lesions, but does not interfere with the respiration of the plant. The spray also contains very low percentages of such insecticides as ryania, rotenone, pyrethrum, and quassia, far below customary concentrations, because the spray is not intended as an eradicator. These insecticides are plant extractives, but are not completely harmless, as indicated previously. The recommendation is to wait fourteen days after spraying before harvesting. The biodynamic spray is also available without the insecticides. The biodynamic spray is also said to enable the plants to derive certain nutrients from the atmosphere. This system was originally started by Rudolph Steiner, and developed by Dr. E. E. Pfeiffer. The biodynamic method is more sophisticated, more complicated, and more work than the organic methods described in this lesson. We tried biodynamic methods in Indiana, but found them more difficult and no more productive than simpler organic methods.

An amusing illustration of the difference between natural and organic methods is a story told by Dr. Alec Burton at American Natural Hygiene Society Conventions about a gentleman who came to Yorkshire, England, and took over an extremely dilapidated property. He did a great deal of work on this property, renovating it and getting it into a beautiful condition, and, eventually, people came from miles around to admire and appreciate his garden. One day the local priest came to see it, and said, "What a beautiful garden you have!" The man said, "Yes, it's been hard work, and I've done it all by myself." "No," said the priest, "with the help of the Lord." The man said, "All right—with the help of the Lord, but you should have seen it when he was doing it by himself."

There is quite a bit of information available for the organic gardener who warns to learn how to get maximum results. *How to Grow Vegetables and Fruits by the Organic Method* by J. I. Rodale and staff (mentioned previously) is an excellent comprehensive reference book, listing practically all varieties of food plants, with detailed planting instructions for each.

For those who want a few simple rules for growing food with a minimum of time and energy, moderate success can be anticipated by simply using organic methods, instead of chemicals; and mulching instead of cultivating and weeding.

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12. No Space For A Garden?

If you live in an apartment or condominium and don't have space for a regular garden, you can still grow some of your own food on your porch or patio. You can use boxes, barrels, or make a wall garden. Small plants like lettuce, squash, cucumbers, or strawberries need boxes only four to six inches high. Tomatoes, peppers, cauliflower, and cabbage need more space for their roots, and these boxes should be at least ten or twelve inches high.

Vine branching plants (cucumbers, squash, melons) can be trained to spread over the patio floor (concrete or whatever). They require little box space. Grapevines can be planted along a building wall or fence.

You can build a wall garden anywhere you have a little space. Annie Silvan describes a wall garden and how to build it. She says that it is like a large block or wall of soil with plants growing out of all sides. "You will need four one-by-six boards two feet long, four one-by-six boards five feet long and at least 14 two-by-two poles four feet long." Make two bottomless boxes out of the one-by-sixes —a frame for the top and one for the bottom. Nail the two-by-twos to these frames, one foot apart. It will look something like a cage with vertical bars. Leave the bottom and the top open, but line all sides (inside) with open mesh wire and then black plastic. Secure the mesh with wire. Place the wall in its permanent position, fill with soil, and water from the top so the soil will settle. Use tomatoes and root vegetables at the top; lettuce, strawberries, cabbage, cauliflower, or any leafy greens on the sides. Make little holes in the plastic to insert the plants. Water all around and on top.

Patio tomatoes (in pots) are easy to grow. Leaf structure is easy to grow. I once grew some in several large flower pots. You can grow sunflower seeds to the green leaf stage in flats by pressing unhulled seeds into the soil and keeping them moist. They are ready for harvesting in a week. Buckwheat, adzuki beans, lentils, mung beans, or any other seeds or beans can be grown the same way, and will produce a product which is superior nutritionally to seeds sprouted with only water, since they will have the benefit of the earth, sun and outside air.

When no other way is possible, sprout your seeds on your kitchen counter in jars or other containers. We use alfalfa sprouts almost daily. Alfalfa is known to contain trace minerals which may be lacking in other plants. The root system of field-grown alfalfa reaches down as deeply as fifteen feet into the subsoil, picking up minerals not present higher up, and these minerals are, of course, present in the seeds in the sprouts.

12.1 Do The Best You Can

Grow as much organic food as you possibly can. Seek out and share with other organic growers. Import organically-grown nuts, seeds, and dried fruits from other areas. Keep trying to produce or obtain fresh organically-grown produce.

For the rest (if any) some compromises may be necessary. Get the best-quality food obtainable, wash in plain water, peel waxed fruits and vegetables, and do the best you can. Try to obtain foods grown on different soils, in different parts of the country, to insure obtaining a variety of trace minerals which may have been damaged or destroyed in certain areas: If you eat most of your food uncooked, you will still attain a higher degree of health than conventional eaters.

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13. Harvest Of Pleasure And Health

I believe there will be a few who will dispute the environmental improvements that will accrue because of the deemphasis on chemicals and poisons, advocated by the organic gardener. If you learn about, and implement, organic gardening methods, you will also find them practical, convenient, agreeable, and economical.

And there is so much personal satisfaction in the creation of living plants in cooperation with the forces of nature—you come to regard your plants and trees as children whom you love and foster, and who respond by giving you their fruits.

What is more rewarding and thrilling than seeing the first seedlings, or the blossoms, or the fruits ready to harvest? But, best of all, the food you harvest will be flavorful and delicious, bursting with the nutrients you have helped to supply; and clean and free of residues of chemical fertilizers and poison sprays.

The, only way to obtain a full complement of all the vitamins, minerals, enzymes, hormones, chlorophyll, carbohydrates, and other substances (known and unknown) in ideal combinations, is by eating the living food. Your harvest of organically-grown food will supply the needs of your body for optimal health.

14. Questions & Answers

Is it safe to mulch with grass clippings that have been treated with herbicides?

> It would be best to find out from your neighbors whether they are using herbicides before using their grass clippings. If you see dandelions in the grass, that is a good sign. However, the most commonly-used herbicide, "2, 4D," is not absorbed by grasses in amounts great enough to affect vegetables. Don't use suspect clippings in the green state. Either compost them or put them aside for a couple of weeks. Soil microbes usually break down the chemical weed killer in a week or two. If you know when the spraying has occurred, and several rains and a couple of mowings have occurred since the spraying, the residue should be gone. Of course, grass clippings that have had no spray are the best.

Since sprouting in soil produces sprouts of higher nutritional value than sprouting with water only, what is the best kind of soil to use?

> Seeds can be sprouted in soil, indoors or out. The sprouts will indeed be of higher nutritional value than the sprouts that are produced with the use of water only, especially if the soil is properly prepared. The soil should consist of one part fine compost, one part fine topsoil, and one part sand.

Is it best to wash the salt off of seaweed?

> *Organic Gardening* magazine, March 1980, page 20, says that it really isn't necessary to wash the salt off of seaweed, as the amount of salt that might cling to the seaweed is minimal. Dig the fresh seaweed into the soil to avoid leaching out of nutrients that will occur if you allow it to heap up and decay. Organic Gardening says that seaweed is nutritionally similar to barnyard manure, except that it contains twice as much potassium. It is also high in iron and zinc, and contains some iodine.

What is "Diatomaceous Earth?"

> It is composed of the fossilized shells of microscopic one-celled algae. It is a natural product, and kills insects mechanically. The shells break down into tiny, razor-sharp needles of silica, and the silica particles attack the wax coating that covers the insect. The insect gradually loses fluid and dies in about twelve hours. Diatamaceous earth is fine, dry dust, and is best applied when plants are wet, or it may be dissolved in water. In a five-gallon sprayer, place a teaspoon of liquid soap compound in a quart of warm water. Add one-fourth pound of diatomaceous earth, and top off with water. Keep solution agitated as you use it. Diatomaceous earth works against insects only when they are in their pupal, maggot, or grub stage. This substance can irritate your lungs, so wear a protective mask when using it. Don't use formulations which are mixed with pyrethrum and chemicals. If you can't find it locally, it can be ordered from Golden Harvest Organics.

What causes carrots to be bitter?

An insufficient or uneven supply of moisture or of nutrients will produce bitter carrots. Insects or disease can also cause bitterness. If you follow the instructions in this lesson, as to composting, mulching and watering, your carrots should be healthy and sweet.

Is it advisable to grow vegetables or trees over or near a septic tank?

Root vegetables and leafy crops can become contaminated if grown near a septic tank. The roots of trees can damage the drainage pipes. Shallow-rooted plants would be less of a problem, but there would still be some risk of infection from any food plants planted over or near a septic tank. It would be best to plant somewhere else.

Is soil-testing a foolproof method to determine the actual needs of the soil, or is one better off just feeding the soil with organic matter and thus building its fertility?

I grew many successful vegetable gardens without any soil testing. An article in the August 1982, *Organic Gardening* magazine ("Organic Discoveries," Jeff Cox, pp. 104-105) offers documentation of the fact that frequently these tests are relatively meaningless. Dr. William Liebhardt, Assistant Research Director at the Rodale Research Center, says that a reliable nitrogen soil test is just not available. Dr. Liebhardt sent the same soil to 69 major laboratories, and received analyses and fertilization recommendations that varied wildly. Measurements of organic matter varied almost as much as the nitrogen recommendations. The 69 laboratories' measurements of phosphorus, potassium and soil pH also fluctuated widely. Cox's opinion is the same as mine. Feed the soil, and let the soil feed the plants. He spoke with Dr. Roger Pennock, soil scientist at Penn State University, about the carbon-to-nitrogen ratio. Dr. Pennock said, "The end product of organic matter decay—soil humus—tends toward a perfect carbon-nitrogen ratio of ten to one. At this level, and up to about fifteen to one, nitrogen will be released to the plants as they need it." Finished compost has the 10 to one ratio, and is the perfect balanced fertilizer.

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Article #1: Vegetable Preferences

	Compatible Neighbors	Incompatible Neighbors
Beans, bush	Potatoes, cucumbers, celery, corn, savory, strawberries	Garlic, onion family
Beans, pole	Corn, savory	Garlic, onion family, beet, cabbage family, kohlrabi, sunflowers
Beans, misc.	Potatoes, carrots, cucumbers, cabbage family, corn, eggplant, squash, rosemary, nasturtiums, petunias, savory	Garlic, onion family

Beets	Onions, kohlrabi	Pole beans
Cabbage family	Potatoes, celery, beets, nasturtiums, mint, dill, sage, tansy, thyme, rosemary, garlic, onion family, radishes	Pole beans, strawberries, tomatoes
Carrots	Peas, lettuce, onions, leeks, chives, tomatoes, rosemary, sage	Dill
Celery	Tomatoes, bush beans, cabbage family, leek	
Cucumbers	Beans, corn, peas, radishes. nasturtiums, sunflowers	Potatoes, aromatic herbs
Eggplant	Beans, potatoes	
Lettuce	Carrots, radishes, cucumbers, strawberries	
Melons	Radishes	
Peas	Carrots, turnips, radishes, cucumbers, corn, beans	Garlic, onion family, potatoes, gladiolus
Potatoes	Beans, corn, cabbage family, horseradish (at corners of patch), flax, eggplant, marigold, green beans	Squash, cucumbers, pumpkin, tomatoes, sunflowers, raspberries
Soybeans	Helps everything—plant near corn	No enemies
Squash	Corn, radishes, nasturtiums	
Strawberries	Bush beans, lettuce, spinach, borage	Cabbage family
Sunflowers	Cucumbers	Potatoes
Tomatoes	Carrots, sweet basil, mint, chives, onions, parsley, dill, marigolds, nasturtiums	Kohlrabi, potatoes, cabbage family, fennel, nut trees
Turnips	Peas, shallots, leeks	

Article #2: Companion Plants

Plant	**Companions and Effects**
Asparagus	Tomatoes, parsley, basil
Basil	Tomatoes (improves growth and flavor); repels flies and mosquitoes.
Beans	Potatoes, carrots, cucumbers, cauliflower, cabbage, summer savory, most other vegetables and herbs. Adds nitrogen to soil.
Beans(bush)	Sunflowers (beans like partial shade, sunflowers attract birds and bees), cucumbers (combination of heavy and light feeders), potatoes, corn, celery, summer savory.
Beets	Onions, kohlrabi.
Borage	Tomatoes (attracts bees, deters tomato worm, improves growth and flavor), squash, strawberries.
Cabbage family	Potatoes, celery, dill, chamomile, sage, thyme, mint, pennyroyal, rosemary, lavender, beets, onions. Aromatic plants deter cabbage worms.
Carrots	Peas, lettuce, chives, onions, leeks, rosemary, sage, tomatoes.
Catnip	Plant in borders; protects against flea beetles.
Celery	Leeks, tomatoes, bush beans, cauliflower, cabbage.
Chamomile	Cabbage, onions.
Chervil	Radishes (improves growth and flavor).
Chives	Carrots; plant around base of fruit trees to discourage insects from climbing trunk.
Corn	Potatoes, peas, beans, cucumbers, pumpkin, squash.
Cucumbers	Beans, corn, peas, radishes, sunflowers.
Dill	Cabbage (improves growth and health), carrots.

Eggplant	Beans
Fennel	Most plants dislike it.
Flax	Carrots, potatoes.
Garlic	Roses and raspberries (deters Japanese beetle); with herbs to enhance their production of essential oils; plant liberally throughout garden to deter pests (ex: near legumes).
Horseradish	Potatoes (deters potato beetle); around plum trees to discourage curculios.
Lamb's quarters	Nutritious edible weed; allow to grow in modest amounts in the corn.
Leek	Onions, celery, carrots.
Lettuce	Carrots and radishes (lettuce, carrots, and radishes make a strong companion team), strawberries, cucumbers.
Marigolds	The workhorse of pest deterrents. Keep soil free of nematodes; discourages many insects. Plant freely throughout garden.
Marjoram	Here and there in garden.
Mint	Cabbage family; tomatoes; deters cabbage moth. House fly repellent.
Mole plant	Deters moles and mice if planted here and there throughout the garden.
Nasturtium	Tomatoes, radishes, cabbage,, cucumbers, plant under fruit trees. Deters aphids and pest of cucurbits.
Onion	Beets, strawberries, tomatoes, lettuce (protects against slugs).
Parsley	Tomato, asparagus.
Peas	Squash (when squash follows peas up trellis). plus grows well with almost any vegetable; adds nitrogen to the soil.
Petunia	Protects beans; beneficial throughout garden.
Pigweed	Brings nutrients to topsoil; beneficial growing with potatoes, onions, and corn; keep well thinned.

Potato	Horseradish, beans, corn, cabbage, marigold, limas, eggplant (as trap crop for potato beetle).
Pot marigold	Helps tomato, but plant throughout garden as deterrent to asparagus beetle, tomato worm, and many other garden pests.
Pumpkin	Corn
Radish	Peas, nasturtium, lettuce, cucumbers; a general aid in repelling insects.
Rosemary	Carrots, beans, cabbage, sage; deters cabbage moth, bean beetles, and carrot fly.
Rue	Roses and raspberries; deters Japanese beetle. Keep it away from basil.
Sage	Rosemary, carrots, cabbage, peas, beans; deters some insects. Not with cucumbers.
Soybeans	Grows with anything; helps everything.
Spinach	Strawberries
Squash	Nasturtium, corn.
Strawberries	Bush beans, spinach, borage, lettuce-as a border.
Summer Savory	Beans, onions, Deters bean beetles.
Sunflower	Cucumbers
Tansy	Plant under fruit trees; deters pests of roses and raspberries; deters flying insects; also Japanese beetles, striped cucumber beetles, squash bugs; deters ants.
Tarragon	Good throughout garden.
Thyme	Here and there in garden; deters cabbage worm.
Tomato	Chives, onion, parsley, asparagus, marigold, nasturtium, carrot, limas.
Turnip	Peas
Valerian	Good anywhere in garden.
Wormwood	As a border, keeps animals from the garden.

Yarrow	Plant along borders, near paths, near aromatic herbs; enhances essential oil production of herbs.

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Article #3: Nitrogen Fixation by John Tobe

Here is how nature provides nitrogen for plants in the soil.

Leguminous crops such as alfalfa, clover, etc., are probably, next to lightning, the most important sources of organic nitrogen.

While some of you may believe that the gods and nature have neglected the good earth and mankind, I want to assure you that this is not true.

It is fixed by natural phenomena and occurrence that all of the nitrogen required by the good earth is put into it by a simple, natural, trouble free way. It is only up to man to use it wisely.

It is my humble belief that the Lord did not ever intend mankind to do His work for Him. In truth, man is lucky if he can do his own work properly—never mind doing anything for the Lord.

Leguminous crops are properly established and divided through the entire earth's surface, including the deserts. This family not only contributes a wide range of forage plants but also plants used extensively for food, and, last but not least, as beautiful ornamentals. It consists of more than 430 genera and 10,000 species.

This family is probably one of the easiest of all to recognize because of the shape of the fruit which is invariably a legume or true pod, opening along tube sutures.

Many noted and respected authorities consider this family the most important family of plants in the horticultural world or any other world, says I!

When I talk to you about technical things, I can just feel I you drawing into that thick shell of yours so that you'll be impervious to my railing. But, says I, "How are you going to know and learn about nature's way if you don't listen?"

It is written that occasionally the road to knowledge gets a bit technical ... but bear up to it—there is much virtue and value therein.

The most important characteristic of this family is the fact all of them have roots or tubercles or nodules which certain soil microorganisms invade.

Here the bacteria obtains carbonaceous food from the plant and carries on the nitrogen fixation process, storing up the resulting nitrogeneous food material. This, if not used by the plant itself, is added to the soil when a plant dies and its roots decay ... thereby becoming available to other plants.

Invariably leguminous crops leave the soil in much better shape when they die than it was when they first started to grow. That is why clovers, soya beans, vetches and alfalfa are treated as cover crops or green manures because they positively and definitely, without additional cost, increase the nitrogen content of the soil—apart from adding humus.

I'll just name a few members of this family at random: the mimosa, acacia, genists cytisus, laburnum, wisteria, robina, lupinus, clover, alfalfa, beans, peas, vetch.

The way scientists would describe nitrogen fixation is as follows:

"Gaseous nitrogen diffusing into the soil from the air is converted into useable nitrogen by the mechanism of the leguminous plants, combined with the bacterial action of the microorganisms living in its roots. This act of conversion is what is known as nitrogen fixation and by this means nature provides simple nitrogen to the earth for its crops."

Therefore, not only is this plant able to secure the nitrogen it needs even when there is insufficient nitrogen in the soil ... but these legumes actually add to that supply and as far as nitrogen is concerned, leaves the land more fertile than before they grew.

Animal manures are invariably rich in nitrogen and the reason is very simple and obvious ... because animal fare and forage is often heavy in leguminous crops and they contain large quantities of nitrogen.

There is one important factor that should 'interest horticulturists about this family and that is that the flowers are invariably very showy and some of our most important trees, shrubs and vines belong to this group.

Commit this to memory...this family of plants has the rare ability to absorb free nitrogen from the air.

While back more than 2,000 years ago they did not perhaps know what we know, and this is that these plants provided the much needed nitrogen to the soil, the Romans used them extensively for soil improvement.

John Tobe is deceased, and "The Provoker," his publication in which this article appeared, is defunct.

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Article #4: pH Preferences Of Some Plants

The chemical symbol "pH" is used to indicate acidity or alkalinity. On a scale of 0 to 14, pH values from 0 to 7 indicate acidity; values from 7 to 14 indicate alkalinity; pH 7, the value for pure water, is regarded as neutral.

Quite Acid (4 to 5)

Azalea	Holly
Gardenia	Ixora

Moderately Acid (5 to 6)

Fern	Pine
Orchid	Potato
Parsnip	Pumpkin

Persimmon, Japanese	Watermelon

Acid. Near Neutral (6 1/2 to 7)

Beet	Kale
Broccoli	Leek
Cantaloupe	Lima Bean
Chives	Marigold
Corn	Onion
Cucumber	Pea
Eggplant	Peach
Endive	Radish

Slightly Acid (6 to 6 1/2)

Allamanda	Oyster Plant
Avocado	Palm
Banana	Papaya
Bean Bottlebrush	Pecan
Citrus	Pepper
Copper	Philodendron
Croton	Pineapple
Dracena	Pittosporum
Fig	Poinsettia

Grape	Powderpuff
Gloxinia	Schefflera
Hibiscus	Shrimp-plant
Jasmine	Squash
Live Oak	Strawberry
Loquat	Tomato
Mango	Turnip
	Rutabaga

Alkaline, Near Neutral (7 to 7 1/2)

Alfalfa	Geranium
Cabbage	Lettuce
Carrot	Nasturium
Cauliflower	Petunia
Celery	Sweet Pea

The following is a partial list of available materials for "sheet composting" or compost piles, with some of their percentages of nitrogen, phosphorus, and potash:

	% of Nitrogen	**% of Phosphorus**	**% of Potash**
Activated Sewage Sludge	4.00-6.00		
Banana Skins		3.25	41.76
Blood Meal	7.00-15.00		
Bone Meal (Also contains potash and calcium)	5.00	22.00-35.00	
Cantaloupe Rind		9.77	12.21

Coffee Grounds	2.08	.32	.28
Corncobs			50.00
Corn Stalks and Leaves	.30	.13	.33
Cottonseed Meal (May increase acidity of soil)	6.00-9.00		
Crabgrass, green	.66	.19	.71
Fish Scraps, Fish Meal, Fish Emulsion (May have pleasant odor)	2.00-10.00	1.50-8.00	
Granite Dust			8.00
Grapefruit Skins		3.58	30.60
Human Hair Clippings (Get from Barber Shop)	16.00-18.00		
Manure	3.00-4.00		
Oak Leaves	.80	.35	.15
Orange Culls	.20	.13	.21
Phosphate Rock		30.00	
Pine Needles	.46	.12	.03
Tea Grounds	4.15	.62	.40
Wood Ashes		1.00	4.00-10.00

Article #5: Dirt Cheap? Nonsense! It's Vital to Garden

"As common as dirt!" "Dirt Cheap!" How many times have you heard those phrases? How many times have you watched an angry baseball manager bestow the ultimate humiliation upon a resolute umpire by kicking dust on his shoes?

In plain fact, the popular public image of dirt-dust-earth-mud-soil remains largely negative. In sharp contrast, all who have had more than a passing interest in planting and nurturing trees, shrubs, and food plants—centuries of professional farmers tilling millions of rolling rural acres and urban pot-bound house plant enthusiasts alike—have learned to place a high value on that vital, life-supporting medium, soil.

"Common?" Far from it! It can be as variable and complex as life itself. "Cheap?" Hardly! Placed in the proper perspective of materials most necessary to survival on this planet, soil becomes precious. Precious, yet misunderstood.

Soil is living and constantly changing material. It acts as a medium to hold the raw materials which trees and plants take up into their leaves and convert into food for their use through a process called photosynthesis. To function best, a soil should be made up of 45 percent mineral particles from disintegrated rock such as basalt, granite, sandstone or limestone; 5 percent humus from decaying organic matter; 25 percent water; 25 percent air; and a sprinkling of microscopic plant and animal life.

In general, basalt and granite-derived soils are shallow and tend not to be as rich as soils from sandstone and limestone parentage.

Sandstone-based soils are light, porous, have good aeration and are of medium fertility. Soils from limestone are high in clay, therefore heavy, usually poor in water and air content but can be fertile enough for trees. Most essential elements are present in large amounts in all soil, but the lack of one or more can result in poor tree and plant growth.

The ideal combination of ingredients in the right percentages occurs naturally in only a few fortunate places in the world.

Most people must start with the type and quality of soil that exists where they live. If it needs improvement they must gradually work with it, helping to move it closer to the ideal through the addition of sand, clay, or humus as individual conditions require.

A fairly deep hole dug in the yard, perhaps in preparation for planting a tree or shrub, will reveal soil layers of varying thicknesses. These may be noted as a visible change in color, structure or texture. The uppermost layer, the topsoil, should break up easily in the hand, yet feel slightly moist.

Topsoil does not have to be black in color to be a fertile medium for plants. The color as well as the fertility of a soil derives in part from the parent rock material that formed the soil and in part from the climate and other conditions under which it has been existing for milleniums.

Below the topsoil lies the first layer of subsoil. Often this is a hard ledge of material difficult to spade through. This accumulation of very fine iron particles or clay leached through from the topsoil above is called "hardpan" or "claypan." The National Arborist Association advises that this concrete-like layer can become impervious to the penetration of air, water, or even tree roots to the next layer of subsoil below, severely hampering normal, healthy tree development.

Heavily traveled areas of yard or garden otherwise having good soil texture may become sufficiently trampled so that the soil's structure is lost and air and water spaces are not large enough for root penetration. This condition is called "compaction." Simple cultivation will resolve the problem.

In these days of fast-rising developments and a new home construction a purchaser may be lucky or unlucky in what the developer leaves him for topsoil. It can range from rich to poor to none! In rare cases the topsoil may be completely,skimmed off the property, leaving the unsuspecting but hopeful gardener with a severe problem. Occasionally, the topsil may have been trucked in from a distance and be far richer than the topsoil natural to the immediate area.

All trees and shrubs, however, do not find all types of soil to their liking, though one might assume they would if quoting the, line from Joyce Kilmer's classic poem "Trees." "A tree whose hungry mouth is pressed against the earth's sweet flowing breast..."

But plants definitely do have preferences.

To avoid an unhappy union consult an expert, perhaps a local arborist, whose knowledge of both soil characteristics and individual tree needs will permit him to recommend a variety of trees that will find your particular soil "sweet flowing."

Reprinted from St. Petersburg Independent, September 17, 1976

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Article #6: Soil Test Secret To Success by Gene Austin

The home gardener or landscaper is at a disadvantage unless he or she has, literally, done the groundwork.

That means fortifying and building up the planting soil with humus such as compost and peat moss and with the essential elements nitrogen, phosphorus and potassium, found in commercial fertilizers.

But the landscaper who wants to get the most out of those expensive trees and shrubs also will investigate whether the soil needs treatment for alkalinity or excess acidity—or whether, in some cases, he needs new soil.

Those $2 words, alkalinity and acidity, and the related symbol, pH (hydrogen ion activity), place this story in peril of sounding like a high-school chemistry course, so "sweet" is hereby substituted for alkalinity, "sour" for acidity and pH is discarded, except to note that soil is measured on a pH scale and if your soil scores 7 on that scale, it's neutral.

Many well-meaning gardeners apply regular doses of ground limestone—a sweetener—to their lawns and gardens, in the belief that it will improve the soil. Unless the soil is fairly sour, it actually may be detrimental, since most plants grow best in a slightly sour or neutral soil.

A soil test is the way out of this dilemma, and is particularly important where major landscaping projects — such as a new lawn or a large vegetable or flower garden—are contemplated. In the case of these big projects, bringing in new topsoil may be a lot cheaper and easier than attempting to improve poor soil with additives.

Complete soil testing can be a do-it-yourself job. Kits are available for a few dollars but good ones are in the $20 to $50 range. The easiest way is to use the expert and inexpensive services of the Agricultural Extension Service in your county.

To get the most out of soil testing, and remove much of the element of chance from landscaping and gardening, several samples should be taken—one in the vegetable garden, a sample from a couple of points in the lawn, one from the area where fruit trees are grown, etc. Since testing is usually necessary only every four or five years, the cost is a real bargain.

Ground limestone—never slaked lime or quicklime—is used to correct sourness in soil and aluminum sulphate or sulphur to reduce sweetness. Soil testing, however, also will determine the correct fertilizing needs in terms of nitrogen, phosphorus and potassium. The payoff here may be in hard cash as well as better plants, since either too much or the wrong kind of expensive fertilizer may be being used by haphazard gardeners.

While 5-10-5 (the numbers indicate the percentage of nitrogen, phosphorus and potash) is a good general fertilizer for many plants, lawns may require something much higher in nitrogen, such as a 24-4-4 formula. But only a complete soil test can determine the correct formula for a particular area.

If most of your plants are doing well and the complete test sounds like too much trouble, you can conduct a simple checkup for a few cents by buying a piece of neutral litmus paper at a drugstore. Press a bit of the paper against some moist soil after a rain—if the paper doesn't change color, the soil is neutral; if the paper turns blue, the soil is sweet; if it turns pink, sour.

Knight News

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Article #7: Pesticides—They're Killing Bugs—and the Land by Ronald Kotulak

DENVER, Colo. — Millions of tons of chemicals dumped on plants to kill pests and germs contain heavy metals that are permanently destroying the productivity of the land, a federal agricultural scientist warned Monday.

The threat from the heavy metals has not been recognized before because little has been known about plant mineral nutrition, said Dr. John C. Brown, a soil scientist at the United States Department of Agriculture's plant stress laboratory in Beltsville, Md.

New research has disclosed that heavy metals such as copper, zinc, molybdenum and boron block a plant's ability to absorb iron from the soil, he reported at the annual meeting of the American Association for the Advancement of Science.

Iron is the single most important nutrient for plants. It is essential for the formation of chlorophyll.

"Based on our knowledge, we view this as a serious threat. The whole of agriculture is threatened," Brown said.

"If we don't stop the use of heavy metals, in 30 to 40 years from now we will destroy some of our most productive farmland," he added.

The danger from heavy metals already is showing up, he said. Citrus trees in Florida are suffering growth problems because the soil in many areas has been saturated with a fungicide containing copper sulfate.

In many areas of South Carolina, farmers are having difficulty growing cotton because of the widespread use of a bacteriacide containing zinc, he said.

Michigan farmers are having trouble with soybean because of high phosphate levels in the soil and in the Pacific Northwest chemicals containing arsenic added to the soil to kill pests are hampering plant growth, Brown said.

Once in the soil the heavy metals last indefinitely, permanently destroying the productivity of the land. Without adequate amounts of iron, the fruits of the plants are nutritionally deficient and the plants eventually die.

"The thing that bothers me is that we are still adding things to the soil that contain the heavy metals," he said. "If we don't stop it, we will have nothing left."

Most of the compounds are added to the soils without any basic understanding of how they affect the mineral nutrition of plants, which scientists only now are beginning to understand, Brown said.

We are not set up in agriculture to know what we are doing. We need to know what we are adding to the soil and how the soil is affected," he said.

Millions of dollars are being spent to develop methods of placing treated sewage on farmlands to increase their yield, said Brown. But the sewage contains high levels of heavy metals which eventually would make that farmland unproductive, he explained.

The Department of Agriculture needs more money so that it can establish regional laboratories that can analyze soils, plants and compounds intended to be added to the soil to avoid the danger of making the soils poisonous from heavy metals, he said.

Chicago Tribune

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Article #8: Pesticides—There Are Workable Alternatives To the Dusts, Sprays, and Oils by Joan Jackson

If there is a secret to garden defense, it is common sense. There are no easy answers about what is right—or best—to use in that defense.

While the pesticide-environment battle goes on, the backyard gardener fights his own private war, sometimes in unorthodox ways, to save his crops from insects and diseases.

Is there a happy medium between the shotgun gardener who tries to do too much and bombards his plants with dusts, sprays and oils at the first sign of invasion, and the purist who establishes his garden and then refuses to use any chemical means to protect it?

There are good pesticides—and bad ones. And there are alternatives that work—and ones that fail. A smart gardener weighs them all, experiments with some, and uses what works best.

The beneficial ladybug is probably the best known insect in the garden. This little beetle has done wonders for making poison-free gardening possible.

How do you keep your ladybugs from doing the "flyaway-home" routine? They will only stick around if there is enough to eat. You probably won't need ladybugs until summer, when the pest problem is at its worse.

Water your garden then in the early evening, carefully place a container of ladybugs about 15 to 20 paces apart at the base of the plant. In the morning, they will begin climbing the plants and sampling the insects (aphids are a favorite—one ladybug will eat 50 aphids for breakfast).

For the average backyard garden, one container of ladybugs should be enough. Where to find them? In the summer, they are sold commercially through garden supply stores.

Invite a creature into your garden. A toad or a frog, for instance, is a good friend to the gardener. Ninety percent of a toad's food consists of insects, most of which are harmful to the garden.

To encourage a toad to stick around, provide a modest shelter so it can rest out of the sun. Cut a small entrance in a box or chip in an opening in the side of a flower pot, and bury it a few inches into the ground, preferably in the shade. You might even provide a shallow watering hole-pond; if not keep the shrubbery around your Toad Hotel damp.

Some people may feel squeamish about it, but picking off bugs by hand is a perfectly logical solution. If you squash or rub off pests as soon as you notice them, you may not need a pesticide later on.

Remember, many insects come and go with the season, and will come and go with little damage to your garden if you just let them alone.

If aphids are bugging you, give them a bath. A strong squirt of water will wash them off leaves; or you can rub them off by hand. Still got aphids? Then try a soap bath. Make a strong solution of soap—not detergent—(Ivory Flakes, for example) and water using three tablespoons of soap flakes to a gallon of tepid water.

Use your hose and sprayer to cover the infected plant with suds, wait a few hours, and then wash the plant off with plain water.

Lo, the beautiful marigold. It should be freely inter-planted with vegetables because of its pest-repellent properties. The gardeners say the French marigold and the tall odored American marigold seem to discourage many garden pests, especially nematodes and rabbits.

The marigolds exude substances from the roots which will rid the garden of nematodes if planted each year. The ones with the strongest odor are the most effective and have been reported to repel pests ranging from bean beetles to rabbits.

You could write a book about ways to get rid of snails—and you'd still have snails.

One way is to "go looking" for them late at night—about 10 p.m.—with a flashlight. Hand pick them and dispose of them.

Snails also are supposed to be beer lovers. All'you need is a pie pan and some old beer. Make a depression in the ground and set the pan in it, so that the rim of the pan is even with the soil. Fill the pan with stale beer (that's the secret—the stale beer). The snails will crawl in and drown in the brew. Change the beer every few days.

Why is it that some gardens are plagued by a hungry horde of insects and others remain clean and bug-free? In gardening, an ounce of prevention is worth the time. The rules are simple:

- Keep your garden healthy without poisons by shaping up the soil with amendments and nutrients.
- Get rid of plants that are damaged by pests or are sick.
- Use seeds and plants that are disease or pest resistant varieties.
- Keep it clean. Rake up leaves and toss out fallen fruit and dead flowers.
- Water and fertilize regularly. It is part of the "keep 'em healthy" routine.
- Keep after the weeds. They offer a comfortable home for insects. For the same reason, the ground should be cleared of all crops once harvesting is completed.

Knight-Ridder Newspapers

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Article #9: Containing Inhibits 'Raiders' By Gene Austin

Home vegetable gardens are the targets of all sorts of four-footed and winged raiders, and everything from beagles to buckshot has been tried at one time or another in the effort to foil them.

One reader, F. Thalken of Vineland, N.J., writes that last year rabbits ate everything in the family garden but the tomatoes, and equally plaintive tales are heard from others.

Except for a few animals that seem to defy all reasonable restraints—notably groundhogs, skunks and raccoons—fencing the garden or the parts of it containing the most vulnerable plants remains the surest solution.

Before discussing quick and inexpensive ways to fence, however, note should be taken of the various chemical and natural nostrums concocted in the battles against marauding animals and birds.

Mellinger's, a firm that advertises "1,000 horticultural items" and is located at 2310 W. South Range, North Lima, Ohio 44452, in case anyone wants to write for a catalog, devotes an entire page in its current sales book to such items as Squirrel Skram, K-Pels to protect shrubs from dogs, dog and cat repellant spray bombs, Roost No More to keep pigeons and starling away, rabbit and deer repellent, mole killer and snail and slug pellets. Try them at your own risk.

One gardener swears by a substance more readily available: cayenne pepper. Sprinkled lightly on rows while plants are small, it is supposed to solve the rabbit problem. Once plants have passed the tender stage they are not as attractive to rabbits.

A spray made of nicotine sulphate (2 teaspoons of 40 percent nicotine sulphate per gallon of water) is supposed to repel rabbits, if a garden supply dealer who stocks the chemical can be found.

Various plants also have been arrayed in the battle. Soybeans, planted all around the edge of a garden, are said to be so attractive to rabbits that the bunnies will touch nothing else. Wormwood, a smelly plant that some gardeners place throughout their plots, is supposed to deter raids by rabbits, groundhogs, raccoons and other freeloaders.

My own garden is located less than 200 feet from a wooded area with a full quota of wildlife, but I've been able to protect the vegetables adequately with temporary fences and other wire restraints. I also subscribe to the theory that fencing an entire garden is needless and expensive since many plants don't need protection.

Experience will have to be the guide in your area, but my own observation is that the plants most likely to be raided are young peas or seedlings of squash, melons, cucumbers, sunflowers and similar plants with large, edible seeds; corn when it becomes ripe; and ripe melons.

Corn and some large seeds often are victimized by crows and other birds, who will fish out seeds or pull up plants when they are only a few inches tall.

Plastic-coated fencing in the 48-inch size, or 24-inch if you can find it, makes fine protection for young plants and seedlings, including peas and beans, and just-planted corn and other vulnerable seeds.

The 48-inch fencing is cut into 24-inch wide strips about 6 feet long and bent down the middle to form a wire tent that will allow the plants to reach a safe size. The strips are easily stored in a small space by stacking them one on top of the other.

Temporary fences made of 24-inch chicken wire will protect larger bush beans and peas and also will help support the plants if you have only a couple of rows. Stakes cut for 2 or 3s and sharpened with a saw or hatchet will hold the fence, which can be put up in minutes with a stapling gun and disassembled just as quickly and rolled for storage.

Fences admittedly make cultivation of plants difficult, but if dried lawn grass is used for mulch between rows and around the plants, no cultivation will be needed.

Cages can be formed of pieces of chicken wire to protect melons when they near the ripe stage but ripe corn presents special problems. I have found stalks, chopped off near the ground and toppled and nothing but cobs left where the ears had been.

I've heard of one gardener who ties the tops of his cornstalks together with nylon fishline; when the maurader chews through the base of the stalk it doesn't fall and the animal departs, too discouraged to return (or so I'm told). I prefer to pick the corn as soon as it ripens and to write off any losses as philosophically as possible.

Fending off stray dogs and other pets may be the biggest problem with roses and shrubs. To protect them, make circles of 12-inch or 18-inch plastic-coated wire fencing. The circles should be approximately the same diameter as the shrub.

A simple way to get the right size circle is to measure or estimate the width of the shrub, then cut a piece of fencing 3 1/2 times that long. Hook the ends together by bending the wire ends together with pliers—the circle should slip down over the shrub and is easily removed for weeding or other work. Even cats don't seem interested in getting inside these circles.

If traps are resorted to, I recommend the box variety that doesn't injure the animal, which should subsequently be released in a woodland, not a residential area.

Knight Newspapers

Lesson 50 - The Pluses In Orcharding: How To Get Started

- 1. The Benefits Of Biological Orcharding
- 2. Establishing An Orchard
- 3. Choosing Trees
- 4. Pollination Of Trees
- 5. Preparing A Site
- 6. Planting Trees
- 7. Mulching
- 8. Orchard Fertility
- 9. Pest And Disease Control
- 10. Pruning
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- 12. A Grove Of Trees To Live In
- 13. Questions & Answers
- Article #1: China Orders Citizens to Plant Trees, Or Else
- Article #2: Tree Culture-The Ecological Way to Restore the Earth
- Article #3: Your Garden Needs Insects By Carl C. Webb
- Article #4: Texas Could Feed Nearly Half the World By T.C.Fry
- Article #5: Fertilization of the Soil By Dr. Herbert M. Shelton
- Article #6: The Green Revolution
- Article #7: A Case for Tree Crop Agriculture By Mark Chass and Don Weaver

1. The Benefits Of Biological Orcharding

It is often difficult and sometimes impossible to find natural, organically-grown produce in many locations. And what is available is usually higher priced than chemically-grown foods. Organic fruit growing, or biological orcharding as it is sometimes called, is the best way to obtain optimum quality fruits and nuts at an affordable price. By taking control of the production of our food we can be certain of obtaining high-quality, uncontaminated produce that will best satisfy man's nutritional needs.

Besides the obvious benefits of having a supply of fresh produce uncontaminated by chemical fertilizers and pesticides, you have the added health benefits of good exercise out in the fresh air while establishing and maintaining an orchard. You have the economic benefits that result from having your own food-producing trees and you have the psychological benefits of feeling "rooted" to a piece of land—a sense of responsibility for your own space in the ecosystem.

Biological orcharding benefits the ecosystem by producing a protective blanket of green over an earth that is rapidly being deforested. Solomon, supposedly a wise man, employed 70,000 men to cut down the cedars of Lebanon, an act that geologists say destroyed the food production resources of that region forever. Similar destruction is now happening in the tropical forests of South America, even though science has proven the loss as irreplaceable.

A permanent grove of trees is not like a cultivated field crop, and the differences become more pronounced and profound with the passage of time. A grove of trees managed biologically will in a thousand years contain richer soil than it does today. A field cultivated conventionally in a thousand years will have no topsoil left at all and will have been maintained by tremendous outlays of chemical fertilizers and pesticides.

On the other hand, the grove is essentially self-fertilizing. The leaves fall to build rich topsoil through the interplay of soil microorganisms and humus. The tree roots feed on the nutrients released in the topsoil and also dig deep into the earth for minerals and water. The minerals find their way, via the leaves, back to the topsoil! Woodland can raise the water level and it acts as a reservoir of moisture as rain soaks and holds in the deep, permeable soil beneath the trees. While the trees produce their food and nourish a whole chain of plants and animals under and around them, there is a net gain in fertility. In cultivated fields, there is almost always a net loss. In nearly every instance, trees can produce more food than grain.

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2. Establishing An Orchard

Every individual, whether he lives on a small city lot or a large country estate or farm, can provide some or all of his fruit and nut needs with an orchard. Even back-yard gardeners can enjoy many varieties of fruit on dwarf-size trees and miniatures. The range of tree crops you can grow in your area depends very largely on climate. Climate is more important than soil. You can always improve the soil by adding proper nutrients, but you can't do much about the climate.

Temperature and moisture are two factors which limit your orchard selections. Regarding temperature, your main problem in the North is too much cold weather and in the South your problem may be not enough cold weather to break the dormancy of certain trees. As for moisture, too much produces poor drainage in the soil and a high humidity contributes to fungal diseases. Of course, too little moisture means nothing will grow. The best climate for temperate-zone fruit culture is dry with adequate irrigation and with mild but not too mild winters. However, you don't have to live in an ideal climate to grow fruit and nuts. There are varieties established for every area. For assistance in choosing the proper varieties for your area, you should consult a local nurseryman or your county extension agent.

It is possible to experiment with varieties not usually grown in your area if you follow a few guidelines. Learn as much as you can about the requirements of the variety you desire and try to duplicate them as much as possible at your location. Mini-climates can be created around pools of water, next to walls, with the aid of greenhouses, etc.

For best success, plant varieties that are no more than one zone difference from yours (using cold hardiness zone maps from nursery catalogs or gardening books as a guideline).

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3. Choosing Trees

Diversity is the key for successful biological food production. Solid blocks of one variety of trees are open invitations to population explosions of pest bugs. A few trees of each of the varieties that you like are easier to care for and more likely to produce a crop of fruit every year.

Buying trees from nurseries is, in the beginning, the best way to get started, provided you get good healthy trees in varieties best suited for homestead production. A general principle is to buy from growers and suppliers who have a reputation to maintain. Healthy, well-grown trees may cost you more initially but will save you time and effort and will produce better in the long run. Choose trees with a well-shaped crown, a strong leading shoot, no damaged branches and a good, fibrous root system. The eventual size and vigor of fruit trees is an important consideration. This depends on the rootstock onto which they are grafted and a good nurseryman will be able to advise on the best rootstock for each purpose.

Nursery trees are sold in three categories. Bare root, container-grown, and balled-in-burlap. Bare root trees are only available during the dormant season, usually early spring in the northern areas and mid-winder in the South. Container-grown and balled-in-burlap trees can be set out anytime of the year though spring or fall are best. Trees planted in the fall have all winter to establish root systems before leaves start to develop and therefore will need less care and attention during the dry summer months.

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4. Pollination Of Trees

A good nurseryman will be able to suggest suitable cultivars to ensure pollination. Then you can be sure that your choices will have the best possible chance of giving you good yields.

Some simple rules for fruit pollination are as follows:

1. Some apples are self-fruitful but most horticulturists advise planting three varieties of apples and pears if you want to be 100% sure of pollinating all the trees. In apples, a Golden Delicious is probably the best way to ensure good pollination.
2. Some plums are self-fruitful including Stanley, Greengage, Shropshire Damson, and many of the old varieties plus Italian and other prune plums. Fewer of the Japanese plums are self-fruitful. Methley and Santa Rosa are.
3. You must have two varieties of sweet cherries for pollination. If you don't have room for two trees, graft two varieties on the same tree.
4. Sour cherries are self-fruitful, as are almost all peaches, apricots, and nectarines.
5. Southern- and eastern-type figs are self-pollinating but western Smyrna figs depend on a particular insect or mechanical pollination.
6. Persimmons are self-fruitful.
7. Some varieties of nuts are self-fruitful, others require cross-pollination. Some growers believe pollination between varieties produces a bigger and better-quality crop.

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5. Preparing A Site

The main considerations in preparing a site for your orchard are soil condition and drainage. The first thing you must put right in any area where it is a problem is drainage. Where the problem is not too severe, double-digging which breaks up any hardpan (compacted soil unimpenetrable by roots) and aerates and introduces organic matter into the soil may be sufficient. On very heavy clay, you may need to aid drainage by digging a deep, stone-filled sump (a pit or reservoir serving as a drain for water) at the lowest end of the orchard with one or more lines of drainage tiles covered with six inches of gravel buried two feet deep leading to it. Other treatments for heavy clay are to dig coarse boiler ash, mortar rubble, coarse sand, etc., into the top-soil. And work in plenty of bulky organic matter, well-rotted compost, or coarse peat to increase the humus content and open up the soil structure.

The ideal soil for growing the widest range of fruit and nut trees is a medium loam combining the advantages of sandy and clayey soils and containing plenty of organic matter and minerals. Few gardeners are lucky enough to have such soil. However, any type soil can be improved through a program of organic soil conditioning methods.

To maximize soil fertility, large quantities of well-rotted manure, compost, and minerals are required. Sandy soils will benefit from the addition of coarse peat, clay, or even subsoil from excavations. Clayey soils must be thoroughly cultivated, and lime makes clay more workable by encouraging the formation of soil crumbs.

Nearly all soils are deficient in one or more minerals. These can be added in the form of rock phosphate, colloidal phosphate, granite dust, feldspars, ground glacial rock, and greensand. Natural rock fertilizers are slow working and long lasting. They do particularly well on acid soils and are more effective when combined with raw animal and/or green vegetable manures.

A healthy soil depends on adequate quantities of organic matter. While barnyard manure has long been used for this purpose, well-made garden compost is an excellent alternative. Apart from diseased material, all plant residues and kitchen wastes should be composted and returned to the soil. Various methods can be used to make compost, but all require good aeration, free drainage, adequate moisture, and a balance between dry coarse material and soft green plant tissues or animal manure. Dry material should be layered with soft plant material or animal manure and then watered. Bone meal or other natural fertilizers can be added to the heap to supply additional nutrients.

Another good way to increase the organic material in the soil is by green manuring. A quick-growing crop such as mustard, vetch, clover, or lupines is sown early and dug into the ground a few weeks before the orchard is to be planted.

The soil should never be left uncovered, especially on sloping sites, otherwise erosion will occur. You can use ground cover plants or a mulch of organic material such as ground bark, old straw, grass clippings, and/or leaves.

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6. Planting Trees

Trees that come bare root will benefit from being placed in a bucket of water for a couple of hours before planting. For optimum growth, trees should be planted in a large hole filled in with the best soil and rotted compost. Do not put a lot of fertilizer in the planting hole. Spread the roots of the tree out in the bottom of the planting hole in a circle over a mound of earth. Compact the soil firmly but gently around the tree roots taking care that the trunk is not left leaning to one side or the other. The tree should be set at the depth it was growing before, which should be obvious by a dark ring around the trunk above the roots.

In areas with high winds, it is a good idea to stake newly planted trees. This can be very simply done by placing a slated stake against the tree facing the prevailing wind. You can also stake the tree by using a wire line covered with a rubber tube looped around the tree and attached to an upright post. Mulching with heavy rocks is also an effective method to help hold trees in place during high winds.

Fruit and nut trees need a lot of sunlight. They should be planted in an open area cleared of native trees, and they should be spaced far enough apart so they don't shade each other. Also, tall varieties should be planted on the north side of the orchard.

7. Mulching

No matter how you plant your trees, growing them successfully depends on mulch. Six inches of mulch will cover a multitude of planting sins. Even watering every day is not as effective as mulch. Mulching subdues weeds and grass under the tree that would compete for available water and nutrients. It helps the soil to conserve moisture during periods of drought and moderates the temperature of the soil around the tree roots. The mulch also begins immediately and continually to release nutrients to the tree. Mulching can supply most of the nutrition needed by a fruit or nut tree.

The type of mulch you use is mostly a matter of preference and availability. Any organic matter will do. Leaves are usually easy to obtain. Good results have been demonstrated from using old hay and on poor ground, straw mixed with manure is beneficial. Grass clippings are also a favorite of many growers.

Mulch should not be piled up too closely to the tree trunk. It is best to leave a few inches of air space between the mulch and the tree.

8. Orchard Fertility

Nitrogen (N) and Potash (K) are what fruit and nut trees need the most of. Phosphorus (P) needs are smaller but just as necessary. Other important nutrients include calcium and magnesium in addition to manganese, zinc, boron, copper, iron, and others.

Where land has been abused, or is naturally deficient in some trace element, nutritional deficiencies in your trees may occur. These deficiencies often show in the form of fungal diseases, though they can also manifest insect damage, hail damage, etc.

If mulch is not giving your trees enough of the important nutrients, other natural, slow-release fertilizers can provide them. Rock phosphate and bone meal will supply additional phosphorus, if needed. Wood ashes are an excellent source of potash, and they also contain high amounts of calcium. Manure is good for both nitrogen and potash. Bloodmeal, cottonseed meal, and soybean meal are slow releasers of nitrogen. In situations where you need both calcium and magnesium, dolomitic limestone or oyster shells can provide them. Granite dust and greensand are very slow-release forms of potash and are more effective when used with a high content of organic matter. Compost is one of the most desirable organic fertilizers of all. It contains all the important nutrients and trace elements.

The importance of a balanced nutrient supply cannot be overemphasised. The controversial argument of organic growers, that proper organic fertilization gives plants resistance to disease and pests has been given more attention by conventional science in the last few years. There has been a steady increase in announcements by conventional science that a balanced, organic fertility program may indeed keep plants healthier and more resistant to bugs as well as promote more vigorous growth. The conclusions support the observations of organic gardeners for tens of years—organically-grown plants DO resist diseases and insect attacks better.

The English authority, E. R. Janes, in his book, *The Vegetable Garden*, wrote, "All gardeners should become health-minded and not worry too much about disease and pests. If it comes, act promptly and destroy the first specimen. Feed the soil so that plants are in sturdy health, because all the remedies in the world are useless if the underlying cause is repeatedly neglected."

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9. Pest And Disease Control

In a biologically-managed orchard, pest control should be limited to the use of integrated pest management techniques which include biological controls such as parasites, predators, and diseases. When insect damage is severe, organic growers can make use of certain nontoxic sprays such as dormant oil, retenone, pyrythrum, ryania, pepper juice, and others (see previous lesson on organic gardening for more details). All insecticides should be used only in emergencies, and with caution, because of the possibility of upsetting the natural balance.

The main point in biological pest control is the greater the area under biological and integrated pest control, the greater that control can be. When one orchard under biological control methods is surrounded by nearby, sprayed orchards, it has less of a chance of attaining optimum good effects from biological management. The more growers who can be convinced to retreat from total reliance on toxic chemicals, the more effective the overall program will become.

However, at times you may need to intervene when pest damage is overwhelming. Some insects and types of controls are as follows: The Caribbean fruit fly may cause a problem with citrus. A small brown spot will appear on the rind, and you may find small worms inside the fruit. The papaya fruit fly does similar damage. The only control suggested is bagging the fruit. If you want to do this, use brown paper sacks, or cloth—not plastic which will cut off respiration. The fruit will still be able to ripen, since the ripening process proceeds through the leaves, not the fruit.

A program to exterminate Caribbean fruit flies in Florida has reduced damage from this pest. Millions of the flies have been captured and sterilized by irradiation. The sterilized flies are released to mate with wild flies, resulting in sterile eggs.

As mentioned in the previous lesson on organic gardening, "Neutral Copper" may be used in controlling certain plant diseases. If used properly, it will control diseases without poisoning the fruit.

Use neutral copper on fig trees only if rust (a fungus disease) becomes a problem (the leaves look like they are covered with a rusty powder). If there is just a little, simply ignore it.

Neutral copper may also give some control to fire blight on loquat trees if sprayed prior to blossoming, and again when the fruit is about the size of a pea. The symptoms of fire blight are drying up of blossoms, blossom stems, or fruit, when the size of small marbles. Remove and destroy diseased parts, then spray with neutral copper three times at two-week intervals.

If you find splitting bark, or gum running from the trunks of your trees, remove the loose bark, spray with neutral copper twice, seven days apart, then apply pruning paint. When the pruning paint wears off, repeat the process.

Ground-up sulfur rock is an organic fungicide. *Organic Gardening* magazine, August 1980, says it is the best organic fungicide available.

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10. Pruning

Pruning is more of an art than a science. It is an act of cooperation or compromise between what you want the tree to do and what it wants to do. There is no "rule" of pruning other than the overall rule: approach each tree individually, and prune it in a way that enhances the natural form it wants to take. The most artful form of pruning may be none at all. Masanobu Fukuoka, the Japanese farmer who describes in his book, *The One-Straw Revolution*, his own orchard management techniques eschew all pruning in his citrus orchard which grows helter-skelter among other food and forest trees. According to Fukuoka, pruning is only necessary when man starts tampering with the tree.

Trees that are grafted onto other, different rootstocks, especially dwarfing rootstocks, will invariably need pruning. Most growers prune in late winter or early spring before buds begin to swell. Some additional light pruning may be done in summer. Normally, you want to prune when the tree is dormant, toward the end of winter in the North, earlier in the South.

10.1 General Pruning Guidelines

Cut as close as you can so as not to leave a stub, which can die and rot back into the trunk, providing a handy entrance for disease. On larger limbs, use a pruning saw to make flush cuts.

If you cut a branch partway back (called heading back), the buds behind the cut will grow more than they would have otherwise, develop more branchlets and spurs, and therefore thicken the growth. This will also stiffen the branch. Heading back can easily be overdone. If in doubt, don't!

Where two branches of about equal length form a Y, the branch cut back the least will grow the most, thus avoiding a weak Y-crotch.

In heading back a branch, always make a cut just above an outward-pointing bud, preferably on the lower side of the branch. This encourages low-spreading growth.

When heading back a central leader, cut back to bud so that there is no dead stub left when the bud grows out as a new leader.

Don't be in a hurry to cut lower branches from a tree unless you live in an area where snow drifts get heavy enough to weight and break them down. Cutting vigorous lower branches off too soon slows the growth of the tree.

Pruning tends to delay fruiting with the exception of skillful heading back of dwarf trees to induce fruit budding on spurs close to the trunk.

You only begin to understand pruning after you have lived with a few trees from planting to their heavy-fruiting years. In the meantime, the old-timers maxim, "Keep a tree just open enough so a robin can fly through without touching its wings," is about as good advice as any.

11. Thinning Fruit

Hand thinning is done primarily to develop extra large fruits. Apples and peaches will thin themselves to some extent (called Junedrop) and that usually suffices for busy people. If only a few trees are being maintained, supporting overladen limbs with wooden props is an alternative to hand thinning the fruit. The home-grove grower should thin only to assure that his fruit is of good size and quality.

12. A Grove Of Trees To Live In

It is more important now than ever that man begin looking to tree-crop agriculture as a way to sustain both himself and the earth. As more and more people go hungry every year and more and more land is ruined due to poor farming methods and greed, it becomes eminent that changes must be started. Biological orcharding is a step in the right direction towards reforestation of our planet. Instead of a few people establishing groves of trees isolated from the concentrations of chemicals and toxins in our environment, perhaps the future could bring the whole landscape for human habitation into a pleasant grove of trees to live in and from.

13. Questions & Answers

Are dwarf trees really worthwhile?

> Standard trees have some advantages over trees with dwarfing rootstock. In fact, only in apples are the dwarf trees really satisfactory. In peaches, plums, cherries, apricots, etc., many horticulturists believe standard trees are better for home orchards. Rootstocks on standard trees are almost always stronger, more adaptable to a wider range of soils, hardier, and more drought resistant. However, dwarf trees usually bear earlier and require less pruning. Dwarfs are easier to pick and spray, unless the standard tree is kept small in which case the difference is minimal. You can keep a standard tree fairly small with intelligent pruning.

Should the orchard site be tilled before planting?

> Not necessarily. Some orchardists recommend deep tilling, lime, fertilizer, etc., a year ahead of time before planting an orchard and admittedly this is a good practice on certain types of soils. It cannot be practiced on a hillside or where erosion is a problem. Planting in sod can be successful and eminently more natural to the ecosystem. Trees should be mulched to the dripline and they can be fertilized with a light application of manure and minerals.

I am 70 years old. Is it foolish for me to consider starting an orchard at my age?

> No! Some of the best orchardists are elderly folks. They are usually livelier than many

> young people and have a more positive outlook on life. Not only will you be contributing to your own health and welfare but you will be making a serious contribution to society as well.

Do trees need to be arranged in any particular way in order to be pollinated properly?

> No, you do not need to strive for perfect pollination. In an organically-managed orchard, an abundance of bees and other pollinating insects will do a fine job for you as long as the trees are reasonably close to each other.

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Article #1: China Orders Citizens to Plant Trees, Or Else

PEKING—The Chinese government Thursday ordered a gigantic tree-planting program in a major effort to stave off ecological disaster.

Every Chinese citizen is being told he must plant three to five trees annually, or face unspecified punishment. Planters must also tend the saplings to ensure the trees survival.

China's insatiable appetite for wood products contributes to the decline of its forests. But so have misguided farm policies.

Knight Ridder News Service

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Article #2: Tree Culture—The Ecological Way to Restore the Earth

America is, quite literally, floating out to sea! In many states, two-thirds of the topsoil has been destroyed through overcropping and erosion. Iowa, the foremost corn-growing state, exemplifies this national disaster. Areas of Oklahoma, Arkansas; Missouri, and other states are entirely bereft of topsoil—it's all gone! Only red clay remains. It is estimated that over 50,000 acres daily of American land is taken out of food production due to housing, mining, and soil exhaustion.

American farmers are exhausting our lands by plowing and subsequent loss of tons of topsoil from every cultivated acre each year. Much land is being exploited by crops (such as wheat, corn, and hay, which are exported or go to animals that are exported from the growing area) that remove much-needed minerals. This practice is fast depleting our greatest wealth—our topsoil. California lands are being lost so fast that many predict it will be a food importing rather than exporting state by 1990 to 2000. Its loss of land is frightful.

Tree culture, on the other hand, restores and builds up the soil. Most of the world's soil wealth was built on forest floors. About one inch of topsoil is added to a forest floor every 400 years. What nature built in 400 years, America's exploitative agriculture destroys in a single year!

Rebuilding America's soils is a number one priority. It is a herculean task, but it can be done. Restoration and maintenance can be accomplished scientifically by adding minerals as needed to give soil balance and then tree culture to maintain and enhance fertility.

Trees can build soil fertility while at the same time yielding tremendous quantities of fruit! A meat and grain agriculture destroys our topsoil wholesale. Its product is food that is pathogenic in the human dietary, while our frugivorous physiological disposition is excellently served by fruit. The former generates human fodder for our $300 billion annual disease industry, while the latter—fruits —form the dietary basis for healthful, sickness-free living! When fruits are removed from the growing area, about 1% of the fruit represents minerals that must be replaced. Hence the export from an acre of soil of 10 tons of persimmons annually means about 200 pounds of minerals across the spectrum must be replaced. Ten tons of fruit will command a gross of about $8-10,000, and the cost of organically replacing 200 pounds of minerals, including trace elements is a mere $25-40.

The product yielded by fruit is astronomical compared with the grain and meat economy. It takes about four acres to produce a single beef animal over a period of two years. The "food" resulting therefrom on an annual basis per acre is about 75-100 pounds. This compares with 20,000 pounds or more of fruit. One destroys the soil, while the other builds it. One furnishes pathogenic fare, while the other is most healthful. One represents a suicidal course, while the other is the basis for the good life.

You can be instrumental in helping put America on the right ecological/humane track. The investment is small. You realize colossal increments, and the result is bountiful for America's health, too!

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Article #3: Your Garden Needs Insects by Carl C. Webb

The only controlled insect pollinator is the honey bee which is considered to be worth nine times as much for its crop pollination as for the honey and wax it produces.

This is no mean figure when it is not uncommon for a single hive of bees to produce 40 or more pounds of honey in one season.

Many other garden insects are of great benefit because both the quality and yield of many garden and field plants are influenced or dependent on insects for pollination.

My garden produce is grown without the use of any insecticides because I understand that 90% of insects are beneficial while only 10% can cause crop damage. If I spray to kill harmful insects, I am certain to kill the good ones along with them and soon I would have completely upset nature's delicate balance.

The lady beetle is well-known among gardeners and is a useful insect because of its intense hunger for other insect eggs and their young.

This insect is grown commercially in California and perhaps in other states, and is used on a wide scale by the grapefruit growers of Texas to control aphids on the trees.

Lady beetles vary in size and color.

Another effective predator upon other insects is the lace-wing, whose appetite for eggs and young of other insects makes it very beneficial. It is an attractive insect, light green in color, with a delicate lace design of the wing, which is the basis for its name. Protect these insects.

The young of the lacewing are so eager to feed on insects and eggs that the mother lays her eggs on a hairlike structure to elevate them so the first ones to hatch will not devour their unhatched brothers and sisters.

The praying mantis and the walking stick are two other helpful insects that deserve protection.

A number of tiny wasps are parasitic on harmful insects. In the North they work on infestations of alfalfa weevil, cereal leaf beetle, and the army worm. One of this type of parasitic insects works on the tomato hookworm. If a large tomato hookworm larva is seen to have a number of white egglike cocoons, do not molest it. Just let it remain so the new parasites can emerge and do good.

Do you see why it is important to be an informed organic gardener?

Home > Lesson 50 - The Pluses In Orcharding: How To Get Started > Article #4: Texas Could Feed Nearly Half the World by T.C. Fry

Article #4: Texas Could Feed Nearly Half the World by T.C. Fry

Recently we published the statement that Texas could feed the United States with its vast agricultural capacity and that the United States could feed the whole world. This presumed, of course, that the world would be eating its natural biological diet.

That statement drew some exceptions from people who told us we were out of our minds and were publishing outright lies, exaggerations, and distortions.

Today I received the first issue of a new magazine, *Science 80*. And what did I find? More than two pages devoted to a new gardening/farming technology that promises better than the statement we previously published.

In Palo Alto, California, Mr. John Jeavons has been experimenting with organic intensive farming. He has found that only 2,800 square feet of land will produce in one four-month growing season enough food to sustain the average person for a full year. But if the growing season is twice that as it is in Texas, half that amount of space will do. (The Texas growing season varies from six months in the panhandle to all year in the Rio Grande Valley. Most of Texas has eight to nine months.)

Our world's population is about four billion. At 1,400 square feet of land per person, 30 persons could be fed per acre. Texas' 60 million arable acres, then, if devoted to organic intensive food growing through tree and plant cultivation could feed nearly half the world! No wonder one billion Chinese are so well fed!

This article is not written to praise the merits of Texas but to point out that the world could be well-fed with its present resources and to highlight a new method of agriculture that is staggering to the imagination.

Mr. Jeavons started building up some unpromisingly barren California soil by employing the biodynamic French intensive method, a method that has long been practiced in France and much of Asia, including China. This method requires few tools and little labor relative to the yield. "The most complicated machine required is a wheelbarrow."

One of the key features of the biodynamic/French intensive method is the elimination of row culture, as rows waste much growing space. Space devoted to actual growing can be doubled, tripled and even quadrupled. Further, by composting with organic materials, remineralizing with ground rocks and restoring the ecobalance by using insects, worms, and microorganisms instead of chemical fertilizers and pesticides, Mr. Jeavons again doubled, tripled and quadrupled the yields. For instance, his plot yields 16 times more zucchini squash than conventional methods! This greatly multiplied yield offsets conventional labor savings. Mr. Jeavons estimates that people who want to grow produce for a livelihood can work 40 hours per week for about eight months of the year and earn about $10,000 to $20,000! And, get this—on an acre or less of ground! But the biggest plus is ecological! Instead of, producing poisoned produce and land, we can grow more wholesome food on rich and highly-productive soil.

Perhaps you read of the Minnesotan who farmed over 1,300 acres of land conventionally and ended up with earnings of almost $50,000 in a good year. He sold all but 50 acres of his land. This 50 acres he turned into an organic farming operation on which he consistently earned more money by organic methods than he had at anytime earned on his tremendous 1,300-acre farm. Further, he worked less for his increased earnings.

If the farmers of this country get off the chemical bandwagon and start working for themselves and their consumer clients instead of for the giant chemical companies that have made them their serfs, the health revolution will begin. (Mishandled soil is the first link in the long chain of practices that lead to disease, including degenerative disease.)

The biodynamic/French intensive method requires so much less water that land not presently arable may become usable. Mr. Jeavons uses one-eighth the water conventional farmers use even though he waters his plants lightly every day. Even though they employ sprays, conventional farmers lose 25 to 30% of their product. Mr. Jeavons loses only about 10% of his produce to pests because he has established ecological balance—pests have natural enemies. Where he does not have natural balance such as with snails and gophers, he employs manual gathering of the slugs and traps for the gophers.

Mr. Jeavons has contrasted the amount of land required for various types of agriculture based on different consumer diets. The biggest contrast is that one meat eater requires about 22,000 square feet of land for his diet intake whereas a fruitarian/vegetarian requires only 1,400 square feet, only one fifteenth as much land.

The average person can, by the methods Mr. Jeavons employs grow his total food needs (a 2,400-calorie diet) on just 28 minutes of labor a day.

To say that this *Science 80* article is a revelation is to put it mildly. Its portents are, I repeat, revolutionary for the health and well-being of everyone in the world!

If you'd like to learn more about biodynamic/French intensive organic farming, buy John Jeavons' book, *How to Grow More Vegetables*. You can also find helpful guidance if you subscribe to *Organic Gardening*, a wonderful monthly magazine published by Rodale Press.

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Article #5: Fertilization of the Soil by Dr. Herbert M. Shelton

In 1950, I visited the Savage experimental Gardens in Nicholasville, Kentucky. It was late in the fall and the region had seen two heavy frosts. All the gardens in the area were destroyed—all, that is, except the Savage gardens. From these gardens an abundance of fine, tasty vegetables was still being taken and served. The Roy Health Home was serving these vegetables to its patients, and I enjoyed a few meals of fine vegetables fresh from the garden while there.

Why had the frost not damaged the gardens of Arthur Carter Savage, when it had destroyed all the other gardens for miles around? Mr. Savage explained that when he gets an abundance of minerals into the sap of vegetables and trees, they have high resistance to cold. He gave it as his opinion that, if he had the funds with which to carry on the experiment, he could grow oranges as far north as Michigan. Assuming that he could grow the trees that far north, it is not probable that they would ever produce a crop of oranges as the season is too short. But the mere fact that the remineralization of the soil produces such remarkable resistance to cold as to lead one to think that orange trees could be grown that far north is a thing worthy of our closest attention and study.

Minerals constitute plant food. To state this differently, plants live on minerals. True they need carbon, which they extract from the air, converting this, by means of photosynthesis (with the aid of sunlight), into carbohydrates—sugars, starches, cellulose and pentosans. It is interesting to know that cotton fibers (cellulose) is made from sugar which, in turn, is made from a gas that floats in the air. The sugar of the sap of the maple tree or of sugar cane, and that from the date and banana, is made from the same carbon taken from the air by the green leaves of the plant, as is the fiber of the cotton plant. The plant is nature's great food factory.

Plants also require nitrogen and this is taken both from the air, where there is an abundance of it, and from the soil, where there exists another great storehouse. In the process of extracting nitrogen from the soil, the plant has the assistance of certain soil bacteria, with which it exists in a relation of perfect symbiosis, the plant supplying the bacteria with food substances in return for their assistance. Nitrogen in the soil is, in large measure, derived from the decomposition of organic materials. This decay is a bacterial process.

When plants decay, they return not only nitrogen to the soil, but minerals as well. It is thus, that when a forest has stood for ages on a tract of land, and returned to the soil the materials in its leaves and cast-off limbs, and the logs of dead trees, the fertility of the soil is built up, for trees strike their roots deep into the earth and bring up minerals from great depths. Such soil, when the forest is removed, is called virgin soil and is rich in minerals. Crops grown on this soil yield abundantly for the first two to four seasons, then the yield begins to fall off, due to depletion of the soil of minerals, and perhaps, also to some extent of nitrogen.

Ages ago man learned that by fertilizing his soil with animal manures and decaying vegetables (compost) he could restore a measure of fertility to his soils and thus maintain their fertility for a considerable also discovered that he could not maintain a high degree of fertility in this manner indefinitely, for, in spite of the return of organic material to the soil, these did not return to the soil all that had been taken out, so that there was a gradual deterioration of the soil. He referred to the soil as "worn out". Compost fertilization has been dignified in recent years by being called "organic fertilization." It should be known, however, that among plants, only parasitic and saprophytic plants live upon organic matter. Other plants require that their food be reduced to soil before they do well upon it.

That compost makes poor plant food is demonstrated by the rank growth of plants on old, rotted-down haystacks and on cow lots, the vegetation of which animals refuse to eat. Fruiting plants grown on such compost heaps either do not produce fruit or the fruit fails to ripen. Oversized plants (plants afflicted with gigantism) are of poor structure and are deficient in food value. Trees, sugar beets, and other plants grown in overnitrogenized soils, that is, soil overdosed with manures and sewage, develop cancer. Tomatoes rot on the vine. Wheat turns yellow and dies after reaching four to six inches in height. Overcomposting with leaf mold and wood mold in the flower garden destroys the plants and flowers. All of these facts indicate that mineral rather than organic materials are the best foods for all normal plants.

The experiments of Hensel in Germany, Samson Morgan in England, and Lindlahr, Carque, and Savage in this country all indicate that remineralization of the soil is a superior means of soil fertilization. Does this mean, then, that the use of compost should be abandoned? It does not. It does mean, however, that we should conform more closely to the natural method in returning compost to the soil. Old Mother Nature deposits her compost on the soil in thin sheets and permits it to decompose upon, not within, the soil. The elements of the compost filter down into the soil with the water, when it rains, after they have been fully decomposed. This means simply that composting in nature is a slow and gradual process and that the minerals of the compost are returned to the soil in a completely decomposed form. Composting that consists in adding partially decomposed compost to the soil and then turning it under, permitting the decomposition to take place in the soil, produces rank growth, poor food, sour soils, and the foods thus produced smell of decay. When the Grahamites founded the world's first health store in Boston in 1836, they sold fresh fruits and vegetables to those who desired to eat healthfully. They followed the rule laid down by both Graham and Alcott, that all such foods, to be acceptable by the store for sale to their patrons, must either be grown on virgin soil, of which there still remained an abundance at that time, or the compost must have been thoroughly decomposed before adding it to the soil.

In writing on the subject of "organic fertilization" during recent years, I have pointed out that our organic materials partake of the deficiencies of the soils upon which they are grown; hence, returning these to the soil does not adequately fertilize our already markedly depleted soils. If we take materials from one tract of land and add them to another tract, we merely rob one tract of land of valuable substance in order to build up another. This process of "robbing Peter to pay Paul" cannot be kept up indefinitely without depleting both tracts. Also, as we never return to the soil all that we take from it, organic fertilization alone can never do more than slow down the rate of soil depletion. It can make our soils last longer, but it can never build them back to their pristine fertility. This statement is intended to mean that they cannot do this universally. It is obvious that if we draw organic materials from a wide area and add them to the soil of a small tract, they can rebuild the soil of this small tract to a high fertility, but we lack sufficient surplus soils from which to continue to draw in order to maintain the fertility of the smaller tract.

Remineralization comes to our rescue at this point. Soil is disintegrated rock. In the rocks of earth, and we have a superabundance of these in our hills and mountains, exist sufficient rock, if pulverized and added to the soil, to maintain the fertility of our soil for untold ages. This was the program employed by Hensel, Morgan, Lindlahr, and Carque. This is the program now employed by Savage. These rocks are often abundantly supplied with the trace elements that are so often lacking in our soils, hence lacking in the compost derived from these soils.

When I asked Savage if he used organic fertilizers on his garden soils he replied that he used a very small amount. Then I asked him what he did about earthworms. I have never seen any real reason why we had to go into the business of raising earthworms and shipping them over the country to be added to soils. The soils that I knew were always, except in droughts, abundantly supplied with earthworms. Savage replied that he found no need to import earthworms; that when he got enough minerals into the soil, he always had an abundance of earthworms.

It is minerals and not earthworms that we remove from the soils in harvesting our crops. The few earthworms that are taken from the soil to serve as fish bait make little detectable difference in the earthworm population of an area. A fertile soil supplies an ideal condition in which these worms live and multiply. Doubtless, the added minerals in the organic material that they help to work over and return to soil enable the worms to thrive and grow as they do the higher forms of life.

Hardier, healthier plants, more abundant yields, stronger bones and harder, stronger teeth of the animals grown on remineralized soils all indicate the superiority of this form of fertilization. Powdered rock, however, is not good plant food. It must be prepared for the use of the higher plants by bacteria and pioneer plants, and this takes two to three years. The presence of organic material seems to facilitate this work of preparation; hence the need for a small amount of organic fertilizer in addition to minerals. This avoids the common overcomposting that is practiced. We are so bent on production, production, and more production (for it is out of production that we derive our profits) that we overcompost to force production, just as we overfeed our hens on rich fare to force egg production, without any thought of the deterioration of the food value of our product as a result. We are as reckless in our handling of plant nutrition as we are in handling our own nutrition.

I do not say that organic fertilization should be abandoned, or that it is always an evil; I say that, alone, it is inadequate; that it is being overdone and that compost is being added to soil prematurely. I have repeatedly urged that we make a more thorough study of plant nutrition and the valid needs of plants, to the end that we may raise better food crops. This does not seem to me to be an unreasonable demand.

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Article #6: The Green Revolution

The time is rapidly approaching when, if one does not have a plot of ground on which to raise one's own food, one will be unable to get anything that is suitable for eating. That time has just about arrived. Foods are grown on soils that are improperly fertilized; they are sprayed with poisonous insecticides; they are pulled too green and shipped long distances to market; they are held for some time before they are eaten. They are processed, conditioned, colored, flavored, preserved, cooked, canned, and in many ways rendered less and less suitable for human consumption. Fruits are becoming so poor that one hardly knows the taste of good fruit any more.

We have had a revolution. Farms have been industrialized. They have grown so large and are attended by machinery of such cost that the small farmer is out in the cold. In simple English, the industrial revolution has struck the farm with a vengeance. Conditions are growing worse and bid fair to get much worse before any serious attention to the problems this presents will be given to the matter of correction by the powers that be. Something is needed by the health seeker in the meantime to make it possible to live a healthful life.

A partial answer is the proposed "green revolution" suggested and pushed by the forces of decentralization headed by Ralph Borsodi and Mildred Loomis. The green revolution is being pushed through a recently founded publication entitled *The Green Revolution*. It is a move to lure the suckers of *suburbia* away from their rat holes in the cities and back to old mother earth, to the end that they may have a hand in the production of their own food.

The Green Revolution calls to people to get away from the murky atmosphere of the fume-laden cities and out into the wide open spaces and to get their hands dirty in the rich, humus-fertilized soil of their own garden and orchard. Out where the air is pure, the sun shines and the countryside is green. It may be a resurgence of the "back to the land" movement that was started in the early days of this century. As such, it is for the intelligent few and not for the herd thinkers, who are content to rot in *suburbia*. Give them a television set, a cigarette, a glass of beer, and a hot dog and they are happy and maudlin, while looking forward to that bright day, when, at the age of sixty-five (which few of them will ever reach), the state will take over and grudgingly dole out, from the social security funds that are wasted in a thousand other ways, to them a bare subsistence so that they can retire.

For the intelligent, for the aspiring, for the man and woman of grander view, the green revolution offers a way of escape from the hum-drum existence of city life; it offers a healthier way of living and a higher enjoyment of life. How should a human being live? Certainly not the cramped and confined life of boredom, *stimulation*, and *tranquilization* of the cities, where his greatest thrills come from turning on the television set and watching two slaves pound each other's feeble brains out in the prize ring. Out under the stars, out. where the sun shines, out where the flowers bloom, the trees grow and the grass is green is the place for man.

The Green Revolution is not vegetarian, but it will provide the vegetarian and the fruitarian with an opportunity to live his life in a better way than he now lives it. It does not condemn cruelty to animals, and one of its pioneers has opened a rodeo pen at the gate of his ranch. Rodeos are hotbeds of cruelty. They belong to a bygone period of our country and represent an anachronism, but suburbia's mobs are thrilled by their sights.

Today's farm machinery and big farms are driving people from the land and into the cities where they work in the factories. Automation is rapidly robbing them of jobs in the factories. A new feudalism is in the making. Can we reverse this trend by getting back to the land and staging a green revolution? Perhaps not. Man rarely turns back until he has followed each trend to its bitterest end. But for the intelligent members of our population a little land with garden, orchard, and flowers will enable them to live in spite of the mounting evils that we call civilization.

Nostalgia? Perhaps. But not one that it is impossible to do something about. A big tract of land and a warehouse full of machinery are not essential to the life of the green revolution. A few fertile acres, a few simple and inexpensive tools, a little time each day devoted to the tasks of gardening and orcharding and life takes on new meaning while the body is better nourished. What a difference there is between the screech of brakes, the honking of horns, and the sound of sirens in the city and the song of birds in the country! What a difference there is between the life of the cave dwellers of the big cities and the dwellers in a homestead in the great outdoors! It is the difference between being in paradise and in the abodes of the damned.

The Hygienist can take an active part in the green revolution and do so in strictest harmony with the eternal principles of Hygiene. The green revolution should cover the earth as waters cover the seas, but I suggest for the Hygienist a warm climate where fresh food can be had through the whole year. South Texas, Florida, southern California, Arizona, New Mexico, along the southern regions of the Gulf states —these regions offer nearly ideal locations for the Hygienist. It was in the South that Dr. Trall expected Hygiene to flourish in its greatest perfection. He even toured the South in search of a location to establish a Hygienic colony. The Civil (?) War brought that green dream to an unsuccessful end.

Article #7: A Case for Tree Crop Agriculture by Mark Chass and Don Weaver

We are trying to alert people to act on nature's imperative while there is still time and resources. The earth's soils must be completely remineralized and our mode of producing food entirely revamped. Otherwise we'll destroy our beautiful earth and what terrestrial life remains, including ourselves.

Humans must either work towards purifying and replenishing our earth and themselves or expect a tremendous crisis in our ecosystem due to interolerable toxemia and malnutrition. Whether glaciation, ozone depletion, oceanic death that leads to oxygen depletion, massive earth upheavals and quakes, magnetic field reversals, excessive carbon dioxide or other calamitous events occur; whether any or all of these come to pass, our path is presently fraught with doom and will steadily worsen so long as we continue to be led by and grovel at the feet of exploitative minds.

This being the core of our convictions, we hope you can see the importance of reaching and bringing together people who are interested in rebuilding our ecosystem, and in conserving rather than exploiting our resources. The quality of human life is foremost in our minds and we don't wish to see our brethren in life's journey plunged deeper into the disastrous course that prevails. We abhor the unchecked tide of earth destruction that is leading to catastrophic world upheavals: unbearable weather, glaciation, mass starvation, and other evils with which we are running a collision course.

The unimaginably great capacity of this earth for being a paradise beyond our wildest dreams and our inherent potential for beauty, goodness, and exalting joys makes our quest all the more urgent.

This is why we seek your cooperation, why we ask your attention and care to this message, and why we ask you to extend your area of awareness and coverage to all facets of human existence. Our total well-being depends on the well-being of our entire ecosystem on which we depend.

The one most powerful, widespread and growing destroyer of our environment is agriculture. In all its ramifications, today and throughout history, it has changed untold millions of square miles of virgin land into neat square fields of overcultured and overdomesticated plants and animals. Its requirement of raw materials is so huge that when all is added up, we humans are net losers. Not only do we suffer nutritionally, but the earth suffers even greater and the situation is like a time bomb set to destroy us. Until we realize that our thinking is creating and perpetuating this artificial environment and consequent destruction, we will severely limit our potential and destroy much of the planet we live on. We are doing nothing significantly different or better than our ancestors and, in many ways, we are doing much worse. A vision entirely new and fresh must be brought into our daily lives.

This article will bring to light and confront directly the root causes of humanity's critical and unprecedentedly urgent global crisis in virtually all realms of existence. Most specifically it will question our approach to the problem of securing nourishment from the soil by agriculture. The authors have learned that it is too late for any more fragmented or half-hearted solutions to the rapidly accelerating environmental crisis. This article will outline a sane and beneficial course for meeting our most pressing problems of living here and now and in the unlimited future. Fundamentally, this is a call for a worldwide movement towards a biologically-oriented culture and a nonirrigated and noncultivated tree crop agriculture. This is the only long-term approach nature can afford and accept of humanity. The survival of all life as we know it is at stake. One can sense that the land has changed from its original design and unhampered course. Where are the great valley oaks of magnificence that once provided shade and food for humans and animals? Where are the riparian zones that used to extend for great distances from free-flowing rivers, even in rather arid central valleys? Why is the water table dropping, forcing ever deeper wells and more dams? Why are fruits and vegetables becoming more and more unnutritious and tasteless at the same time disease is becoming more rampant? Why is the weather so unusual and causing unseasonal floods, frosts, and decreased yields even though the USDA still claims that harvests have never been better? Possibly the most obvious change is the declining quality of our air and water, even in remote areas. Even the rain is becoming toxic as it washes poisons from the skies.

To understand this situation a little more clearly, the authors did extensive research and found quite a bit of evidence that documents the change in our earth's fragile skin over the last 6,000 years of recorded history, a very short time in the course of our existence. In his classic book "Man and Nature" written over a hundred years ago, George Perkins Marsh states, "There is good reason to believe that the surface of the inhabitable earth, in all climates and regions which have been the abodes of dense and civilized populations, was, with few exceptions, already covered with lush forest growth when it first became the home of man." In fact, one can go to areas of past civilizations and realize that, because of misuse and incorrect vision of nature, the forests were destroyed. Marsh adds: "Ancient historical records . . . prove that large provinces, where the earth has long been wholly bare of trees, were once clothed with vast and almost unbroken woods when first made known to Greek and Roman civilizations." In *Losing Ground* by Erik Eckholm and the Worldwatch Institute, the author states, "The bare hills that characterize the Mediterranean today provide little hint of the extensive woodlands that once existed. By the end of the Classical Age, deforestation in the lowlands around the Mediterranean was acute. The clearance of farmlands, grazing herds, and wood gathering for fuel and construction all contributed to this condition. The region's dry climate and nimble goats discouraged natural forest regeneration, even in centuries when the pressures of civilization slackened." It was common for builders of that area to cut down as many as 2,000 mature oak trees to build a single sailing ship.

Eckholm also presents us with a most interesting picture of the extent of natural forestation in recent history. For example, the area now known as the United States was, at the time of European colonization, approximately one-third forest. Mexico, now largely arid and desert-like, had an extensive tree mantle on over half of its surface prior to European influence.

Another method of land alteration is fire. Fire became an important tool for the developing agriculture and domestication of grazing animals. Brush, young trees, and mulch material are all destroyed by fire. Overgrazing prevents their return and accommodates erosion. Complete generations of successional plants are eliminated. When the older trees eventually die there are no replacements and an evergrowing wasteland takes over. This can be seen in many areas of California where the land is used for grazing. Further complications arise when the unprotected soil begins to be washed away adding to the silt burden of our streams and rivers which disrupts and destroys river and ocean environments. The Eel River in Northern California carries more silt from eroded hillsides than the Mississippi River which drains a manifold larger area.

The advent of agriculture and the domestication of grazing animals, most notably goats, Sheep, and cattle, was, and still is, a major cause of deforestation. One can see that if land once under cultivation and grazing is left alone, a spontaneous nature will soon cover it with herbacious plants and eventually a dense forest. Marsh even believed that forests would soon cover many arid areas of Arabia and Africa "if man and domesticated animals, especially goats and camels, were banished from them. Young trees sprout plentifully around springs and along the winter water courses of the desert. A few years of undisturbed vegetation would soon suffice to cover such points with groves, and these would gradually extend themselves over soils where now scarcely any green thing is seen."

For centuries man has based his agriculture on clearing, plowing, cultivation and irrigation of annual crops. Only in a few rare instances are there people who have, because of necessity or enlightened vision, based their sustenance on perennial tree crops. J. Russel Smith in his book "Tree Crops" describes cultures who eat most of their food from tree produce and who allow their animals to self-feed themselves on the fruit and nut drop of the trees. Plowing and cultivation have taken their toll on Earth's fertility. The soil is bared of its covering of leaves, broken and loosened by the mechanical action of implements, deprived of its Fibrous root hairs which hold it together, dried and pulverized by sun and wind and at last exhausted of its vitality. The face of Earth is no longer a sponge but more often a growing dust bowl.

The practice of irrigation has also become a major factor in today's crisis. Pumping deep wells lowers the water table for indigenous species of plants. The volume of water is tremendous. In California and Arizona 85% of all diverted water can be attributed to irrigation and this irrigation is both wasteful and even unnecessary. Rivers are diverted, dams are built, and the fresh water cycle drastically altered. The great rivers of the world have been reduced to a predictable flow, at least temporarily. Since the irrigated fields are so saturated with water-soluble chemicals from fertilizers, pesticides and herbicides, the water runoff has become laden with toxic compounds deadly to all life. This water must be treated before it can become of acceptable quality for further irrigation or usage. This is now occurring to the Colorado River where it enters Mexico loaded with chemicals from U. S. farms. In Nebraska ground water is so loaded with chemical nitrates from nitrogen fertilizers that it is infesting potable water supplies of the area. Physicians are now diagnosing nitrate poisoning in children of the area.

Historically nothing was much different. The Sumerians in the fertile Tigris-Euphrates valley in 4,000 B.C. had a complex irrigation system. However, the water left so much dissolved salt in the soil that it ruined the soil permanently. We witness an ominous recurrence in the California desert. Areas all through the U.S.A. are losing valuable cropland due to irrigation. Irrigation experts say all that is needed is a very costly underground drainage system which would drain the salts from the uppermost levels of the soil; but this is not the answer, obviously. All irrigation water contributes to an unbalance of the soil that might well be called "mineral-poisoning." Salt may be characterized as a "junk mineral" that destroys. This has its consequences too. We really do not realize how we are disrupting the natural order just from the way we grow our food which, in itself, is an apparent innocent and innocuous endeavor.

In some cases stream flow becomes so low from diversion that water temperature rises past the point at which fish can spawn. Many of the dams built in recent years to supposedly help conditions are silting up quicker than expected from up river erosion. This not only shortens their effective time of usage, but also has disastrous effects on fish and other life in the water as well as irrigated land downstream.

Farmlands are covered by the rising waters behind the dam. Farmlands below the dam are deprived of the supplies of fertilizing silt which would normally be deposited by the river but still receive certain of the deadly soluble salts. An example of this is the Aswan dam which backs up the waters of the Nile River. The Nile's silt had kept the soil along its's banks fertile for ages.

When water is backed up behind dams everything changes. The water's chemistry, kinds and numbers of indigenous flora and fauna, the salinity, the water's pressure on surrounding hills and on earth faults are all altered. Incredibly, a world-wide recognition of the immense problems entailed has not yet occurred. More and more dams are being built to supply the world's suffering agricultural systems with water.

All of these situations culminate in the fact that the amount of oxygen producing biomass on the earth and in the oceans is decreasing. In many areas the vegetation remaining is so mineral deficient, with a resultant decrease in water storage capacity in the plant's tissues, "that it is on the verge of bursting into flames." The minerals tied up in our forest trees and grounds have been exported from the forest for so long by logging practices that widespread forest destruction by fire becomes ever more ominous.

Mineral depletion is also causing our agricultural soils to dry out, ready to be blown away in another dust bowl. When crops are harvested and shipped off to supermarkets, the soil loses its ability to replenish itself. The plants would usually return to the soil, decompose and nourish the next cycle of growth. Since none of our excrement returns to the soil either, the soil loses again. The only thing receiving minerals is the ocean where everything seems to be ending up, not only to the detriment of the land but the ocean itself.

The latest insanity of soil depletion concerns the burning of biomass to generate electricity. This practice not only pollutes our atmosphere but it burns vegetation, crop residues and forest slash. It thereby removes vital carbon and minerals necessary to the soil life cycle. Without these vital humus-to-be components, soil microorganisms cannot exist. Without these necessary organisms upon which new plant life becomes stunted due to malnourishment. It becomes susceptible to insects and diseases. Animals and people cannot thrive on these plants—they likewise become stunted, malnourished and diseased. Modern farmers respond to this situation with massive chemicalization to stimulate plant growth and insecticides to destroy the pests that thrive on such plant life.

Furthermore, since photosynthesizing plants are our source of oxygen, we are really disturbing the whole oxygen-carbon dioxide balance of our biosphere with our unwise activity. Along with the increased burning of fossil and organic fuels, carbon dioxide levels are expected to double in the next forty years—nothing less than a disastrous situation! To relate this to agriculture, overoxidation of humus by tillage exposure also increases carbon dioxide in our atmosphere. Tillage exposure permits the oxidation that releases carbon to the air and, simultaneously, decreases the carbon storage the humus provides in the soil mantle. The harvests of the forests, which conduct more photosynthesis worldwide than any other form of vegetation, the extension of agriculture onto soils high in organic matter and the destruction of wetlands all speed the decay of our precious humus heritage. The worst aspect of this trend is the destruction of the tropical rainforests. Most of these will be gone in 20 years if the present trend continues. In Brazil alone in 1975, 62,000 square miles of forest were cleared. For what? Primarily for cattle grazing for beef ' production. Satellite mapping indicates this is happening throughout the world's tropical zones. All over the world, in fact, forests have been removed and replaced with grasslands for domesticated animals and animal food crops. As amply attested to, these lands are due to become deserts without their protective forest covers.

Forests account for 90% of the carbon held in vegetation and contribute more than 60% of the net primary production of biomass. In contrast, all cultivated land on Earth accounts for only 8% of net primary production and stores only 1% of the carbon. This represents a tremendous loss from forest to cultivation and is adding to our atmosphere's carbon dioxide imbalance at breakneck speed. These observations have come as quite a surprise to many agriculturists and foresters since they assumed that modern agricultural and forestry practices were establishing a good carbon balance. Secondary and managed forests compared to untouched climax forests still represent a loss in carbon balance such that increased carbon dioxide is still being released to our atmosphere. German foresters have shown that yields decrease with succeeding timber harvests because more and more minerals and carbon are removed with each cycle without replenishment.

So now we have an increase in atmospheric carbon dioxide, a decrease in terrestrial and oceanic biomass, and an acute mineral shortage in plants and people. All of these play an important role in Earth's weather machine and the changes, often disastrous, that we now witness. Excess carbon in the air as a result of mineral depletion causes a cooling in Earth's mean temperature. Earth has slowly been cooling since 1950. Observation of glaciers reveals that they are now extending their mass after thousands of years of retreat due to a warm and stable climate. Glaciation is Nature's response to conditions such as are being created by our unwise exploitation of the earth's resources. Increase in the ice pack forces the earth's tectonic system to release the pressure from added land mass through earthquakes and volcanic activity, both of which are noticeably increasing of late. The glaciers give soils mineral replenishment and help restore long-term balance by grinding the rocks they dislodge and push along. The new minerals begin to accumulate, plant growth and vitality return, remove excess carbon dioxide from the atmosphere and thus bring warmer, more stage temperatures. With this the glaciers retreat and volcanic activity subsides. South Pole drilling exploration confirms this since dust layers were found intimately associated with past glacial periods. During the onset of glaciation, however, (and we are now in the beginning stages of a new ice age), the weather will, become more turbulent and erratic with an increasing subsequent loss in food production and starvation for many people. The wearing out of the soil initiated this process. We are now losing three billion tons of soil per year from U.S. croplands alone! Only 8% of the world's soil can still be cropped by current methods. This situation worsens with each passing year. An accelerating downward spiral has been initiated. The practice of exporting huge quantities of food amounts to a soil loss just as much as if it were washed out to sea.

Obviously, we must stop the burning of fossil fuels and crop residues. We must also reduce our consumption of wood which includes paper products, lumber and firewood. Many Third World countries have an acute firewood shortage and are resorting to burning dung for fuel. Their soil will become even less productive without dung as fertilizer. Most importantly, we must change over to an agriculture based on nonirrigated and noncultivated tree crops. We must again subsist on our natural diet of unfired foods. This system utilizes the same approach nature observes in the growth and maintenance of all living creatures. Under the natural order, forests grow to tremendous proportions and vitality. In contrast to the natural order, humans are the only ones that use fire to alter foods before ingestion. Nature had going a beautiful system of recycling and conserving carbon and minerals as a basic and for the welfare of her creatures as an adjunct.

Plentiful microorganisms in the soil can supply up to 97% of the tree's needs through symbiotic atmospheric assimilation. The remaining 3% of the trees' needs are met by the minerals in the soil. Trees produce abundant crops. Each year millions of bushels of fruit and nuts drop to the ground. With more nursery and selection work many of our native trees could be supplying us with luscious fruit and nuts of extraordinary high quality. This would also help save trees from needless destruction by farmers who, because of a meat-demanding populace, cater to it by growing grain and animals. Midwest farmers are now cutting down tree windbreaks to make room for new irrigation systems and massive machinery that require big stretches of even and unbroken ground.

So our first task on our depleted lands is to remineralize their soils as quickly as possible. Deep rooted weeds do part of the job, but time is critical now. Glacial gravel, granite, prophyry and gneiss, all rich storehouses of minerals, should all be ground into fine particles and added to the soil in amounts of up to ten tons per acre. Especially should applications be heavy on land where overgrazing and logging have taken place in order to provide the basis for rapid development of microorganisms. Soil carbon must also be preserved. Dr. Julius Hensel did extensive research in Germany in the late 1800s on stone dust fertilizers and found the plants to be remarkably free of disease and the produce of very high quality. We must, therefore, resupply our soils with the complete spectrum of elements in their balance as found in the mixed rocks of Earth. Hensel used no animal manures in his experiments, thus fixing minerals as the primary deficiency of our soils.

Tree crops supply us with highly-nutritious, complete, and balanced foods. Under nonirrigated and noncultivated practices, nutrients are either available or unavailable and in high concentrations or scarce in respect to the heat and rainfall, of a, given area. These concentrations fulfill the biological requirements for the animals and people living in that area.

Calcium, for example, is more prevalent in tropical fruit than in temperate fruit. Calcium helps the body to stay calm and cool, a much needed factor in warm climates. Phosphate is more prevalent as the weather cools and helps the body to stay warm. These and other elemental concentrations help the body to thrive in the same environment that grew the plants. This seems to imply that food from a particular climate and soil is not suited for people of other climates and soils. While not necessarily so, importation and exportation of foodstuffs and fertilizers would largely cease with optimal recycling programs on a local level. Each geographical area would supply most of its own food, shelter and other needs that draws upon soil resources. Our needs can be met like the needs of the other animals without excessive technology and as nature provides it. All our needs are provided for in nature.

Ripe fruits and nuts as they come from the tree and vine are still the most delicious and palatable foods for the small and the large, for the strong and the weak, for the healthy and the sickly. Fruits and nuts offer us sound health and great vitality. It has been scientifically shown that fruits and nuts furnish the basis of superb health. They do not cause anything but the most wholesome intestinal processes while in the intestinal tract. They do not cause health-robbing putrefaction or fermentation in normal amounts eaten under normal conditions. These facts solve the problem of human excrement. It may be added to the soil without vitiating it in any way. Besides the feline family, humans are the only animals that bury their feces. A person on a fruitarian diet can sustain himself or herself on a fraction of an acre. Little labor and very low input of materials are required. This makes possible true self-sufficiency. A fruitarian learns about the true nature of bodily processes, the true causes of disease and assumes full control and responsibility of and for his or her health. Coldness and heat become more tolerable as the body becomes pure and its system achieves physiological balance. Hunger and appetite take on new meanings as the body's innate intelligence emerges to again dictate our eating habits.

Upon the fruitarian diet, a clarity of perception and a joy in understanding add to individual strength and integrity. A fruitarian finds that the body, if intake is not cooked, assimilates a larger proportion of nutrients than on a conventional diet. Less food is required. This not only helps to relieve some of the pressure on the world's food production, requiring as little as 5% of the land meat eaters require, but it also gives fruitarians immensely greater survival ability should environmental conditions become harsh—something we're bound to see more and more of.

The state of most tree nursery practices is in equally as poor a situation as our agriculture. Commercial fruit and nut trees are grown on soils that have been heavily fumigated, chemically fertilized, sprayed with insecticides and overwatered. These trees lose a great deal of their feeder roots when they are dug up by machine from nursery stock. Covered with plastic film or other material to reduce water loss during storage and shipment, these trees undergo considerable transplant shock and have difficulty in adjusting to unnatural farming practices.

Natural tree culture requires more work and attention to grow healthier and more productive trees. Wild and original rootstock, seeds, or seedlings must be used to assure hardiness.

There are countless varieties of fruits, some of which would help to extend the fresh fruit season to year round in most of the world. Slightly more than 100 years ago there were over 1,000 varieties of apples grown in this country. Some of them would remain on the tree ripening until early spring, unaffected by intense freezes. More intensive planting can also be done. Two or three tier agriculture is common in some countries. Trees occupy the highest level with vines growing among the lower branches. Around the trees and vines, melons, berries, or other food crops ideal to the human dietary can be grown. In the partly shaded areas that are cooler, shade-tolerant plants can grow.

The widespread adoption of tree crop agriculture and nutrition is urgently needed. Slight modification in present practices is not sufficient. A thoroughgoing revolution is the only answer. More dams, more implements, more chemicals, more cookbooks, and more of the same solve no problems. Rather they lead us deeper into the crisis. Humanity cannot continue on this self-destructive course. The holistic health movement must recognize its total dependence on our soils. All the yogas, nerve treatments, manipulations, drugs, or whatever can't substitute for nutrients, clean air, and other factors for which the body is starved.

We all realize that it is our own false sense of need that compels us to overconsume food, water, and other materials. This dictates a system of agriculture to supply these false or fancied needs. Surely this is bringing us to destruction.

So look around. Find out where your food and needs are coming from. What had to happen that your meals could show up on your table? Be concerned for the quality of your air and water, of the foods and clothing you use. This is very vital to your health and, if posterity is to be, then it is especially important to our children's welfare.

There are some pilot programs being started by our group which we will be demonstrating in a village atmosphere. These will stress tree crop agriculture and the fruitarian diet. We have already been on this diet for 19 years between us. We feel alive, alert, and well-nourished. We will be happy to communicate with anyone of similar motivation and commitment who has concern for human well-being.

The time for right action is now. Catastrophies are in the making. Just a few more degrees drop in Earth's mean temperature will trigger glaciation that will force all remaining life back to the equator where it all began eons ago. Every day of procrastination and lack of interest brings us closer to this and other irreversible processes of human and Earth destruction.

Can we make the required change in our thinking and practices to reestablish biological health and stability? We must do so if we want humanity, as well as all other life, to survive on this planet.

Lesson 51 - Chemicals In The Household Environment

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1. Introduction

1.1 The Unhealthiest Place To Live

Over half of your life is spent inside your home. Yet it may be the unhealthiest place you can be. Chemicals, pollutants, and toxic substances can surround you in your house and can create a number of health problems. You may never realize how dangerous household chemicals can be until it is too late. This lesson tells you about the most common household pollution hazards and how you can avoid them for better health.

You may think that you are safe in your own home. After all, the air pollution is on the freeways, and the poisoned waters are in the industrial rivers. But the foul air and water are also in your home, and much of it is brought in by your family. Here is one area where a natural and hygenic lifestyle can provide immediate benefits to all family members.

1.2 The Household Chemical Problem

Just for a start, look around you and count the various chemicals found in your house. Over the course of a year, the average home will contain *forty-five* aerosol sprays, another two dozen nonspray chemical cleansers, several insect killers and repellents, paints and paint thinners, spot removers, room fresheners, natural gas leakages, and so on.

Inside your house alone are more chemicals (in floor polishes, oven cleansers, detergents, etc.) than were found in any major chemistry lab of a century ago! Worse yet, we do not understand anything about these chemicals, how they should be used, and the toxic effects that accompany their use.

Labels list dozens of unpronounceable and unrecognized chemicals in all sorts of household products. It is foolish to believe that all are harmless and that they can be safely used.

An experienced homemaker cannot handle most chemicals properly. For example, one woman dragged her small oven outside to clean it. She did not, quite rightly, want the fumes from oven cleaners in her house. Unfortunately, while spraying the oven outside in the wind, the spray blew back into her eyes and permanently blinded her.

Housewives and children are allowed to handle dangerous chemical compounds that experienced chemists would not touch unless they had on protective gloves. Not only that, but the toxins and pollution from these common household products can eventually poison all the members of a family without their knowledge.

A family in a rural area had a problem with flies in their house while they were eating. To combat the problem, they hung a "No-Pest" insecticide strip over their table to keep the insects away. After a few weeks, three of the four family members were hospitalized for acute pesticide poisoning. The anti-pest strip they had thought was safe had nearly killed them with its "fallout" over their food.

Besides the sheer quantity of new chemicals in the home environment, another problem arises from the multiple use of these products. For example, cleansers may be mixed or other chemicals may be used together. When combined, these household chemicals can produce deadly byproducts. This combination of one or more household chemicals produces what is called a *synergistic* effect which means that the total effect of the mixed chemicals is greater than the individual chemicals used separately.

Homemakers do not actually have to even mix various cleansing agents, etc., together to create this dangerous synergistic effect. Simply having the vapors from one cleaning lingering in the air which may then combine with other chemical vapors can have a toxic effect on the individuals. In fact, within the average American home, at least once a day two aerosol sprays are used within a half hour of each other. These sprays can combine in your house to form toxic fumes.

We often improve our diet and our health, but we may neglect the source of potential health problems: the chemicals in our own home. This lesson identifies the more common household chemicals in use, and how you can avoid them by adapting a new lifestyle along the teachings of Life Science.

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2. The Chemicals In Your Home

Dangerous household chemicals are usually disguised in common products. Everything from underarm deodorants to frying pan spray contains toxic ingredients. Almost all of these chemical products can either be completely eliminated by following a healthy, hygienic lifestyle or by using a more natural substitute. This portion of the lesson lists most common household chemicals and how you can avoid them.

2.1 Aerosol Sprays

The first living creature to die from an aerosol spray was a mosquito in 1942. Since then, much more than just insecticides have appeared in spray cans. Antiperspirants, feminine hygiene sprays, underarm deodorants, oven cleaners, spot removers, floor wax, varnish, and anti-fogging agents have appeared in thousands of aerosol and spray products.

Aerosol sprays are a major source of air pollution within the home. The sprays spread out into the surrounding air and make it unfit to breathe. This is especially true in closed spaces (like the bathroom) where the sprays are used most often.

A study by Du Pont Laboratories revealed that the amount of freon propellant in front of the faces of users of hair spray and deodorant to be dangerously high even when these rooms were heavily ventilated by an exhaust fan. You can imagine the serious injury that results from years of breathing these fumes in an enclosed house.

The particles and chemicals in aerosol sprays are often so small that they can penetrate the lung tissue and be directly absorbed into the bloodstream. Thus, a chemical which might be relatively harmless if used externally quickly becomes an internal poison when sprayed in easily inhaled particles.

Just how harmful are these fumes from the aerosol sprays? Dr. William Good of Montrose, Colorado, made a study of 200 people. The only thing these people had in common was that they were all heavy users of sprays in their homes. Without exception, every person in the group had precancerous lung cell changes.

2.2 Hair Today—Gone Tomorrow

Perhaps the most dangerous of all these sprays is the hair spray. These sprays are always used in closed quarters (like the bathroom or beauty parlor). They are emitted near the face, and the air breathed is heavily contaminated.

The hair spray itself contains shellac, starch, and plasticizers which may be toxic enough to form enlarged lymph nodes. The FDA reported on twenty-three women who were daily users of hair spray. All of their X rays showed precancerous lung changes. After six months of stopping the use of hair sprays, fifteen of the women completely recovered.

Hair sprays also contain silicone which is damaging to the eyes and cannot be washed away by the natural eye fluids. An irritation of the cornea often develops in users of hair sprays.

Of course there is no valid reason to use hair sprays except for reasons of "beauty" or appearance. Freshly-washed and combed hair should be enough to make a healthy person truly beautiful, but if you are attached to having "set" hair, then you should use a setting gel or lotion instead of a spray.

These gels and lotions also contain noxious fumes and chemicals, but the danger is less than when using hair sprays. The sincere health seeker, however, will abandon all such artificial hair care products. Clean air is healthy and attractive. A more natural manner of wearing the hair will end the need for all such artificial products.

2.3 Does Your Nose Smell—Or Do You?

Americans stink. At least that's what the advertisers would have us think. Underarm deodorants, antiperspirant sprays, feminine hygiene deodorants, air fresheners, and room sprays are aggressively promoted and advertised. But how necessary are such odor disguisers, and more importantly, how safe are they?

Most anti-odor sprays and chemicals are totally unnecessary concoctions that serve no purpose. The most blatant example of this is the feminine hygiene deodorant sprays. In a trade magazine for such spray manufacturers, an article states: "Such is the American way of advertising and persuasion that even the best smelling ladies began to feel insecure and wonder if they were offending—and so another new market was born."

While these feminine sprays may make the manufacturers rich, they also contribute to health problems. The sprays are irritants and often contain talc that is contaminated by asbestos, a known cancer-causing agent. Many gynecologists have reported cases of vulvar irritation by their patients who used such sprays.

Sprays are also used to fight bad breath and other body odors. All of these contain chemicals which are both breathed and deposited directly on the skin. Underarm sprays, for example, work by actually clogging the sweat pores with an aluminum chloride compound.' Mouth sprays kill all bacteria in the mouth, including the so-called beneficial variety.

Besides these sprays, there are also foot deodorizers and hair fresheners. Evidently most people stink greatly or think they do because the amounts of spray and roll-on deodorants sold is enormous.

Why do people smell bad and feel that they must use some chemical to deodorize their bodies?

Basically, an improper diet is the cause of all body odors in almost every case. Foods of animal origin (meat, eggs, milk, etc.) are poorly assimilated and full of foul-smelling toxins. When these foods are eaten, the waste products are eliminated from the skin and an unpleasant odor results. When all animal foods, junk foods, and sugar are eliminated from the diet, all body odors eventually disappear.

A Natural Hygienist or a person who follows the suggested Life Science diet will never experience bad body odors. Unpleasant odors from the body indicate that something is wrong in the diet or lifestyle. Covering or hiding these odors with sprays and chemicals does not correct the underlying problem which causes these smells.

If body odor is a problem, then frequent washing is the best short-term solution and an improvement in the diet is the only long lasting answer. Spraying and applying chemicals to every body orifice can cause irritation and damage. The person concerned about his health and well-being will quickly abandon all such products.

2.4 Home, Sweet Home?

Next to American bodies, the smelliest place may be the home. Cooking odors, cigarette smoke, furnace emissions, and bathroom odors seem to permeate our households. Many people try to remove these odors with air fresheners, such as sprays, wicks, candles, cakes, etc.

All of these air fresheners work in one of four ways: 1) They use one odor to cover another; 2) They coat the nasal passages with an oil film; 3) They deaden the sense of smell with a nerve chemical; or 4) They deactivate the unwanted odor (such as through charcoal absorption).

Actually, very few deodorizers work by actually removing the odor. Most simply contaminate the air with another foreign substance, and certainly do not "freshen" the air. Many times an artificial fragrance is released that simply smells stronger than the offending odor. These fragrances often irritate the eyes and air passages.

More remarkable are the air fresheners that do their work by temporarily "killing" or deadening the sense of smell. This is sort of like blinding yourself to avoid seeing an unpleasant sight. One such air freshener, advertised for use in the "nursery," contains carbolic acid which causes serious burns and tissue destruction when applied to the skin.

There is one safe and recommended air freshener: an open window. A healthy lifestyle will also mean that most household odors will never even occur. For example, cooking and grease odors are common in meat-eating households. Cigarette, cigar, and pipe smoke are also common contributors to the foul air problem. A nonsmoking household that follows a predominantly raw food diet will never experience most of the household odors that plague many Americans. A well-ventilated house will also mean an end to odors. Even in the winter, the house should be opened briefly to allow a healthy exchange of air between the inside and the outside.

2.5 How Clean Is Your Kitchen?

The most dangerous and physically harmful of all household chemicals are the cleansers—oven cleaners, detergents, scouring powders, toilet bowl cleaners, bleaches, drain cleaners, and so on. Most of these chemical cleaners are not needed; indeed, many safe substitutes exist. Many people continue using these harmful household chemicals simply because they are not aware of their dangers.

2.6 Oven Cleaners

"Danger: May cause burns to skin and eyes. Irritant to mucous membranes. Danger—contains lye. Keep out of reach of children. Do not get on exterior surfaces. Keep away from electrical connections. If taken internally or sprayed into eyes, call physician."—from the label of "Easy-Off Oven Cleaner."

Oven cleaners harmed over 3,000 people in one year alone. Their sprays contain powerful chemicals that drift around the kitchen and penetrate the skin, eyes and lungs. Worse yet, these dangerous, unpleasant chemicals are hidden by added fragrances so they are more likely to be breathed in.

And such cleaners are totally unnecessary. True, ovens can become the filthiest area of any kitchen. But if the diet is changed so that meat is eliminated and all cooking is curtailed, then the oven will not become dirty or require an extensive cleaning. If cooking does occur, any splattering should be cleaned up as soon as the oven cools. Only when stains and drippings are continually reheated and baked does a strong cleaning agent become necessary.

Better yet, eliminate the messy oven. The hygienic or Life Science diet advocates a 100% raw food diet. Some people even sell their stove or use it as a counter area when they adopt the all raw diet. Even if cooking is still used at times, it should be in the form of steaming or occasional baking. Such conservative food preparation practices eliminate the dirty oven, the harmful cleaners, and the hours of work spent in cooking and cleaning.

2.7 Other Household Cleaners

Drain cleaners are similar to oven cleaners. They too have a high percentage of lye and they attack waste and grease buildup from food disposal. Drain and toilet cleaners account for about 10,000 injuries every year. Worse yet, if the drain remains clogged after the cleanser is poured in, then a dangerous caustic solution develops which gives off toxic fumes.

Bleaches are often used in the house, and great care must be taken not to mix bleaches with other cleansers. In November 1975, a 68-year-old Maine woman mixed bleach with ammonia to remove egg stains from a window. When she brought the pail of mixed bleach and ammonia into the house, the fumes killed her. The woman's niece discovered her and tried to give mouth-to-mouth resuscitation. She was also killed by the fumes in the house.

Toilet bowl cleaners are either the in-bowl or in-tank variety. The in-bowl cleaners contain extremely strong acids and release fumes. The in-tank cleaners are almost ineffective, according to Consumer Reports, in either removing stains or odors.

Scouring powders contain a bleaching agent and a coarse polishing agent. Over 22,000 people in 1973 received hospital treatment for injuries associated with scouring powders and other caustic cleaning agents.

What's left to help you clean your house? Well, first remember that most cleaning should be mechanical and not chemical. Dirt, dust, and stains can usually be removed with a simple and harmless detergent and some work. All in all, almost every chemical household cleaner can be replaced by a combination of one or more of these simple and inexpensive products: soap, baking soda, vinegar, borax, and ammonia. With the exception of ammonia (which has noxious fumes), all of these are totally harmless when used by themselves to aid cleaning.

Here are some ideas on how to use these substances as a substitute for the expensive and toxic household cleaners:

General surface cleaning: Several tablespoons of vinegar dissolved in a bucket of water. Baking soda may be used to scour surfaces.

Bleaching: Use borax instead of chemical bleaches. It whitens without harming the fabric, regardless of color or weave.

Utensil cleaning: A diluted solution of ammonia (caution) can be used for really greasy pots and pans. Of course if you are following a correct diet, you will not have "greasy" utensils at all.

Oven cleaning: Again, this should not be needed on a proper diet. If it does require cleaning, use baking sodas a scouring powder and ammonia to cut through the grease. Always be careful to avoid breathing ammonia fumes.

Drain Cleaning: Slow drains can be opened by pouring hot water down them, and then adding about a half cup of washing soda. Wait a minute, and then flush again with hot water. A small plunger can be used to unclog and loosen the drain.

2.8 Whiter Than White And Other Laundry Lies

Detergents and soaps are the most bought-and-used item of any product in the grocery store—including milk, bread, or any other food. They also cause more poisonings than any other household product. During 1975, for instance, over 1,300 laundry soap detergent and dishwasher product poisonings occurred.

Part of the problem is that many consumers do not understand the difference between ordinary soap and synthetic chemical detergents. Ordinary soap is relatively harmless, and has been used for thousands of years. The new detergents, however, are all chemical products from the last thirty years.

While soap is just soap, detergents are often soap along with foam boosters, perfumes, enzymes, cleaning agents, fillers, and optical brighteners.

A person who rubs just a few grains of synthetic detergent into the eye can receive corneal burns and severe eye damage. Ingestion of these products cause serious harm to the upper digestive tract. Clothes washed in some detergents become permeated with artificial perfumes and other irritating fumes.

Enzyme detergents are thought to cause dermatitis (a skin condition) and flulike and asthmatic conditions from breathing the air with detergent dust.

These steps can be taken to reduce harm from such cleaners: First, try to use ordinary soap or an organic cleaner instead of the chemical detergents. Don't overuse detergent—most people, according to a Consumer's Union survey, use at least twice as much detergent as is required. Don't mistake detergent for soap—never wash the skin with detergents and keep away from the mouth. To help with soiled clothes, prewash them with washing soda and then use common soap.

2.9 Other Sources Of Household Chemicals And Pollutants

It may seem that chemicals are all through the average household. In almost every room, some synthetic chemical compound can be found: mouthwash in the bathroom, dishwashing liquid in the kitchen, air freshener in the bedroom, a small gas leak in the living room, furniture polish in the dining room, paint thinner in the garage, and so on.

You may find it difficult to eliminate every chemical compound in your home, but you should start asking yourself if it is really needed or if a safer substitute can be found. This is a quick overview of other dangerous household chemicals:

Tobacco Smoke: Smoke from cigarettes contains over 3,000 chemical compounds. Although the dangers of smoking are covered in another lesson, it should be pointed out here that tobacco smoke can quickly and completely pollute the entire house even if only a single cigarette is smoked in one room. Smoking is bad enough outside, but inside a home it can be deadly to smoker and nonsmoker alike. If you live with smokers, you have three choices: 1) Stop living with them; 2) Complain long and loud until they stop; 3) Continue as before, but isolate the smoking to one room only and keep this room ventilated, even in the winter.

Insecticides and Pesticides: Many people routinely spray their house for roaches and other insect pests. The fumes from these sprays can linger for months, and be breathed continually by the inhabitants of the house.

The solution to the insect and pest problem in the home is to first make the house an unattractive spot for such creatures. Keep all areas clean, and learn that there may be a needed compromise in insect control and total eradication.

There are many ways of controlling insect pests naturally in the home. (Insecticides and pesticides for the garden are discussed in a separate lesson.) Remove all gathering places for roaches, etc., from around the house and yard. Eliminate mosquito breeding grounds, or stock nearby ponds and lakes with larvae-eating fish. If pesticides must be used to control insects in the house, obtain the dry powder type that releases no fumes.

There are many natural ways to keep the insect population under control in your home. Another bonus of following the chiefly raw food Life Science diet is that insect populations tend to decrease when there is no cooked food leftovers or spills around the kitchen.

Heating Emissions: Although not a chemical pollutant, another source of household pollution is the heating system. This is especially true of people who use gas, coal or wood heat. The fumes from these types of heaters continually fill the room. Often the unlit gas heaters and ovens emit unburned gas into the room. No house should remain "air tight" during the winter. If the house is very well insulated, then a window should always be cracked to allow an exchange of air.

Other Pollutants: There are many other sources of pollution in the home. Noise pollution is often ignored, but excessive levels of noise around and in the house has detrimental health effects.

Low-level radiation from microwave ovens is also a source of "pollution" in the house, and such devices are best abandoned. If cooking is to be used, then gas or electric is safer than the microwave oven.

Dry-cleaning fluids, spot removers, lead paint, paint thinners, solvents, glues, and many other chemical compounds in the home can be dangerous if used improperly.

By simplifying your life, you will eliminate the need for all such chemical products. Here's how you can benefit by adopting a Life Science way of living in your home.

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3. The Benefits of Natural Living in the Home

Most people see the immediate benefits that a natural diet and lifestyle can bring them. It is usually only later that this new way of life is completely introduced into the home. Here's a category description of how a Life Science regimen can improve your home living:

Personal Hygiene: The first thing you will notice after changing your diet and lifestyle is that you will no longer need 99% of all the personal hygiene care products sold. You can eliminate all underarm deodorants, all mouth-washes, all feminine sprays, all antiperspirants, and so on. Why? Because your body will always smell clean and fresh when you eat a simple diet of chiefly fruits, vegetables, nuts, seeds, and sprouts.

Kitchen Cleaning: When you change your diet to a predominantly raw one, your kitchen cleaning days will be over. No more greasy pots, pans, or ovens. You'll never need those harsh kitchen cleansers again.

Air Fresheners: When you eliminate cooking and smoking, your air will always smell clean in your home. Open windows and doors will ensure that you have a pleasant and healthy environment, free from obnoxious odors.

Other Ways: As you simplify and improve your life and diet, you will also want to make these changes in other areas. You will find that you need or want very few household chemicals or cleaners in your home. You'll search for safer and more natural ways to clean and upkeep your house. You'll discover the value of a natural way of living that will eliminate all dangers of household pollution and poisoning.

As a student of Life Science, you already know the vita! importance of having a clean body, mind, and diet. Now you should become aware that a clean and natural home is simply another way of expressing these new found values. Leave the chemicals behind in your "new" home, and keep your living environment healthy and pollution free.

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4. Questions & Answers

After reading this lesson, I'm too scared to use any type of cleaner! Aren't you exaggerating about the dangers of these chemicals? We never hear anything bad about them on television.

> Certainly the risks of household cleansers and other chemicals in the home are much less than many other unhealthy practices. Yet prolonged use of these common chemicals do indeed lead to serious health problems, especially in the respiratory tract. Unintentional poisonings from such chemicals are very high, particularly among young children. You should not be afraid to clean, but you should rely more and more on simple *mechanical* cleaning—that is, use some armwork and physically remove the dirt. Don't depend upon chemical compounds to do your cleaning for you. Many years ago, about the only household cleanser available was soap and water. Homes have stayed remarkably clean by just using such simple and relatively natural ingredients. The simple truth is that most household chemicals are "convenience" items, just like there is now "convenience" (or "fast") food. What you gain in convenience is more than offset by dangers to your health in these products. By all means, clean your home, but don't chemicalize it!

Here's another source of chemicals in the home you didn't cover: cosmetics and toiletries.

> While attention was given to hair sprays and deodorants, perhaps not enough mention was made about these other chemicals that so many people put on their faces and bodies. Almost all cosmetics are either made from animal products or they are tested on animals in cruel ways (such as blinding rabbits to test eye shadow, etc.). Not only that, but almost all cosmetics contain chemicals which can harm the skin after years of use. Men, too, are guilty of using such things as aftershave lotion, cologne, and so forth. All of these substances contain irritating ingredients that are harmful when breathed or applied to the skin. The best makeup is a clear, smiling face. Reduce or eliminate these "personal" chemicals that so many people put on their bodies.

So many new houses are unsafe to live in because of their internal pollution. Could you comment on that?

> The new home owner must be very careful nowadays about the building and insulation materials used in a home. Much insulation has asbestos fibers and other particulants which can cause lung cancer in those that breathe it day in and day out. Many plywood sidings are impregnated with formaldehyde, and these fumes are slowly released into the new house over a period of months. Recently, thousands of people have been forced out of their new homes because of toxic fumes that emit from the building materials used in construction of the house. These problems can be avoided by always having an open source of ventilation (a heat pump works well in the winter for this purpose) and carefully investigating the types of material used in the insulation and siding.

Article #1: Radiation in Your Kitchen by Mike Benton

Do you want to live next door to a nuclear power plant? A stupid question, right? But think about this:

Over *five million* homes have their own little boxes of radiation sitting right in the kitchen. They're called microwave ovens.

Now comparing a microwave oven to a nuclear plant may seem silly. After all, a microwave oven doesn't even give off the same type of radiation as an atomic energy source or an x-ray machine. The radiation from a microwave oven is about like what you get from radar or what is called *low-energy nonionizing* radiation.

But that microwave oven sits in many a house. It's used day in and day out. It's a constant source of low-level radiation that penetrates through the house. Is the microwave oven dangerous? Yes!

A microwave oven is like a fallout shelter in reverse: It's a tight little box that is designed to keep the radiation in. If you have a perfect, tight box, then the radiation won't get out. But a microwave oven is *not* a perfect, tight box. Radiation does leak out, especially around the door and the seals of the oven.

There are government standards for "acceptable" leakage rates for microwave ovens. In other words, microwave ovens can leak a certain amount of radiation and still be considered safe.

There is no such thing as a safe dose of radiation. Dr. Karl Morgan, a researcher on the effects of radiation on human health, stated: "From 1960 to the present, an overwhelming amount of data have been accumulated that show there is *no safe* level of exposure and there is no dose of radiation so low that the risk of malignancy is zero."

How Microwaves Can Harm Us

Microwave ovens *do not* make the food cooked in them radioactive. Food cooked in a microwave oven is no more nor less harmful than any cooked food. Any time heat is applied to food, destruction of nutrients and alteration of food chemistry occurs. Consequently, microwaved food is not better for you just because it is cooked for a shorter time. Microwaves destroy food *faster* than conventional cooking methods, but they do not destroy food *less*.

The main reasons for recent concern about microwave ovens are:

1. Microwaves can interfere with the normal operation of certain heart pacemakers, as well as other electrical and electronic items.
2. The thermal effect of exposure to these waves may harm sensitive body cell tissue or organ function.
3. Microwave radiation can cause eye damage and cataracts and is suspected of causing other ailments, including nervous exhaustion.
4. Low-energy, nonionizing radiation may also be capable of causing detrimental health effects not fully understood or recognized as such.

Nobody Really Knows How Dangerous They May Be

There are safety standards for microwave ovens, and consumers feel safe that they are buying, government-regulated equipment. What is not generally known is that the Soviet Union, which has done more research on microwave radiation than any other country, has an acceptable radiation level for the public that is *one thousand times* stricter than U.S. levels.

Not only that, but the biophysicist, Dr. A.H. Frey, has discovered that the human nervous system reacts to microwave exposure that is 300 times *below* the government standards for microwave ovens.

Older microwave ovens frequently leak more than new ones. Improper servicing, cleaning, and general wear cause radiation leakages to increase. If someone you know has a microwave oven, there are several steps you can take to minimize irradiation leakage:

- Never insert objects around the door seal.
- Examine the oven for shipping damage or damage through normal use.
- Do not tamper with or inactivate the oven safety interlocks.
- Frequently clean oven cavity, door and seals with mild detergent. Do not use scouring pads, steel wool, or other abrasives.
- Stay at least an arm's length away from the oven when it is in use and keep your eyes away from the door.

But Why Have One At All?

Microwave ovens are unnecessary convieniences. They were developed so foods could be cooked in a hurry. Just like TV dinners, precooked convenience foods, and fast foods, microwave ovens exist because people are too lazy or too unaware to provide good nutrition for themselves and their families.

So what if you can cook a frozen chicken in four minutes? Do you need to eat a chicken, frozen or otherwise? The truth is that the best foods to eat require no cooking and little preparation.

Fresh fruits, vegetables, seeds, nuts, and sprouts do not need to be microwaved, boiled, baked, or fried. They're delicious as they are, ready to eat. If any cooking is to be done to food, it should be light steaming which destroys as few nutrients as possible. You can't even steam for food in a microwave.

Like fast foods, microwave ovens are "fast cooking" and they are associated with the same sort of convenience orientation. For superior health, you should eat as few cooked foods as possible. And you certainly should not have a leaky box of radiation sitting in your kitchen!

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Article #2: World's Most Polluted Place: The American Home!

"My, Is It Stuffy in Here!"

Most of us are keenly aware that America's air, especially in and around large cities and industrial complexes, is seriously and dangerously polluted. Most of us are aware that even the upper atmosphere is becoming so dangerously polluted as to pose a threat to plant and animal life.

Many of us are aware that the average American home is a hotbed of pollution and stands first as a source of aerial pollution. Further, it is only beginning to dawn on researchers that pollution in the home is a source of much disease and misery for our populace.

The relation of polluted air to such respiratory diseases as pneumonia, colds, bronchitis, asthma, sinusitus, and a long list of other diseases, many nonrespiratory in nature, has been only casually noted.

However, researchers are already indicting such pollution as a contributing cause to many human ailments if, indeed, not the primary or only cause.

Certainly little aggravates an ailing person more than aerial pollutants, for they not only make suffering more severe but so hamper the body's healing efforts as to prolong recovery.

If there is any right we must value and treasure above all others, it is the right to breathe pure air. We must not inadvertently deny ourselves the benefits of pure air by our own acts.

If you doubt that the air in your home is polluted, note the difference between it and outside air! You can tell it instantly upon passing from one to the other—*even if the outside air is polluted*. The air in homes has the pollution of the outside air plus that added in the home.

The primary source of polluted air in American homes is smoke, mostly from tobacco, but from sundry other sources too. Smoke has its tars, carbon dioxide, carbon monoxide, and many other poisons.

If this is not the case in nonsmoking homes, then human aerial excreta is usually the primary source of pollution! Trapped in closed houses are the wastes of our breathing. These contain carbon dioxide, carbonic acid, and yet other waste products. They are deadly to man and beast alike in concentrations such as they become in closed homes.

There is a whole catalog of pollution sources in homes. Not only is pollution BAD in itself but it is usually found in a situation that would be bad WITHOUT the pollutants! For the air in which pollutants are found is usually "stale" air, a term for air that has been seriously deoxygenized. Air that has been breathed in, in which combustion has occurred, has been heated from whatever means, or in which cooking has been conducted, is not only possessed of considerably less oxygen but also is possessed of considerable pollutants as a result.

Consider these sources of pollutants in the home:

- Air from the outside that is polluted to start with
- Tobacco smoke
- Furniture polishes
- Detergents
- Cleansers
- Aerosol cans of all descriptions
- Chlorine from tap water and bleaches
- Cosmetics (none are good!)
- Deodorant sprays
- Insect repellents
- Insecticides
- Powders
- Air sweeteners and deodorants
- Hair sprays
- Lotions and "perfumes"
- All drugs and "medicines"
- Preservatives emanating from foods during cooking
- Volatile oils
- Byproducts of frying food
- Ammonia
- Wastes from combustion of anything burned
- Human aerial excreta
- Alcohols and drinks
- Condiments and other irritants used in foods
- Byproducts of cooking, brewing, boiling, breathing, etc.
- Chemicals of all descriptions exposed to our air

- Antiseptics

Perhaps the most deliberate and criminal of pollution practices is smoking. Many babies are born nicotine addicts and, if reared in an atmosphere filled with smoke of their parents, may become addicted to nicotine without ever having smoked a cigarette.

If "fouling our nests" aerially is not bad enough there are other deleterious forms of pollution in the home, notably noise pollution from inside and outside (it's so bad as to be inescapable in most cities) and x-ray emissions from fluorescent lighting and from television.

Perhaps it is stale polluted air in homes that is largely the cause of more respiratory ailments in winter than in the summer.

In any event, we should be on guard against pollution as much as is commensurate with out circumstances. We should breathe air as fresh as possible as much as possible.

Article #3: Typical Compounds Found In Cleaning Agents

Name	Where Found	Purpose	Dangers
(Lye), potassium hydroxide, sodium hydroxide	oven and drain cleaners	chemically attack and dissolve organic matter	extremely dangerous to all parts of body, especially eyes
Ammonia	oven and window cleaners, wax removers	chemically attack and dissolve organic matter	strong concentrations attack skin, eyes, lungs
Sodium tripolyphosphate	coffeepot cleaners	water softener and building agent	strong concentrations attack skin, eyes, lungs
Sodium phosphate	cleaners, scouring powders	water softener and building agent	strong concentrations attack skin, eyes, lungs
Sodium silicate	dishwashing detergent	water softener and building agent	strong concentrations attack skin, eyes, lungs
Sodium metasilicate	dishwashing detergent	water softener and building agent	strong concentrations attack skin, eyes, lungs
Sulfuric acid	commercial drain cleaners	chemically attack and dissolve organic matter	extremely dangerous to entire body

Hydrochloric acid	drain cleaners, toilet cleaners	remove stains and deposits	extremely dangerous to entire body
Phosphoric acid	denture cleaners, metal cleaners and polish	remove stains, dissolve rust	extremely dangerous to entire body
Sodium hypochlorite	bleach chlorine	remove color, disinfect	dangerous to entire body; never mix with anything other
Calcium hypochlorite	bleach chlorine	remove color, disinfect	dangerous to entire body; never mix with anything other
Sodium perborate	Oxygen bleach, denture cleaners	remove color, disinfect	dangerous to entire body; mildly toxic
Sodium dodecylbenzene sulfonate	detergent	dissolve grease and oil	continued contact removes protective oil from skin

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Article #4: Typical Potential Household Hazards In A Retail Merchandise Catalog

1. Tree fertilizer spikes
2. Insecticides for tree fogging devices
3. Carbon dioxide cartridges for bikes
4. Chain lube spray for motorcycles
5. Lithium grease
6. Gear grease
7. Brake fluid
8. Motor oils
9. Engine flush liquid
10. Auto-body repair
    a. aerosol spray can primer
    b. cream hardener
    c. epoxy repair kit
11. Batteries
12. Fire extinguishers
13. Polyurethane wood finish spray
14. Epoxy spray enamel

15. Wood stain
16. Masonry coating
17. Crack stop
18. Concrete etching acid crystals
19. Antiskid sand additives
20. Heavy-duty cleaners
21. Paint remover
22. Acrylic latex caulk
23. Brush cleaner
24. Mildew wash
25. Swimming pool chemicals
26. Water conditioners
27. Toilet bowl cleaner
28. Portable toilet antifreeze (propylene glycol)
29. Propane torch kits
30. Silicone
31. Rug shampoo
32. Laundry detergents
33. Boat supplies
    a. polyester materials
    b. epoxy materials
    c. epoxy marine enamel
    d. semi soft point (cuprous oxide)
    e. water repellents

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Chemicals In The Household Environment: In-Depth Home Survey

Answer each of the following questions with "YES," "NO", or "UNCERTAIN". Some of the questions do not pertain exactly to chemicals in the house, but to all sources of unhealthy pollution (such as noise pollution, motor vehicle products, etc.) At the end of the survey, you will be able to rate your home for its safety.

Are the following aerosol sprays found in the home:

1. Hair sprays, tints or dyes?
2. Underarm deodorants?
3. Antiperspirants?
4. Shaving cream?
5. Feminine "hygiene deodorant"?
6. Medicines?
7. Is the home insulated with asbestos products?
8. Are there asbestos caulking materials around the home?
9. Are caulked surfaces sanded in the house?
10. Are air vents or ducts lined with fiber glass?
11. Are home repairs made with asbestos shingles?
12. Are loose asbestos materials stored around the house?
13. Are spot removers or dry-cleaning materials used in the home?

14.Are aerosol fabric finishes used?
15.Are antistatic agents used?
16.Are gloves worn when using spot removers?
17.Are aerosol spray starches used?
18.Do members of the family wear extremely flammable clothing?
19.Does dust accumulate in various parts of the house? (Be honest).
20.Is vacuum cleaner in poor running order?
21.Do sweeper bags become overfilled?
22.Are air-conditioner filters left unattended?
23.Are collector screens in clothes driers neglected?
24.Does drier vent fail to reach the outside?
25.Does ragweed grow near the house?
26.Is the ash chute unattended?
27.Is there a coal, natural gas, or heating oil furnace?
28.Has it not been checked this year?
29.Is there a gas stove without an exhaust hood? Was the pilot light for water heater or kitchen stove checked today?
30.Is there an attached garage?
31.Do family or neighbors ever warm up cars (let them idle) for long periods on cold mornings?
32.Is the house near a heavily traveled highway?
33.Does the refrigerator or air-conditioner leak coolant?
34.Is there a kerosene stove, lantern, or camping stove in the house?
35.Is there a fireplace which occasionally emits smoke in the house?
36.Are glowing charcoals ever carried indoors?
37.Is trash burned in the backyard?
38.Is aerosol floor polish, wax, or cleaner used?
39.Are aerosol furniture polish and wax used?
40.Are metal polish and cleaners used (silver, aluminum brass, and copper) without gloves?
41.Is rust remover kept around the house?
42.Are tarnish-preventing materials used?
43.Is aerosol rug cleaner or tack-down material used?
44.Are there open garbage bags at the kitchen counter?
45.Are garbage cans left open?
46.Are garbage cans left uncleaned especially during hot weather?
47.Is "junk" mail permitted to be sent to the house?
48.Is a garbage service used instead of mulching?
49.Do neighborhood pets get into the garbage?
50.Does garbage stand overnight in the kitchen?
51.Is a garbage disposal unit used?
52.Is an automatic trash compressor used?
53.Is there a failure to defrost and clean out the refrigerator often?
54.Are rotten and stale vegetables and fruits left in the storage room?
55.Is paint (oil-based) used for artistic work at home?
56.Is the hobby area poorly ventilated?
57.Are rocks polished without the use of a facial aspirator?
58.Is film developed in the house?
59.Is pottery baked at home?
60.Are home photographic, painting, and etching supplies stored outside a chemical hood?
61.Are wood lacquers in furniture finishing used?
62.Is metal work such as sculpting, welding, or etching done at home?
63.Are fast-fixing glue and cement kept in the house?
64.Are insecticides stored in the household?

65. Have any of these ever spilled?
66. Are garden pesticides used?
67. Are rooms used within three days after fumigation?
68. Are pesticides ever used before reading the instructions?
69. Are herbicides used?
70. Is the house unclosed when neighborhood trees are sprayed?
71. Is petroleum-based fly spray used in place of pest sticking paper?
72. Are doors and windows unscreened?
73. Is No-Pest Strip used?
74. Are mothballs stored where small children can get to them?
75. Are aerosol insect repellents used?
76. Are aerosol air fresheners or room deodorizers used?
77. Are aerosol disinfectants used?
78. Are germicides and disinfectants near where children are playing?
79. Is there a failure to aerate rooms after use?
80. Is the family overly germ-conscious?
81. Are strong soaps used in kitchen or laundry?
82. Are detergents used?
83. Are brighteners used?
84. Are laundry soap or detergent overused (beyond instruction amounts)?
85. Are soaps and detergents beyond the reach of infants?
86. Are rubber gloves not worn when using strong soaps?
87. Are there spilled laundry soaps and detergents in the house.
88. Is indoor lead-based paint present in the house?
89. Is lead paint removed without proper ventilation?
90. Is any of the paint cracking, peeling, and chipping?
91. Is a blowtorch used for removing the paint?
92. Are there old lead-based paint cans around the house?
93. Are unglazed pottery mugs for coffee, tea, fruit, juices, or soft drinks used?
94. Do children habitually play within fifty feet of a heavily traveled highway or where dirt is contaminated with leaded gasoline emissions?
95. Is gasoline stored in the house or garage?
96. Are aerosol antirust or lubricants in the house?
97. Are there waste oil cans in the house?
98. Is oil changed near the house?
99. Are commercial deicing agents used?
100. Has leaded gasoline been spilled on carport or in garage?
101. Is antifreeze kept away from children?

Are the following used at home:

102. Typewriter?
103. Hairdrier?
104. Loud vacuum cleaner?
105. Stereo?
106. Radio?
107. Television?
108. Electric mixer?
109. Power drill? .
110. Leaf chopper?
111. Children's toys?
112. Power chain saw?
113. Power lawn mower?

114.Metal garbage cans?
115.Lathe?
116.Vibrator?
117.Motorcycle?
118.Do persons have a habit of making phone calls late at night?

Are the following in the reach of children:

119.Oven cleaners?
120.Glass cleaners?
121.Bleaches?
122.Toilet bowl cleaners?
123.Scouring powders?
124.Are ammonia and bleach or acid cleaners ever mixed in the home?
125.Are rubber gloves worn when working with cleaners?
126.Are a large variety of cleaning agents purchased?
127.Are aerosol drain cleaners used?
128.Are aerosol oven cleaners used?
129.Are large amounts of plastic furnishings used around the house?
130.Is the family unaware of toxic emissions from burning plastics?
131.Does the car have a film (from plasticizers) on the windows?
132.Are furnishings made from PVC (polyvinyl chloride)?
133.Are PVC containers used for food products?
134.Are antifungicide paints used which contain mercury?
135.Has spilled mercury ever come from a broken thermometer?
136.Are mercury-treated seeds around the garden supplies?
137.Is there liquid mercury in the house?
138.Is an old microwave oven used?
139.Does! the microwave oven work improperly?
140.Do any family members sit quite close to a TV set?
141.Are there ultraviolet lamps in the house?
142.Is the house near high-tension electric wires?
143.Are black lights in the home?
144.Do members oversunbathe?
145.Is the home near locations containing powerful transmitters or defense electronic equipment?

Are the following stored in the house:

146.Paint solvents?
147.Paint thinners?
148.Paint removers?
149.Lighter fluid (charcoal or tobacco)?
150.Butane lighter containers?
151.Kerosene?
152.Are aerosol paint products used?
153.Are oily rags stored around the house?
154.Are there open cans of petroleum-based solvents with paint brushes?
155.Are cement solvents used?
156.Is the house aerated after painted until fumes decrease slightly?

Is Smoking allowed in the following:

157.Bedrooms?
158.Bathroom?
159.Living room?

160. Kitchen?
161. Recreation area?
162. Do smokers fail to honor nonsmoker rights?
163. Is the house not aired out after smoking and parties?
164. Is marijuana smoking permitted in the house?
165. Are aerosol utensil coating materials used?
166. Is the household ignorant of the use of utensil coatings by teenagers for sniffing?
167. Are there any poisonous plants in the house?
168. Are any in the reach of children?
169. Are fertilizers kept around the house?
170. Is the drinking water below standards for purity?
171. Is hot water used for cooking purposes?
172. Do drinking water pipes contain asbestos?
173. Do they contain lead?
174. Do they contain PVC (polyvinyl chloride)?
175. Is the house near a heavy industrial area?
176. Are the gutters dirty or downspouts blocked?
177. Are pool cleaners stored around the house?
178. Are water-conditioners kept around the house?
179. Is there a water-purifying device in the house?
180. Do the toilets ever back up into the bathtub?
181. Does the water have a cloudy look when taken from the tap?

Are the following around the house:

182. Lye and other corrosives?
183. Fireworks?
184. Matches?
185. Aerosol medicines such as decongestants and anti-fungus agents?
186. Are medicine cabinets unlocked or within reach of children?
187. Are medicines stored near food?
188. Are any old unmarked medicine bottles around?
189. Are any members of the household habitual users of drugs?
190. Are fire extinguishers left unchecked from year to year?
191. Is salt used to melt snow on walkways and drive?
192. Has there been a cutoff Christmas tree in the house this year?
193. Are aerosol decorative materials or cocktail chillers used?
194. Are there rats or other rodents in or near the house?
195. Are dogs, cats, or other large pets allowed indoors?
196. Do children play near dog or cat litter or in pet pens?
197. Is the pet ever infested with fleas or ticks?
198. Is there a protective screen on chimney to prevent bug and rodent entry?
199. Are there bird nests in rafters or bird droppings near the house?
200. Do the children have pet turtles?

Answers

Your Score: Count up the total number of "YES" answers. Some of these questions might not apply to you at all, but of all the questions answered, use this scoring:

Number Of Yes Answers To The Survey:

1. 80 or more: A very high chance for chemical contamination problems now exist.

2. 60 to 80 YES answers: Too many chances for chemical contamination probably now exist in your house.
3. 40 to 60 YES answers: A moderate chance for household pollution—initiate a clean-up action.
4. 20 to 40 YES answers: A relatively low chance for pollution in your home.
5. LESS than 20 YES answers: Congratulations!

Lesson 52 - Chemicals In Our Air

- 1. Introduction
- 2. The Deadly Chemicals In Our Air
- 3. Clean Air: How Can We Get It?
- 4. Questions & Answers
- Article #1: The Breath of Life By Dr. Herbert M. Shelton

1. Introduction

The monument had stood in the Egyptian sands for over 35 centuries. "Cleopatra's Needle" it was called, and it had thousands of beautiful carvings and drawings all upon it. Somehow the ancient monument had survived the raging desert sands and hot Egyptian sun for over three thousand years.

In 1880 the monument was transferred to downtown New York. A hundred years later, the monument had eroded away so that all the drawings upon it had completely disappeared. What the sandstorms of Egypt for 3500 years could not do had been accomplished by the polluted air of New York City. The ancient drawings had been eaten away by the sulfur oxides in the dirty city air.

The chemicals in the air today are equally destructive of human health and life, and with every breath you take, you are taking in chemical compounds that never even existed a few years ago.

Air pollution and the chemicals we are forced to breathe should be an area of great concern to the health seeker. Much more important than the food we eat is the air we breathe. After all, you only eat about three times a day. You breathe about fifteen times every minute. Clean, pure air is one of the primary requisites for superior health. This lesson discusses the chemicals that are now in our air supply, and what we can do about them.

1.1 The Sea of Air

A philosopher once said, "The fish shall be the last to discover water." He meant that it is often hard to see clearly what is often taken for granted. Humans take the air they breathe for granted, and we always assume that each morning we can wake up and take a nice, deep breath of life-giving air. Some day that might not be the case.

Almost all life on earth is supported by a layer of air less than two miles thick. Without this protective layer of air, the earth would reach a daily high temperature of 230 degrees, and drop to an overnight low of 300 degrees below zero.

Right now, we have about six thousand billion tons of air on this planet. We won't run out of air, but we may run out of *breathable* air in the near future. Almost all of our air is either nitrogen (78%) or oxygen (21%). A gas called argon makes up 95% of the remaining atmosphere, and carbon dioxide takes up another 3% of the remaining air. Less than two-hundreths of a percent of our atmosphere contains other gases, such as helium, neon, methane, ammonia, hydrogen sulfide, and carbon monoxide.

Yet in that small percentage of other gases lies the pollution problem. Only a very small amount of dangerous gases and chemicals need to be present in the atmosphere to affect all of us greatly.

1.2 Nature's Balance

Naturally occurring air is never completely clean. There has always been foreign matter in the atmosphere in the form of volcanic ash, pollen, spores, salt particles from the ocean, and even cosmic dust from the upper atmosphere. These particles actually serve a useful function in the play of nature by acting as a stimulus for rain and precipitation.

The foreign particles fall to earth with the rain and the air is cleaned. Meanwhile, plants are busy recycling carbon dioxide into oxygen, and the giant oceans are recirculating and cleaning the air all over the planet.

But then the balance was upset. With the coal-burning industries of the nineteenth century, abnormally large amounts of foreign particles and gases escaped into the air. The rain could no longer clear the air completely, and the oceans became polluted. The oxygen-producing forests and fields were leveled and made into concrete sites for buildings.

More garbage was being dumped into the air than nature could handle. Finally, the whole atmosphere all over the globe became contaminated, dirty, and unhealthy.

1.3 What Is Air Pollution?

Air pollution is defined as substances or radiations in the atmosphere which harm living organisms or their environment. Normally, as we have seen, the atmosphere is self-purifying. However, when a high concentration of unnatural wastes is discharged into the air, then the atmosphere becomes overburdened and polluted.

Eventually the pollutants in the air may be precipitated from the atmosphere when it rains. When this occurs, the pollution falls onto the land or water, and contaminates this part of our environment.

1.4 What Causes Air Pollution?

Air pollution is caused in one of three ways: surface friction, vaporization, and combustion.

Friction is a minor cause of air pollutants. Such things as sawing, drilling, and grinding various materials release airborne particles which may find their way into your lungs eventually. For most people, friction is not a major source of pollution unless they are workers in a mine, mill, or other industry that releases small particles into the air.

Vaporization occurs when a liquid becomes a gas. A good example is paint thinner. When the can is opened, certain fumes escape as vapor into the atmosphere. Gasoline also undergoes vaporization, as do paints, glues, and other chemical compounds. This is only a major source of pollution when a nearby industry is engaged in making these products, or is working with rubber or plastic which can also vaporize.

Combustion is the real villain as the cause of air pollutants. Combustion is simply the burning of a solid or liquid into a gas. For instance, your car works on combustion by turning gasoline into various hot gases.

When combustion occurs, heat and light are usually released. Unfortunately, other chemicals and gases are also released into the atmosphere. Some of these chemicals are harmful, and are the major factors in polluting our air.

In fact, a quick study of the air pollution problem is really just a description of these chemicals and how they get into our atmosphere.

2. The Deadly Chemicals In Our Air

Many of the pollutants in our atmosphere have unfamiliar and scientific names, yet they are not difficult to understand. Each major chemical pollutant is discussed below as to the possible harm it can do us, where it comes from and how we can prevent it from becoming more widespread.

Here's a list of the more common chemicals that pollute your air: sulfur dioxide, carbon monoxide, nitrogen oxides, hydrocarbons, ozone, lead, and asbestos.

2.1 Sulfur Dioxide: The Gas From Hell

"If smells like hell around here," a worker complained to his boss. What he was talking about was the choking, sulfur fumes that came from the worker's plant. Sulfur dioxide does indeed remind you of the "fire and brimstone" odor. If you breathed a deep lungful of the gas, it would feel like thousands of razor blades in your lungs.

Sulfur dioxide is one of the deadliest air pollutants, and it accounts for about 18% of all air pollution. Sulfur dioxide I has been implicated in cases of asthmatic attacks, eczema (a skin disease), breathing difficulties, and paralysis and corrosion of the respiratory organs.

As soon as sulfur dioxide rises to a concentration of only one-five *millionth* of the atmosphere, deaths increase rapidly.

Coal-burning plants and industries account for almost 85% of all sulfur dioxide pollution. Residential use of coal and fuel oil makes up another 10% of the sulfur dioxide release. The problem of sulfur dioxide pollution is the most serious in areas of the northeast where coal burning is the most widespread.

No one, however, can escape the harmful effects of sulfur dioxide because it is spread all over the earth in "acid rain." Acid rain occurs when the particles of sulfur dioxide are carried through the air and combine with water particles and fall to earth. Along with the water in the rain, you also get the acid waste products of sulfur dioxide.

Crops that are especially susceptible to sulfur dioxide and acid rain are wheat, barley, oats, cotton, alfalfa, buckwheat, and white pine. In fact, within a twenty-mile radius of a plant that emits sulfur dioxide in Tennessee, over 90% of all the white pine trees have been killed.

These sulfur compounds also enter the streams, rivers, and lakes after they fall from the air. As a result, many fish and aquatic plants quickly die.

As an individual, you can help control this type of air pollution by using another form of heating besides coal and fuel oil. If you must use these fuels to heat your home, insist that you receive a *low-sulfur* content coal or fuel. By simply converting to a lower sulfur content of coal, the problem could be greatly eased. At the same time, you should push for stronger regulations about the amount of sulfur dioxide industries can release into our air.

2.2 Carbon Monoxide: A Totally Manmade Gas

A jellyfish can belch carbon monoxide. Other than that, man is the only creature that can create this deadly gas. Carbon monoxide is the killer behind automobile gas poisonings that occur in closed garages. This gas in the exhaust fumes of cars is often fatal to unsuspecting drivers.

Over one-half of the total air pollution in this country comes from carbon monoxide. And you are responsible, because 80% of all carbon monoxide comes from the exhaust pipe of the automobile.

Carbon monoxide is extremely dangerous. It is almost certain that you have been poisoned by this gas at least once in the past week if you drive in heavy traffic. Tests have shown that traffic jams can produce enough carbon monoxide from the idling cars to cause headaches, irritability, dizziness, and nausea.

People who must work near heavy traffic areas often breathe in enough carbon monoxide so that their mental processes are slowed down to about one-half what they should be in clean air. Many driving accidents are now thought to be caused by carbon monoxide leaking from the car and poisoning the driver in the car.

For some people, driving a car isn't enough pollution. They must also smoke cigarettes, which also give off carbon monoxide. Heavy smokers may have as much as 5°?o of their blood hemoglobin permanently combined with carbon monoxide. When this occurs, the tissues suffer a low level of oxygen starvation and destruction. Even the carbon monoxide from a single cigarette in a closed car can create headaches in all the passengers.

Every gallon of gasoline that you burn in your car releases three pounds of carbon monoxide into the atmosphere. The solution to this sort of pollution is simple: restrict and limit all driving and strive for a more fuel-efficient car.

During the days of the Vietnam war protests when hundreds burned their draft cards, science-fiction writer, Ray Bradbury, said: "The students who are burning their draft cards are fighting the wrong enemy. This war will eventually end, but the more serious and deadly war, the one against air pollution, will never be won until we end our dependence on the polluting automobile. If these protestors want to perform a really radical and earth-saving act, they should be burning their *drivers' licenses* instead of their draft cards."

2.3 Nitrogen Oxides: The Smog Triggers

The sun in the midday sky was only a watery disk. Cars drove slowly with their lights on. It was noon in Los Angeles, but the smog made the city look like a smoky, evening battleground. Nitrogen oxides had combined with other gases from the heavy traffic to form a dense layer of smog that blocked the sunlight.

Nitric oxide and nitrogen dioxide are the two most damaging of the nitrogen pollutants. Nitric oxide is very similar to carbon monoxide, and reduces the oxygen carrying capability of the blood. Nitrogen dioxide irritates the eyes, nose, bronchial tubes, and lungs. High concentrations of this toxic gas prove fatal.

Gasoline motor vehicles are the major source of nitrogen oxide pollutants. Coal and natural gas burning account for the second largest class of nitrogen oxide polluters.

Again, the most effective way to control this form of air pollution is by reducing dependency on the gasoline engine, and finding safer energy alternatives than coal burning.

2.4 Hydrocarbons: The Urban Air Pollution

Hydrocarbons are often emitted in the exhaust from automobiles and from industrial smoke stacks. The major cause of hydrocarbon pollution is the processing and use of petroleum products. Consequently, hydrocarbon pollution is highest in urban areas.

About 13% of the entire annual output of air pollutants is in the form of hydrocarbons. Most of the hydrocarbon compounds are carcinogenic—that is", they "contribute to the causes of cancer.

One of the major hydrocarbon pollutants is *benzopyrene*. This toxic gas is also found in cigarette smoke, and is suspected as a cancer catalyst. Worldwide studies have proven that benzopyrene specifically produces lung cancer. Many city residents breathe in about as much of this gas daily as is contained in seven cigarettes.

Some cities are much worse. For example, the benzopyrene level in New York City and Birmingham, Alabama, is such that the average resident takes in as much of this poisonous gas as is contained in the equivalent of about fifty cigarettes daily! Studies have also shown that the person who both smokes cigarettes and lives in polluted urban air is the most likely to have cancer.

2.5 Ozone: From Out of the Blue

Ozone is a clear, blue gas that exists naturally in the far upper regions of our atmosphere. Man, however, has increased the ozone content at the lower levels by emitting large amounts of nitrogen dioxide pollutants which in turn cause the creation of additional ozone.

At low levels, ozone poisoning results in chest pain, coughing, and eye irritation. Continuous exposure to small amounts of ozone has shortened the lives of laboratory animals. Ozone destroys such crops as grapes, spinach, lettuce, and alfalfa. It even attacks textile and rubber, causing them to deteriorate.

Ozone poisoning may also be a problem with those that work around electrical equipment and apparatus. Ozone has a sharp, almost "clean" type of smell. It may also be found in various air fresheners and sprays.

2.6 Better No Lead Than Dead

Chances are good that you are suffering from a low level of lead poisoning, particularly if you live near areas where automobile exhaust is a problem.

Lead affects the central nervous system. Headaches, dizziness, insomnia, weakness, anemia, and loss of appetite are some of the symptoms of chronic lead poisoning. The greatest danger of lead pollution is that it changes the shape of healthy red blood cells and makes them brittle. Residential areas where lead fallout is high also have a correspondingly high incidence of heart failure and disease.

Lead is a cumulative poison. That means it can build up in your system over a number of years. Lead is in both the air and water supply. Over urban areas, there is twice as much lead in the rainfall as is set by the government for drinking water standards.

Most of the lead, however, is not in the water but in the air. Airborne lead is caused chiefly by burning gasoline that contains lead. About two-thirds of all lead in gasoline is exhausted into the atmosphere.

In fact, since the introduction of lead-containing gasoline in 1924, the average person now carries around in his body *100 times* as much lead as did people who lived before 1924.

Our cars that use lead gasoline have made the atmosphere over *1,000 times higher* in lead content than it would have naturally. The annual lead fallout over this country is over 500,000 tons a year. Eventually, these large amounts will upset the mineral balance of the oceans and produce massive lead poisonings.

The solution? Immediate suspension of sales of all leaded gasoline. The lead in the gasoline our automobiles burn is the major cause of the lead problem. If you want to help, always use unleaded gasoline in your car. It's worth the extra effort for the sake of the environment and your health.

2.7 Asbestos: Fibers In Your Lungs

Asbestos is found in pipe and electric insulations, brake linings, and, unfortunately, the human lungs.

Asbestos fibers pollute our air and often find their way into sensitive lung tissue where they become embedded. The mechanical irritation of these fibers harms the lungs and are believed to contribute to tumors in the lungs.

Asbestos is also often found in many building materials, all the way from the roofing of a house down to the floor tiles, and in the insulation in between.

Construction workers, electricians, plumbers, and many industrial workers need to be concerned about the asbestos pollution in their working environment.

Homemakers are not immune to the asbestos problem either. Even such a harmless-looking product as talcum powder has now been discovered to contain asbestos fibers. When this powder is used, asbestos particles enter the air and lungs, as well as being deposited on the skin.

2.8 Air You Can See: Particle Pollution

Although not purely chemicals, another form of air pollution is solid particles. You've seen this type of air pollution yourself. In a ray of sunlight, you've probably seen tiny moving particles of "dust." Such dust contains spores, pollen, molds, ash, soil, soot, and dozens of other solid compounds.

In a large city, every breath you take has about 70,000 solid particles in it. Even "clean" country air has about 40,000 solid particles in each breath of air.

Generally, these airborne particles of pollution remain in the air for only a few days. Occasionally, however, the lighter particles may drift for weeks and hundreds of miles from where they were released.

These particles come from everywhere: from fires, from industries, from farming, and from cars. In Los Angeles alone, one survey estimated that 50 tons of rubber particles from spinning tires are released into the air every day!

These airborne particles can make the sky hazy and shut out needed sunlight. For example, after volcanic eruptions which release a large amount of solid particles, the temperature often drops for a period of weeks. Solid particles in our air also cause irritation to the lungs and eyes, and produce what are often mistakenly labeled as "allergies."

If temperature inversions occur or the wind blows the wrong way, these particles can gather in one part of an area and actually darken the daytime sky. When such conditions occur, deaths due to pollution rise by as much as 50%.

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3. Clean Air: How Can We Get It?

One of the primary requisites for a healthy and long life is clean and pure air. Unfortunately, this is one area that we sometimes have little control over. We can always choose the food we want to eat and decide when to exercise or fast, but the air we have to breathe is what is given us.

This does not mean, however, that we are helpless in obtaining pure air. Here are some practical suggestions that will help you live in a cleaner environment:

1. Demand strict enforcement of all existing air pollution laws. Push for stronger standards and increased funding for air-quality control organizations.
2. Reduce your fuel consumption and automobile dependency. *Use unleaded gas*. Drive less, and have your car checked to see if it is emitting high levels of pollutants.
3. Allow no smoking in your personal environment, and work for antismoking ordinances in public places and business areas.
4. Try to live in a low-urban environment. Have your home away from heavily traveled roads and highways. Make sure that home gardens are at least 100 feet from any street. The further you live from traffic congestion, the healthier you will be.
5. If you live where the air quality is low, take trips and vacations to where the air is clean and your lungs can have a chance to detoxify.
6. Follow a nontoxic diet as suggested by Life Science. This will allow your body to better cope

with the effects of pollution.

7. Exercise away from heavy traffic areas. Do not run alongside cars while jogging, and save all heavy exercising for as unpolluted an area as available to you.
8. Purchase products which produce little pollutants in their manufacture. Some of the worse pollutants are plastic industries and petroleum companies. Try to restrict the use of all such products.
9. Start to re-green your city and area. Plants and forests are our first line of defense against air pollution. You can help by setting out trees in your yard and city. Actively work to preserve all existing "green" areas in towns and cities.
10. Watch the fuel you burn for heating. Low-sulfur coal fuel oil can slow pollution down. Have your home furnace or heating system checked for maximum efficiency so that fewer byproducts are produced in the heating of your home.

Fighting air pollution is not hopeless. Already the quality of the air has somewhat improved since the early 1970s. However, our air has not become so much better than we can grow lax. Industries are continually petitioning for relaxed air standards, and it is up to the public to see that the antipollution laws are instead strengthened and enforced.

Every day of your life, you draw in 20,000 breaths. You have the right to expect that not a single one of these breaths should endanger your health. The air and atmosphere are our common heritage and resource, and we must insure that they stay clean for us and our children.

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4. Questions & Answers

I'd like to know more about air filters and cleaners that I can use in my home. Specifically, what about negative ion generators? Are they good in cleaning up the air, and are there any worthwhile machines to filter out cigarette smoke?

> Air cleaning machines and ion generators do not solve the air pollution problem. The chemicals are still in the air that we breathe even after being filtered through these machines. Air-cleaning devices, however, have been effective in eliminating particles of dust, pollen, and smoke from the home and business.
>
> Before buying or using one of these air-cleaning machines, you should first investigate very carefully how they work. Some of these devices may have harmful chemicals in the filtering mechanism they use, so make sure that you are not creating another problem when you use such machines.
>
> Negative ion generators are very popular and are widely advertised. The verdict is still out on these machines, but caution is urged. All negative ion generators emit ozone as well as negative ions. Make sure that any ion generator you might buy has a very low level of ozone emission. Many people also report a difficulty in sleeping when one of these generators is in the bedroom. Evidently the negative ions have a stimulating effect on the organism, and this may prevent a deep sleep or rest.\
>
> If you must work in a smokey or dust-filled environment, however, an air-filtering device or ion generator might be more beneficial than harmful and should be carefully investigated.

I want to move where there isn't any air pollution. Where should I go?

> I would suggest the moon. There is no air there, nor any pollution at this point. Seriously, there is now no place on earth that does not have an air-pollution problem. Air pollutants have been found in the Antarctic air where there are no cars nor industries. There are definitely worse places to live than others, however. If you live in the nation's top twenty urban areas, you'll be worse off than many of your country cousins. It's not just urban density, however, that determines the quality of your air. You also have to consider the terrain and weather conditions. Some cities produce an awful lot of pollution, but the prevailing winds simply blow the poisons downwind to another town or state. Generally, however, you would do well to avoid cities that have heavy industries, like petroleum, plastic, or chemical plants. Coal-burning areas are always worse than locales that do not use coal as a major fuel source.
>
> You cannot, however, run away from air pollution. It will follow you no matter where you live. The ultimate solution to air pollution is not to remove yourself from it, but to remove the pollution from the air. It is an uphill fight, but it can be won if you make your voice heard.

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Article #1: The Breath of Life by Dr. Herbert M. Shelton

Man is a child of nature. He is an outdoor animal. Normally he lives amid the beauties of nature, his skin bathed in the morning dew, kissed by the sun, soothed by the gentle zephyrs of Spring and his body fed by the luscious fruits and vegetables all around him, while his spirit is cheered by the songs of birds and the beauty and fragrance of myriads of gorgeously colored flowers. The open air is his home and he who lives in it is fortunate indeed.

Like fish on the floor of the ocean, we live in a sea of air that is much deeper than the hydrosphere in which aquatic animals live. There is always an abundance of much needed oxygen, if we but permit it access to our lungs. The air is self-purifying, so that, while impurities are ceaselessly being discharged into it, these soon find their way to other levels and leave the air fit to breathe. Pent-up air, that is, air that is confined in closed rooms, and air that is held in congested and gas-laden cities quickly becomes unfit for breathing. Such air, if breathed habitually, helps to produce disease; whereas, pure is one of the basic essentials of good health. This is often denied, but we shall continue to insist that pure air is absolutely essential to excellence of health and to the highest beauty and that, on the contrary, impure air tends to the production of poor health and the deterioration of beauty.

Modern city life, with more than sixty-five percent of our population residing in the cities, denies fresh air to the people as certainly as did the closed windows and doors of the houses of our grandparents. It is not that there is no air in the cities, but that it is so badly polluted with smoke, fumes, dust, etc., that it is actually unfit to breathe. The carbon monoxide from the exhaust of automobiles is but one of the air-polluters of modern life. Nitric and sulphuric acids, lead oxides and lead carbonates are among the contaminating elements found in the air of cities. The soot of soft coal is often one-half coal tar and this must help to produce lung cancer as surely as do the tars of tobacco smoke. The particles of carbon (soot) in smoke-filled air accumulate in the lungs and become imbedded in the air cells, gradually changing the lungs from their normal pink to one of sooty blackness. Indeed, this coating of carbon becomes so thick that one wonders how the individual breathes at all. As we become more and more a manufacturing nation and chemistry continues to pollute the air of the cities, they will grow progressively more and more unfit for human beings to inhabit. There are urgent reasons, other than atom and hydrogen bombs, why we should inaugurate an immediate program of decentralization designed to ultimately do away with all cities.

The body's need for oxygen is constant, hence it is not possible to stop breathing for more than a very brief time. It is impossible to hold the breath for more than a minute or so. If the breath is forcibly cut off for a longer period than this death, death from lack of oxygen quickly occurs. It is estimated that approximately eighty-five percent of the oxygen we need is derived from the air we breathe, ten percent from water and five percent is taken in from the air through the skin. Dr. Tilden held that we get some oxygen from the foods we eat, perhaps from the water in these. There are reasons to doubt that we breathe with the skin. I question that we extract oxygen from water.

Other than an adequate supply of fresh air, the essential of good breathing is an adequate respiratory mechanism; sound lungs, a chest of sufficient size to house lungs large enough to deliver sufficient oxygen to the blood, normal chest movements in breathing and normal passages from the nose to the lungs. If the chest is too small it is not only out of harmony with the rest of the body, hence ugly, but it fails to meet the functional needs of the organism. If we begin early enough and persist in our efforts the chest may be developed in almost everybody to the required size.

The motility of the chest is often only slight, due in most instances, to a lack of use. The motility of the chest may be determined by measuring its expansion. In measuring chest expansion it is common to place the tape just beneath the arms. A truer measure of chest expansion may be obtained by applying the tape over the lower ribs, just beneath the breasts. The chest should be fully contracted and then expanded to its limit. The difference between the two measurements thus obtained gives us the chest expansion. This does not always measure chest capacity, as much of this depends upon the action of the diaphragm.

Air does not require to be forced into the lungs; it has to be forced out. When the chest expands, a vacuum is created and the air automatically flows into this. Normally the activities of the chest in breathing—inspiration and expiration—are automatically adjusted to the needs of the body; these activities increasing when more oxygen is needed or there is more carbon dioxide to expel, and decreasing when there is decreased need for oxygen or decreased production of carbon dioxide. Many things do, however, lower the functioning power of the respiratory system and cause use to function on a lower physiological level.

Impaired respiratory function reduces the amount of oxygen that is taken into the blood and that is carried to the tissues (anoxia) and the amount of oxygen in the blood (anoxemia). Some of the inhibiting factors are external and are supplied by the individual himself; others are internal and are commonly of the individual's own making. Let us briefly consider these in order.

Cramped positions of sitting and standing that prevent the normal excursions of the chest and diaphragm, tight belts, corsets, foundation garments and other articles of apparel, that constrict of the chest and abdomen and prevent normal chest and diaphragmatic movements, hamper the intake of sufficient oxygen to meet the needs of the organism. Under such conditions, the body is forced to reduce its other functions to a level commensurate with the support provided by the respiratory system. Instead of vigorous function, feeble function is our lot.

Nasal obstructions (adenoids, nasal polyps, thickened nasal membranes, catarrh, bent or broken septum, traumatic and congenital distortion of the nose, small nasal passages, etc.), spasm of the bronchi (as in asthma) tumors that block the respiratory passages, pleurisy, adhesions, tuberculosis of the lungs, water in the lungs, as in advanced heart disease, pneumonia, a cold, smallness and deformities of the chest limit the amount of air that may be taken in at each respiration and the amount of carbon dioxide that can be expelled at each expiration.

Free nasal passages are not only essential to the ingress of adequate oxygen, but also to the normal conditioning of the inspired air for its entrance into the lungs. The air must be warmed or cooled, moistened or dried, as the case may be, in its passage from the outside to the lungs. If the nasal membrane is swollen and congested, for example, it will not only hinder the intake of air, but it will fail to properly condition the air. Dust and dirt must be filtered from the air, as it passes into the air passages and down to the lungs. This fails if the nose is not normal. Thus it becomes apparent that a well-formed, efficiently functioning and fully healthy nose is as necessary to good breathing as a well-developed chest and sound lungs. If the respiratory mechanism is normal, if the air is pure, if there are no external and positional interferences with the mechanism of breathing, this function will be automatically and subconsciously adjusted to the varying needs of the body for oxygen, so that conscious attention to the process is unnecessary.

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Lesson 53 - Solar Energy And Your Health

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1. Solar Energy

1.1 What Is Solar Power?

The sun is expected to emit radiant energy for another four billion years, the only perpetually renewable energy source for our planet. Obviously, it is time to learn how to use the massive amounts of energy the sun gives us each day. Three processes by which the sun's radiation can be used are *heliochemical* (photosynthesis, photography), *helioelectrical* (manmade devices that convert solar radiation into electricity), and *heliothermal* (devices that absorb solar radiation on blackened surfaces and convert it to heat).

All energy on earth originally came from the sun. All of our hydrocarbon fuels such as coal, oil, and natural gas were originally produced by the action of sunlight on vegetation.

Light is a form of electromagnetic energy. Energy is the capacity to do work, and power is the rate at which energy is generated or used (measured in watts or kilowatts). The amount of power we can get from any solar device depends on the amount of sunlight it intercepts and on the efficiency of the energy conversion device. Solar energy intercepted by an area the size of a small tennis court would supply the energy needs of an average household. The radiant energy in sunlight must be converted into some form of energy that is easier to use, such as electricity—the solar cell is just such a device.

The photovoltaic effect, where electricity is produced when certain materials are illuminated, was first noted in 1839, and the photovoltaic effect, where electricity is produced when certain materials are illuminated, was first noted in 1839, and the photovoltaic cell is probably the first solid-state electronic device ever invented. Its use has been slow because of the abundance of hydrocarbon fuels like coal, oil, and natural gas. Photovoltaics were first used in selenium cells to measure light levels (as with the light meter used in photography). The space program uses photovoltaic cells because conventional batteries will run down, but solar cells will continue to deliver electric power as long as sunlight is available.

1.2 Advantages of Using Solar Power

The basic reason for using solar energy is that it is a renewable, limitless energy source that promises freedom from dependency on nonrenewable energy sources, thus freeing humankind from the threat of war over dwindling natural resources.

Solar power is clean, nonpolluting, and safe. Once the basic systems are installed, the sun is free; and since power is produced locally, on the spot where it is to be used, transportation of fuels and distribution of power aren't necessary. Solar electricity can be brought to remote locations that are too far away for bringing power lines, for example. Solar research can be carried out in small laboratories with inexpensive equipment.

Solar energy usage will create jobs—about four times as many as nuclear power. It is labor-intensive, that is, about half the money that goes to building a solar space or water-heating system goes to paying the wages of the people building or installing it. A solar-based economy would put more people to work than a fossil/nuclear one. (It also employ's people from a wider range of abilities, whereas nuclear power plants, aside from preliminary construction workers, use mostly professionals. Most jobs at nuclear plants will be for security personnel.) Solar power is community-based, but nuclear power is centralized and monopolized by certain monied interests. Tax credits can be received for certain home-improvement and energy conservation installations.

1.3 History of Solar Power

The concepts behind solar energy use are not new, by any means. Legend has it that in 212 B.C. Archimedes set fire to an attacking Roman fleet by turning a "burning glass" composed of small, hinged square mirrors so as to reflect concentrated sunlight onto the ships. For years scientists argued about whether this was myth or fact, but in 1747 a Frenchman proved that it could have been done by burning wood from a distance of 200 feet with an array of 168 small flat mirrors, and then melted lead at 130 feet and silver at 60 feet. In the same century, an optician in France built polished iron solar furnaces that could smelt iron, copper, and other metals. Another investor used two lens to achieve a temperature close to 1750° Fahrenheit—far beyond any temperature attained by man up to this time.

In the 1800s came many models of solar-powered engines and solar steam engines. In 1871, a solar still in Chile provided 6,000 gallons of pure water a day for forty years. In 1880, a solar engine was built in France that ran a printing press.

Of course, foods have been sun-dried for ages, using solar power *without* the need for technology. In the early 1900s, solar ovens appeared.

Solar water heaters were known in southern California and other states in the 1920s and 30s. After World War II, solar sciences flourished in Europe and a boom in solar water heaters began in Japan and Israel. Heaters were installed by the 100,000's in Japan.

Here in America, the military picked up interest in solar power. The navy wanted solar battery power supplies for buoys and other installations. The Air Force had small solar-powered radio transceivers for aviators' survival kits. The Army used solar panels to transmit radio signals and put smaller units in helmet radios for soldiers.

These are but a *few* of the many experiments in solar power undertaken through the centuries, and one would need to read a whole book to go into greater depth. The point is, that many inventors have long trusted in the power of the sun, and their greatest obstacle has probably always been the apathetic lack of interest by their fellow men in using the sun's power. In fact, there is an interesting analogy that serves as a parallel to the solar/nuclear industry. When Thomas Edison was first working on his experimental light bulb, the gas company did all it could to discredit this inventor calling his work foolishness. They wanted, of course, to preserve their energy monopoly as gas suppliers to all those gas lamps! When Edison finally perfected his *light bulb*, not only did he change the future of the human race, but he also showed the gas company who was *foolish*. It is certain that the nuclear power industry would rather have people remain ignorant of solar power and its grand potential for as long as possible. They would rather have people perceive it as "futuristic," when the truth is that much can be done now in solar energy, and its use and history are as *old* as the sun itself.

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2. Nonrenewable Resources

2.1 History of Their Use

For centuries before the Industrial Revolution, people relied on the chemical energy of plants and animals and the natural forces of wind and water to provide the necessities of life. As more efficient ways were discovered to use these energy sources, changes took place in the way people lived. After the 18th century when power devices were found that could convert steam and, later, fossil fuel into work, energy consumption grew and people underwent rapid social changes. There were switches from wood to coal and from whale oil to petroleum. Then came the internal combustion engine; electricity; steam, gas, and water turbines for generating power; and then the nuclear age.

The trend has been away from *dispersed* natural forces available for large numbers of people to *limited reservoirs* of intensive chemical energy (fossil fuels) controlled by a few corporations. People have become more dependent, in that they've lost more control over their energy resources.

On a global scale, there are two main patterns of energy consumption:

1. About 80% of the world's energy comes from fossil fuels, about 20% from dung and vegetable wastes, and about 1% from water power (mostly hydroelectric), and minor amounts from nuclear, solar, geo-thermal, and wind power.
2. About 75% of the world's energy is consumed by a few rich countries representing less than 30% of the world's population. (The U.S. has about 6% of the world's population, yet it uses 35% of the total energy.)

Energy consumption is *encouraged* because it is said to reflect growth, though unemployment often increases despite or because of increased usage. Much money is spent to increase energy production, but there should be more interest in energy *conservation* and use of renewable resources. Nonrenewable resources like fossil fuels are limited and destined to be exhausted. If people make themselves *totally* dependent on dwindling supplies, the threat of war over what's left becomes a horrible specter.

Today many of us in the United States draw on what would be the equivalent of 70 mechanical slaves to "enjoy the good life." The first waterwheels produced about 1/2 horsepower, with later versions producing 70 horsepower. Cars can have several hundred, aircraft engines thousands, and a rocket engine for spacecraft may produce more than 20 million horsepower. Electric power plants generate millions. Much of the world suffers from hunger and malnutrition (70,000,000 people face starvation yearly), so if we and our fellow human beings are to have any quality of life, we should cut down on our energy consumption and look to new sources of *renewable energy for power.*

2.2 Disadvantages of Nonrenewable Energy Sources

Aside from the fact that nonrenewable energy sources are in limited supply, the main reason for not using them is the pollution, health, and safety risks involved. Some say there are "three environmental time bombs"; toxic chemical pollution, carbon dioxide (CO2) buildup, and acid rain.

The buildup of CO2 in the earth's atmosphere is often referred to as "the greenhouse effect." By burning fossil fuels and cutting down forests, people have caused an increase of carbon dioxide in the atmosphere, which can cause temperatures to rise on a world level. A few degrees difference may not seem important, but on a world scale it can have a dramatic effect. (Some say there would be increased melting of polar ice caps, for one thing.)

As coal, oil, and natural gas are burned worldwide, smokestacks of electricity—generating plants, industrial boilers and smelters release sulfur dioxide (SO2) arid nitrogen oxides. Nitrogen oxides also come out of auto exhaust pipes and slowly escape from chemical fertilizers. These emissions have resulted in "acid rain" which damages vegetation and wildlife and can corrode metals. Fish are being destroyed in sensitive areas, and acidifying soils can result in increased leaching of some trace elements, a slowdown of the organisms that break down the contents on the forest floor, and reduced organic nitrogen. For decades, acid rain has eaten into structures like steel bridges and statues. Not only is acid rain destructive, but winds carry the emissions from factories and exhausts into other countries as well. There are no boundaries for air pollution. Some beautiful areas in Scandinavia are getting acid rain from Europe's industrial belt and in some lakes, fish have been virtually eliminated. Canada gets its share of America's acid rain. In an unprecedented lawsuit in 1981, Maine Attorney General, James Tierney, said he was considering suing the federal government and other states because of drifting air pollution that caused acid rain. He wanted laws concerning sulfur dioxide emissions strengthened, and states with weak laws held liable.

No one yet knows for sure what acid rain might do to *humans*. Dry, airborne pollutants are largely associated with respiratory diseases. One estimate in 1975 suggested that "acid sulphates from fossil fuel emissions are responsible for 7,500 to 12,000 deaths a year." This can't be proved, of course, since so many factors influence peoples' health that one particular cause of death is always difficult to pinpoint, (as in cases of radiation exposure).

2.3 Water Pollution

Forty-three percent of America's community drinking water systems are reporting violations of federal health standards. In addition, 13,600 of the nation's 65,000 systems have inadequate treatment facilities. People often aren't aware of any dangers in their water. In 1980, of 146,000 violations recorded, public notice was made in 16,000 cases. In 1981, New Hampshire officials warned 14 communities that traces of arsenic had been detected in their public water supplies. Virtually every stream, river, and lake in the country is polluted. There is runoff from fertilizers and insecticides, industrial waste, and thermal pollution in overheated waters. (Nuclear power plants produce more thermal pollution than conventional steam electric plants.) In New Orleans, 112 different chemicals were found in a sample of drinking water, and the rate of cancer is going up. At least 40% of the population is using water that has been used at least once before for domestic or industrial purposes, sometimes as many as five times by other people.

Some chemical substances interact with one another in water to form entirely new, often dangerous, chemicals. Chlorine can react with decomposing leaves and become chloroform. Chlorine has been accused of causing cancer, yet most of the "drinking" water in America is now chlorinated, fluoridated, and so on.

2.4 More Environmental Pollution

In 1970, a study showed that 200,000 children in the U.S. had overly toxic levels of lead in their bloodstream. A more recent article stated that this number is more like 600,000. These figures don't include adults, and most people aren't even tested for lead in their bloodstream anyway. Auto exhausts and industry are putting this lead into the environment.

According to a study by the National Wildlife Federation (the country's largest nongovernmental conservation group), most of the environmental indicators of the "quality of life" show deterioration. Supposedly, 90% of all major U.S. factories now comply with pollution laws, but the report said most Americans live in areas where it is still unsafe to breathe. Land is unwisely used, soil erodes and gets poisoned, water is wasted and polluted (with over 70,000 chemicals in current commercial use, runoff can bring many to waterways), and the endangered species list has more than doubled. All these gloomy changes reflect our choice of energy consumption, and much waste and greed.

2.5 Nonrenewable Energy Used In the Home

With today's increased interest in good insulation, one must be extremely cautious in providing *adequate ventilation* since fumes, gases, and other toxic vapors are the byproduct of nonrenewable energy use. (This is the advantage *solar power* has over fossil fuels—it is *clean* and *safe*.) If you're using "traditional" energy sources, you must be aware that in insulating to retain heat, you may also be retaining such things as radioactive radon and its decay products or formaldehyde escaping from some types of insulation (a popular new insulation is urea formaldehyde— beware). For insulation one *can* use vermiculite, perlite, and expanded silicate—inert minerals that don't release fumes. You may be retaining formaldehyde fumes from particle board, hydrocarbons from gas stoves, and petrochemicals from paints to cleaning fluids. Soft coal fires put benzopyrene (another carcinogen) into the air. At only one part per two million, formaldehyde can cause swelling of mucous membranes. Higher levels can result in coughing, chest pains, headaches, cold- and flu-like symptoms, eye and nose irritations, bloody noses, scratchy throat, nausea, and possibly cancer. Recently, some investigations were made into complaints from people in new, well-insulated mobile homes where formaldehyde gas was detected.

Many people didn't link symptoms, which are so often associated with other "common illnesses, to anything serious so it took awhile for *any* connection to be made to formaldehyde. Often the most common building materials— concrete, brick, stone, and adobe—contain trace amounts of radium and uranium. These levels, are measurable with equipment similar to a geiger counter. As insulation to a home increases and drafts and ventilation decrease, more radon is retained at higher levels. Normally, when fresh air seeps into a house, the air is completely exchanged in one hour, but heavy insulation can reduce this air exchange to once every five hours. Some heavily-insulated homes have been measured with an annual dose exceeding permissible levels for uranium mines. The Environmental Protection Agency examined the radon issue and concluded that 10,000 lung cancers diagnosed yearly could be caused by this radioactive gas, and warned that deaths could double or triple with increased heavy insulation. Ventilation with fresh air is *necessary.*

Gas appliances, stoves, and heaters are another source of indoor air pollution. Natural gas is one of many petrochemical agents capable of creating symptoms like arthritis, depression, water retention, and abdominal distention in *even the best-ventilated homes*. (Here, one must realize that one should not inhale a toxic fume—indoors or outdoors—because toxic is toxic, so ventilation isn't really relevant here. If one does use gas though, one should of course still ventilate as much as possible.) With gas stoves, emissions from combustion are exhausted *directly* into the air. Such an oversight would never be allowed with any other burning material, because we know that the products of combustion are hazardous to inhale. The two major pollutants produced by combustion are carbon monoxide and nitrogen dioxide. Carbon monoxide displaces oxygen in our blood's hemoglobin, and can cause headaches, exhaustion and asphyxiation. Nitrogen dioxide is a byproduct of high-temperature combustion, and studies have shown that levels may be five times greater indoors than outdoors, especially in major cities. One investigation found that operating a gas oven at 350 degrees for one hour, with little ventilation, resulted in excessive levels of carbon monoxide in the house. Excessive amounts were also found with moderate ventilation, but levels did decrease when speed of ventilating fans was increased. The health hazards of cooking with natural gas are mostly respiratory in nature, and some studies showed a statistically significant difference in lung capacity between children living in homes with gas stoves and those with electric ranges. Another study showed that twice as many residents with gas reported chronic coughing, and three times as many had impaired lung function. (Fortunately, those of us on *raw food diets* need not be burdened with these worries but not everyone is so fortunate.)

Kerosene heaters, sold by the millions the last five years, give off substantial amounts of carbon monoxide, nitrogen dioxide, carbon dioxide, and sulfur dioxide. These emissions are said to be especially dangerous to pregnant women and their fetuses, babies, and persons with respiratory problems, anemia, angina pectoris, or a heart condition. Any unvented heaters are obviously sending combustion byproducts right into the room just like a gas stove. (Some heaters also present fire hazards if improperly used.)

Lignite is a low-grade coal that poses several health problems. Uranium in the material above lignite deposits could cause both pollution *and* health danger when disturbed. Those operating a lignite plant are working close to known carcinogens, and emissions from the plant include sulfur oxides, which combine with moisture in the air and produce sulfurous acid, sulfuric acid, and ammonium sulfate which can corrode buildings, damage vegetation, and cause respiratory ailments. Much carbon dioxide is formed and released, and it combines with water to form acid rain. Lignite has been presented in some areas as an alternative to nuclear power, but people living near lignite plants would absorb about five to six times as many milli-rems of radiation as the "accepted maximum dosage allowed" for areas around nuclear power plants. When lignite burns, radioactive isotopes are released. Nearby water risks contamination and depletion because vast amounts of water are used at all stages from mining to burning and sludge disposal.

We can see why it will be a welcome relief to make the switch to a cleaner, safer energy source that doesn't result in so many complications and compromises! Yet the negative side-effects of all these nonrenewable energy sources pale in comparison with the problems encountered with nuclear power.

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3. Nuclear Power

3.1 The Politics of Energy

In 1981, there were 78 nuclear power plants operating or under construction, with 16 more on order. Outside the U.S., there were 182 operating reactor units with another 138 under construction.

One of the first things to remember in dealing with the politics of nuclear power is that using nuclear power to solve the energy crisis seems perfectly normal to the select few who will profit from it and perhaps not be affected by its dangers. This "privileged elite" must convince the workers who labor that a common good will come of it all, although the elite will keep control over the largest portion of the resulting wealth. It has been this way since the beginning of time. Near the top we find people at the next layer of power—the professionals. These are our educated. Intellectuals are usually glad to compromise ethics for the generous compensation given out by those at the top. (We might note that doctors fit into this category, as do many scientists, engineers, corporate executives, and so on.) There is always a "professional" ready to tell you why nuclear power is safe and desirable, just as the surgeon will insist that his surgery is safe and necessary. When "studies" show that "all is well," one might do well to note that many a drug has "passed inspection" and many pesticides have "been approved" all because of "studies." It is suspiciously easy to find scientists who will come up with just about any result desired by commercial interests.

There were biologists in laboratories funded for 20 years at $50 to $90 million per year to study the biological hazards of ionizing radiation, but *little* has been said on the possibility of death (which is certainly a "biological hazard"). But because cancer can begin for a variety of reasons, it is conveniently impossible to prove that a particular cancer or death was caused by radiation. This protects private and governmental polluters, because who can *prove* they have caused even *one* cancer?

It is certain that ionizing radiation can induce cancer in humans, and it can also be mutagenic—mutation-causing. It's hard to know what damage has already been done to future generations by the continued casual dumping of pollutants into the biosphere by "advanced" nations. Would we be as willing to accept nuclear power if we had to *name* 100 or 1,000 or 100,000 people each year to be executed by a firing squad in exchange for electricity? How different is it to give the go-ahead for nuclear power, when the same odds are at stake, and victims are like guinea pigs in an experiment?

Nuclear power appeals to the privileged elites that control all societies, because it is a centralized system, not a do-it-yourself technology like solar power—it allows them better financial control. Power is being centralized in other areas such as the auto industry, food growing/distributing functions, and so on. The energy source that best meets the need of the elite is that which guarantees *dependence* on a central source. (You'd probably see that *centralized* solar electric systems would be the first strongly promoted types of solar energy if the energy companies become involved.)

Although nuclear power is being pushed with a fervor, it is becoming outrageously expensive and many power plants are plagued with cost overruns, because the costs of the nuclear industry are rapidly escalating.

There is another, more subtle side to the financial coin with regards to the politics of energy known as "economic blackmail." People are taking whatever jobs are available because of their basic survival instinct. So, if a scientist does speak out, he may say something like "a solution for *managing* radioactive poisons will be found" instead of "radioactive poisons are hazardous to your health" (or "run for the hills!"). In fact, some have even gone so far as to say "don't worry if you get cancer—they're working on finding a 'cure' now!" Not very reassuring.

Use of nuclear power violates our most basic law, not to kill, because it implies premeditated random murder, committed by all the nuclear power plants. (In 1978, *Honicker vs. Hendrie*, a lawsuit challenging the "right" of the Nuclear Regulatory Commission to commit premeditated random murder by licensing nuclear power plants, was filed.) We will discuss how nuclear power plants cause deaths and genetic damage in the population later.

Long ago the government teamed up with industry to perpetuate a fraud about the safety of nuclear power— one source likened this fraud to "making Watergate seem like a kindergarten picnic."

Whatever happened to our inalienable constitutional rights to *life*, liberty, and the pursuit of happiness? Nuclear power will commit crimes against innocent victims, now and in the future. We seem to have forgotten that these future people will be more *highly-evolved* human beings. It is quite unlikely that they would choose to be poisoned if they had the chance to decide for *themselves!*

We are becoming involuntary human subjects, being experimented on daily by chemical compounds in the atmosphere. Remember that in the mid-50s, the toxicity of low-dose radiation was "uncertain," so bombs were tested in our own country. Now people with cancer that lived near test sites and were told they were "safe" are suing the government. We are becoming more and more aware of the dangers of radiation. The crime goes from "experiment" to murder, and if this permission for random murder is *granted*, people risk loss of freedom, justice, and their lives.

It is ironic that when antinuclear activists are arrested at demonstrations, some people just see them as "protesters," when here they are trying to wake up a slumbering public, and save the lives of this generation and of generations not yet born—definitely humanitarian motives.

Up to 1969, the Atomic Energy Commission (AEC) and nuclear industries promoted the idea that radiation would do no harm to humans below a certain level. Since it is now known that there is *no* safe dose, the so-called "safe" standards for public exposure could have caused 32,000 extra cancer deaths per year (and that's assuming the public wasn't exposed to *more* than the "safe" limit). Chances are the exposure was, and is, higher. The genetic consequences after several generations could be between 100,000 and 1,000,000 extra deaths a year. The AEC and nuclear industry tried to ridicule and deny these statistics, but after a two-year study, a committee of the National Academy of Sciences *agreed* that there was no safe dose of radiation, though their estimate of the number of deaths was lower. Nevertheless, their estimates did admit to many thousands of deaths. (The official recognized statistic of the nuclear power industry is 0-3 possible cancers a year.)

When pressured further, the AEC and nuclear industry, instead of *lowering* the allowed radiation dose, then said that they "don't intend to *give* anyone the dose permitted by regulations anyway. "That's not very helpful when we can see from the history of pollution of any sort that polluters always pollute as much, or *more*, than is legal. When an industry doesn't want to *lower* a poison's legal limit, it is because it plans to give *at least* the presently permitted dose. Doses that exceed the "permitted" level because of some unforeseeable accident *will not count* because they fall into the category of "unplanned" or "abnormal" circumstances. So, whatever dose we get will be "O.K." as long as it's unplanned!

Often the nuclear power promoters will remind us that we're exposed to "natural" radiation from the earth. Perhaps so, but we can't very well move from the plant. That source of radiation is bad enough without that imposed by the nuclear power industry. They also say that there won't be more radiation than say, our X rays might give us; here, beware, for X rays are harmful since there's no safe dose of radiation.

We can already see how complex nuclear power is, but this is just scraping the surface. Let's see what else happens before, during and after nuclear power production.

3.2 The Dangers of Nuclear Power Problems BEFORE We Get to the Plant

When uranium is mined, two highly carcinogenic and radioactive substances are released: radium and radon. Radium, an alpha-emitter with a half life of 1,600 years, is a decay product of uranium which is found in uranium ore. Its particles of dust from uranium mines are swallowed, the radium is absorbed by the intestine and can cause cancer. Radon, a gas, can cause lung cancer if inhaled. Before the dangers of radon were known, 20% of all uranium miners in the United States died of lung cancer and a similar percentage was found among German and Canadian uranium miners.

After the ore is mined, it's ground, crushed, and chemically treated to extract the purified element. The waste ore, called tailings, is discarded outside the mill and left lying on the ground in huge mounds. To fuel a *single* power plant for a year can create a half a *billion* pounds of tailings. These tailings contain thorium (halflife of 76,000 years) and radium. If the radium is exposed to the air, it will give off radon gas for as long as 800,000 years. This radon gas is killing people *now* and can do so for at least the next billion years.

Until recently, hundreds of acres of tailings lay on the ground in Grand Junction, Colorado. In the mid-60s, tailings were used around town for cheap landfill and concrete mix, and this went into schools, hospitals, private homes, roads, an airport, and a shopping mall. In 1970, a local doctor noticed an increase of cleft palate, cleft lip, and other congenital defects among newborn babies in the area. Further investigation showed that parents of these children lived in houses built with tailings, and when tested, many of these buildings showed very high radiation levels. Soon after this, some people at the University of Colorado got funds from the former Environmental Protection Agency to study the correlation between low-level radiation and a rise in birth defects—a year later funds were cut off and they were told the government had to cut back on many programs for "budgetary reasons."

Next, uranium ore must be "enriched" so that its Uranium-235 content makes up 3% of its bulk, since only 0.7% of the uranium found in its natural state is of the U-235 variety. This process is extremely expensive and uses vast amounts of energy. It leaves radioactive tailings similar to those produced in milling the ore. In the United States, the federal government has to subsidize the enrichment process because it costs so much.

After enrichment, uranium ore is processed into small pellets. A typical 1,000-megawatt reactor has bundles of fuel rods that use 100 tons of uranium. (Workers exposed in making these pellets are susceptible to dangers of gamma radiation emitted from the enriched fuel.) The enriched uranium is now ready to undergo fission, during which hundreds of radioactive isotopes (all carcinogenic and mutagenic) with half-lives ranging from several seconds to 24,400 years are released. Even though symptoms haven't appeared, the doses already received by workers will result in thousands of cancer victims, and this random murder of workers is politely referred to as "health effects" by government regulatory agencies. Fifteen years of records from one of the two hospitals in Durango, Colorado, site of one of the nation's huge exposed radioactive mill tailings piles (a 1.5 million ton pile), show a rate of lung cancer four times the national average. Earlier in 1979, more than 30 radioactive sites were discovered in Denver and elsewhere in Colorado-remnants of the radium industry that flourished at the turn of the century. There are over 4,000 such radioactive sites in this country.

Workers at mines are exposed to higher levels of radioactivity, radon, and toxic materials than the public, and there are even infractions of the official "safe" dosages. Many workers are poorly informed on the dangers of the materials they are working with. Worker turnover is high and no follow-up is done on workers. Some long-range effects of exposure may not show up until years later.

After the uranium is mined, it must be transported to its final destinations. Our nation's highways and railroads are being crossed daily with radioactive materials and workers who handle these shipments are often exposed to radiation. Between 1974 and 1978, there were 328 transport accidents involving radioactive cargo—118 serious enough to release radiation into the environment. (This amounts to about three accidents every two weeks involving shipment of radioactive materials.) Nine out of ten occurred on public highways. (Even planes carrying nuclear weapons have crashed—there are over 30 such accidents on official record, but one source says this may be a fourth of the real number.) Civil defense and fire personnel are ill-equipped to handle nuclear emergencies.

Another problem with nuclear power is the choice of some of the power plant locations. There are quite a few nuclear reactors in geologically unsound areas. The South Texas nuclear plant is being built over the convergence of three earthquake fault lines and is built to withstand 90-mph winds in an area where hurricane winds have been known to greatly exceed that. The Diablo Canyon (California) power plant is three miles from an offshore earthquake fault, and other California plants have been built that are dangerously close to fault systems. Within a 200-mile radius of New Madrid, Missouri (the region hit by powerful quakes in 1811), nine nuclear power plants are situated. In New York state, the Indian Point power station is located within a mile of the Ramapo fault system, and this plant is only about 25 miles north of New York! The industry will say that power plants are designed to withstand earthquakes but in 1979 the Nuclear Regulatory Commission closed five eastern power plants because an error in the computer model used by the engineering company understated the stresses that the piping in the coolant systems of the reactors might have to withstand in the event of an earthquake. (We will discuss meltdowns, which can result with failure of the cooling systems, later.) About a month later, an earthquake struck Bath, Maine, with tremors being felt in a 200-mile radius, which includes three nuclear power plants.

Another problem with nuclear power is that the fuels used can be used to make bombs and are therefore vulnerable to theft, smuggling, and terrorist activity. Approximately two *tons* of weapons-grade enriched uranium and plutonium have already been stolen from nuclear facilities in the United States. These thefts, whether by nations, terrorist groups, or criminal elements will become a standard feature of a nuclear world.

3.3 Problems At the Power Plant

Once inside the plant, we can become concerned with the possibility of sabotage of the power plant, i.e., terrorist threats, or blackmail. Then come engineering defects and errors, which have been discovered; the problem of "human error" in the nuclear industry is a big one because the stakes are so high. Next, we have "routine emissions" and leaks such as: a mechanical failure that caused a plant to "burp" radioactive xenon gas into the atmosphere, or radioactive steam that spewed into the air for 27 minutes at another power plant. Hundreds of these "nonserious" accidents are on record over the years, and the space of this lesson does not permit coverage of all the mistakes. Suffice it to say there is a wealth of documented scare stories available.

Perhaps the best known failure was at Three Mile Island, when a series of accidents led to a buildup of pressure in the reactor and the release of radioactive steam into the atmosphere. The atomic core was difficult to cool, radiation leaked, and a hydrogen gas bubble inside the reactor could have become explosive.

Estimates were made that childhood cancers could increase up to 60% in the five years following this accident within a 200-rriile radius of the plant. If the worst had happened at Three Mile Island, at least 200 and perhaps up to 23,000 outside a 50-mile radius would have died of cancer.

The biggest danger in nuclear power is the possibility of a meltdown. Whether caused by a defect in design or construction, human error, or sabotage, it could release a reactor's deadly radioactive contents into the atmosphere, killing thousands of people and contaminating an area the size of Pennsylvania. Over the course of the next generation, genetic abnormalities and thyroid cancer would strike untold numbers of additional people.

A meltdown can occur if the coolant water at a reactor's core drops below the level of the fuel rods, which would become so hot that they would melt and then the whole mass of molten uranium would burn through the "container" (the concrete base of the plant) and 1/4 mile into the earth, triggering a tremendous explosion that would blow the containment vessel apart, releasing the radioactive elements into the atmosphere. After the blast thousands die immediately. More would did within two to three weeks of acute radiation illness. Food, water, and air would be so grossly contaminated that in five years there would be widespread leukemia, followed 15-40 years later by an upsurge in cancers. The genetic deformities that might appear in future generations are inconceivable.

The potential enormity of such a meltdown cannot be exaggerated. The Union of Concerned Scientists conducted a two-year study that projected 15,000 people could die of radiation-induced cancer from minor reactor accidents by the year 2000. In the same period, there's a 1% chance that a major nuclear accident will occur, killing nearly 100,000 people. There have already been some close calls.

We still haven't mentioned the "routine" exposure to radiation of nuclear power plant workers themselves. As with uranium miners, they are often not informed specifically of the dangers of radiation, only told in *general* terms that it can be dangerous. Workers wear badges that monitor the level of exposure to radiation, but this device registers only gamma radiation and disregards alpha and beta emissions, which can be swallowed or inhaled. Workers are permitted to receive 30 times as much radiation as the limit set for the general public. The nuclear industry keeps records of no more than five years after an employee leaves the job. This is obviously ineffective in pinpointing slower developing cancers or in spotting cancer in the *offspring* of victims. Unskilled or migrant laborers are often hired for high wages in areas of intense radiation. After they receive their six-month allowable dose at one facility (sometimes in only *one day*) they may be hired on at another power plant without ever being questioned about their previous radiation exposure. (When a pipe broke at the Indian Point plant and it was rendered inoperable for six months, 1,300 certified welders—almost every certified welder in the New York area—were needed to repair the damage. This is because within a few minutes, each worker would receive the dose of radiation "allowable" in a six-month period.)

Last year, statistics on 68 operating plants showed that their work forces were exposed to 35% more radiation in 1980 than in 1979 even though there was only one new plant. The doses these workers get can provoke genetic injury; with intermarriage with nonworkers, some genetic degradation of the population-at-large can result.

Studies have also shown increased cancer in areas around nuclear power plants. A nuclear power plant must release radiation into the environment in order to do its job. Low-level radiation, the alpha particles get carried away on dust or pollen by wind or water.

Every *independent* study in this country in the last 20 years (i.e., studies not conducted by the nuclear power industry) has shown that current standards of radiation are too high. Workers and the public have been deceived concerning "permissible" or "tolerable" doses of radiation. There will be injuries in proportion to the *accumulated* dose of radiation, down to the lowest doses, although radiation effects may not show up for as long as 30 years. (Remember, however, if genetic damage occurs, it is *immediate*.) Still, the nuclear power industry continues to claim that "no one's been harmed by radiation."

Radiation is insidious because it cannot be detected by the senses. We are not biologically equipped to feel its powers, or see, hear, touch, or smell it. Radiation harms us by ionizing—that is, altering the electrical charge of the atoms and molecules comprising our body cells. Of all creatures on earth, human beings are one of the most susceptible to the carcinogenic effects of radiation. There is also one flower that is very sensitive to small amounts of radiation, called the *Tradescantia* or spiderwort. Down to 250 to 300 millirems of radiation can change the genetic character of this plant so that it changes color—the stamen changes color—so they have planted them around nuclear power plants in Japan.

Within every cell there is thought to be a regulatory gene that controls the cell's rate of division. If our bodies are irradiated or we inhale a particle of radioactive matter into our lungs, this radiation can chemically damage a regulatory cell. It may continue to function normally, but one day, five to forty years later, instead of dividing to produce two new cells, it goes berserk and manufactures billions of identically-damaged cells. This type of growth is called cancer. Cancer cells can break from the main mass of the growth, or tumor, and enter the blood or lymph vessels, travel to other organs, and divide again uncontrollably to form new tumors. These cells are more aggressive than normal body cells. This is why there is no safe dosage of radiation—it takes only one radioactive atom, one cell, and one gene to initiate a cancer or mutation cycle.

In considering all these facts on radiation, we should remember one important fact, that all the nuclear industries are relatively *young*. Nuclear power has only been in commercial production in the United States for 25 years, and arms production for 35. Since the latency period of cancer is five to forty years and genetic mutations may not manifest themselves for *generations*, we can see that we have barely begun to experience the effects radiation can have upon us. (Madame Curie, who is known for her work with uranium, died later, not having known in time the dangers of the substance she worked with.)

The moment a plant begins operation, injury to humans, is guaranteed. Nuclides are released during so-called "normal" operations. Because the "regulatory" processes do not want to protect the public and licenses continue to be granted, it is clear that we cannot count on protection against victimization through the regulatory process. Even the Environmental Protection Agency said in 1975 that nuclear power will kill hundreds of people yearly even if everything goes perfectly. (This, again, is an underestimation of victims.) The Nuclear Regulatory Commission did admit in 1978 what others had already said, that there was no safe dose of ionizing radiation, and no "threshold."

In the meantime, we are injured in the form of mental anguish. People have already undergone a certain amount of "psychic numbing" by the shadow of potential nuclear war hanging over their heads, in which continual stress has caused them to try to "blank out" the fears. Most humans don't want electricity at the cost of death or injury to themselves or their fellow people.

Because uranium resources could be depleted at the turn of the century, the nuclear industry wants *breeder reactors* to ensure a future for nuclear power. These reactors are expensive, dangerous, and would require production and shipping of plutonium—a poisonous, carcinogenic material used in hydrogen bombs. The breeders would use up the wastes of the first generation of nuclear reactors and "breed" their own future fuel supplies by creating even more plutonium over time. Whether fueled by plutonium or thorium U-233, these substances will be produced and handled by the *thousands of tons*. These two substances are in the class of alpha-emitters, providing the same radiation as has claimed the lives of uranium miners by lung cancer. Plutonium is so toxic that current occupational limits allow a worker to inhale no more than 0.2 of a *millionth* of a gram over his lifetime (one must, of course, be suspicious of *any* "safe" dose).

Plutonium and uranium are the stuff from which atomic bombs are fabricated, and as we mentioned before, several tons can't be accounted for by the processors already.

Errors plague the production of breeders just as with the regular light water reactors—in the extreme, a breeder reactor can suffer a runaway nuclear reaction and conceivably blow itself apart. ("It could make Three Mile Island look like a tea party," said Thomas Cochran of the Natural Resources Defense Council.)

One-half pound of plutonium trapped in human lungs could cause billions of lung cancers. Yet there are waste sites of plutonium with leaking rusty barrels, and there have been plutonium spills, and it has been tracked around by workers, accidentally found on the ground and elsewhere in plants handling plutonium, and so forth. At one point, planes were carrying plutonium oxide into Kennedy airport until these flights were stopped, after some calculations figured that a crash causing plutonium dispersal could have killed the 8,000,000 residents of New York City at the time! Plutonium in the earth, under its mantle, doesn't pose a threat—it's the airborne plutonium that creates the inhalation hazard.

Let's stop a moment and see what *responsibility* the nuclear industry has taken to ensure our safety. The Price-Anderson Act was passed in the 1950s to *absolve* America's power companies of major responsibility in the event of a nuclear disaster. Without such a bill, the nuclear industry would have never gotten off the ground. (If insurance companies were willing to cover the risk, the premium required to ensure a nuclear power plant yearly could be roughly equivalent to the entire yearly costs of plant operation and maintenance.)

In cases of extreme nuclear accidents, we might also do well to question how quickly and effectively evacuations would take place. How would a city like New York be evacuated within hours?

If we have managed to make it through the production and power plant operation phases, we come to the final problem posed by the use of nuclear power: nuclear *waste*.

3.4 Problems After the Plant—Nuclear Waste

It may be noted that much ado is made about waste disposal, sometimes to divert peoples' attention from the fact that even without the waste, the reactors are killing people now. It's easier to promise people safety and "99.9% containment," and then catch them up in the emotions of the waste dumping issue than to admit this fact. This is not to say, of course, that waste disposal isn't also crucial. The entire cycle of nuclear power is serious.

What exactly is the cause for concern with nuclear waste? The General Accounting Office of Congress has said that by the end of the century there could be one-*billion* cubic feet of nuclear waste in the United States—enough to cover a four-lane highway coast to coast a foot deep.

The operation of nuclear reactors generates astronomical quantities of radioactive garbage of several types, the amount of radioactivity generated being in direct proportion to the amount of electricity produced. In one year a 1,000-megawatt nuclear power plant generates fission products (like Strontium-90 and Cesium-137) in a quantity equal to what is produced by the explosion of 23 megatons of nuclear fission bombs—or more than 1,000 bombs of the Hiroshima size! (Remember, the industry wants 300 or 400 such plants in the U.S.A. alone by the year 2000.) This means that every year we would generate the

Strontium-90 and Cesium-137 garbage equivalent to a *full-scale nuclear war*, year after year until fuel runs out. If breeders are developed, we could have 1,000 to 2,000 plants, because they solve their own fuel shortage problem.

This is one of the few facts *not* disputed by the experts, how much waste would be produced—because waste is waste and its amount is determined by the law of physics. However, it cannot be destroyed—it must be *stored*. It carries the risk of cancer and genetic damage and must therefore be isolated. If released into the environment, it will contaminate land and water. Do we have a moral right to unload these poisons on future generations when it is obvious we *ourselves* do not know what to do with them?

Even after 1,000 years the waste will still remain dangerous isotopes. Plutonium takes about a quarter-of-a-million years, or more, to decay to relatively "safe" levels (and of course this "safe" is doubtful when agreement can't even be reached on what *is* "safe").

Remember that the Bering Strait was dry land 12,000 years ago. So if we're talking about plutonium and 250,000 years, we're dealing with a time period during which volcanos, earthquakes, changes in the continental plates a themselves, meteors, or who knows what else can shape or reshape our physical world. We're talking about *hundreds* of generations of humans into the future. We cannot even conceive of all the possible changes in their environment or evolution, and this is our legacy to them?

No one can honestly say that all that waste can be safely contained for such lengths of time. Who will be keeping watch all those years? Even languages change over time. What manmade storage containers can last all that time? There have already been numerous leaks at waste storage facilities and toxic waste dumps.

No matter how much waste is produced, it is the incredible *toxicity* of the waste that concerns us. Strontium-90 takes 300-600 years to decay to a relatively "safe" level. If ingested, it can lodge permanently in the bones, replacing calcium. Cesium-137 lasts about the same time, and seeks out the reproductive system. (Remember, the half-life is not the *length* of time which a radioactive material is dangerous—it may be dangerous for five to twenty half-lives.) Iodine-129 has a half-life of 17 million years. This concentrates easily in the food chain and in the thyroid gland. Some fission products are gases, generally even harder to contain than other forms of radioactive materials. Remember that the reactor vessel construction materials are also irradiated for the operating life of the reactor. As a result, a reactor can't be approached without special shielding for 1 1/2 million years, *much longer than the lifetime of any manmade structure!*

Who wants to store nuclear waste in their back yard? There are constant battles by citizens for their rights. There have already been numerous scandals, such as a company in Florida illegally dumping hazardous radioactive waste into an open dumpster, and, in another state, putting it illegally into a public dump. Soil and ditches have been found to be contaminated, and the U.S. has been dumping wastes off-shore around the country.

Leaking barrels in the Pacific Ocean have been photographed with giant mutant sponges clinging to their exteriors. A Texas waste facility located outside of Galveston was found to have barrels leaking deadly plutonium, and they had thousands of barrels over the legal 2,000-barrel limit.

We still can't even be sure the waste is being 100% contained on the *way* to these storage sites, and must hope that no transportation accidents occur. Assuming it arrives at the dump, we can ask ourselves how radioactive garbage buried in plastic sacks or rustable barrels in shallow trenches is *contained* or *permanently isolated* from the environment and people. Much waste is now buried that way, although as time goes on, awareness has increased on the importance of good containers (although we don't know if anything for sure resists *all* the ravages of time). In 1978, the Department of Energy asked the public for help in *finding* its buried radioactive wastes—since many records were misplaced or destroyed over the years, the DOE asked that anyone who knew where such work was once done contact them! (The sites were used for nuclear work from the 1940s through the 1960s.)

Some proposals for disposal of nuclear waste have included lowering it into deep geologic repositories or salt domes, into ice, under the sea, and so on—all of these are subject to possible geologic disturbances. Some scientists have suggested sending it to space (with the hopes that a departing rocket filled with waste does not return to earth by mistake). There have even been some people, devoid of any conscience whatsoever, who have advocated shipping our toxic wastes "abroad," where laws aren't yet as strict, and people might not be as aware of the dangers. (Definitely shaky foreign policy!) The nuclear power industry is plagued with moral problems from beginning to end. (It is interesting to note, by the way, that the American Medical Association, of all people, stoutly *defends* nuclear power. Perhaps they're anxiously awaiting all those radiated customers, who will be begging them for "cures.")

In the face of all this insanity, what does the nuclear power industry do when confronted with delicate issues? Like a good magician, it first attempts to divert attention from what's really happening. If its propaganda and tricks fail to work, however, it simply lies. The history of fraud and deceit in the nuclear power industry is long and full of "silenced concerns" and rigged or suppressed studies.

Usually whenever leaks are *independently* measured, for example, higher contamination is found than in the "official" measurements. It seems the fox is "guarding the chicken coop."

There have been cases where conscientious workers trying to bring violations to attention or inspectors at power plants have been harassed. (Inspectors in Texas reported to the Nuclear Regulatory Commission that they had been threatened by construction workers.)

So, we must involve ourselves now in ridding the world of nuclear power *and* nuclear weapons. It is a matter of survival of the planet. A thirty-minute nuclear exchange could erase all life on earth forever. Helen Caldicott has said *"we are talking about the most important issue facing the human race."*

According to the Stockholm International Peace Research Institute, the world spent *$1 million a minute* in 1980 on armaments and other military spending. If this money were spent on solving our energy problems, the world would be saved.

A Hygienic way of life and peace go hand-in-hand. Now let's return to *positive* energy, back to solar power, a ray of hope for mankind.

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4. Solar Systems

4.1 Active and Passive Systems

An active solar system uses collectors to absorb the sun's heat and needs mechanical components to transfer the heat to a storage system and to circulate it to supply buildings with hot water and space heating. The mechanical parts can be pumps, fans, or other controls.

A passive solar system for heating or cooling doesn't require mechanical devices because the structure itself serves as a collector and storage medium. It relies on design features such as proper building and room orientation towards the sun, large south-facing windows, and insulating shutters and overhangs for summer shading to maximize solar gain in winter and minimize it in summer. Passive solar is best suited for new construction and space heating and cooling.

A solar greenhouse is one of the best passive heating systems for a house. Having numerous south-facing windows helps to heat a house too. Using passive solar heating combined with a solar electric system, and backed up by an active system, is a healthful alternative to using nonrenewable energy sources that create pollution.

4.2 Solar Water Heat

A passive solar water heater in one of its simplest forms consists of a tank painted black, mounted on a reflective surface and sealed into an airtight box that has a glazed front that lets the sun's rays in to be absorbed into the black tank (black is the most heat-absorbent of all colors).

A recycled hot water tank can be painted black and used as a collector, resulting in an extremely lowcost solar water heater. The tank is tripped of its outer covering and surrounded by flexible plastic sheeting. The tank is then mounted on 3/4" plywood covered with shiny metal sheets that reflect as much sun onto the tank as possible.

A typical flat-plate solar collector for heating water is made up of the following parts: the *glazing* is usually something like double strength window glass. The *water tubes* used to be made of copper; now usually aluminium or steel are used for economic reasons. The *flat plate* may be any metal (copper, aluminium, steel) that has good thermal conductivity and is reasonable in cost. The metal plate must be coated with a solar radiation-absorbing paint or plating. Flat black paint, properly applied to prevent peeling and cracking, will do a good job for ordinary domestic solar water heaters. The *insulation* may be any low-conductivity material available (usually something like glass wool) that can withstand temperatures up to 200°F. The *casing* holds the solar collector together and, together with the glazing, makes it water- and dust-proof. A simple wooden box, adequately painted and fitted with a hard-board base, will do. When water flows through the collector, it is heated, starting the solar cycle to work in your house.

One of the most widely-used passive designs for water heating is the thermosyphon hot water heater, which combines a flat-plate solar collector end an insulated water storage tank mounted high enough above the collector so that the cold water will go downward (heat rises, cold settles), where it will be heated by the collector and rise into the storage tank. This slow but continuous circulation continues as long as sun shines on the collector. In a good sunny location with no shadows, a 4' x 8' collector will give 40 to 50 gallons of hot water a day.

4.3 Solar Heating Systems

A simple and inexpensive air heater can be made with a cover glass (plastic film may also be used), a corrugated plate of sheet steel or aluminium painted black, a space through which the air can flow, a layer of insulation and a Masonite or plywood backing to keep the assembly waterproof. The air can be made to flow by a fan or blower, or, if the system is properly designed, it will rise due to convection (the "chimney effect") because the heated air is lighter than the cold air outside.

Air heaters are less expensive than water heaters used to heat air (not the same as the solar hot water heaters just discussed), because there is no need to worry about freezing, and any leakage which occurs will not cause the kind of damage water can create. The pumps used may be larger, more expensive and more power-consuming than those used with some solar water heating systems, though. Also, the ducts used to carry the air are larger and more costly than the pipes used with water systems. Each type has its advantages and disadvantages.

The simplest of all solar air heaters uses a heavy south-facing concrete wall painted a dark color and covered with a sheet of glass. An air space runs between the concrete and glass, and the chimney effect causes the heated air to rise. Openings at the top and bottom of the wall let cold air enter the air space and warm air to reenter the room. The air then circulates around the room. Small electric baseboard heaters can be used for heat during long periods of bad weather.

Solar space heating may be accomplished in many ways, but one must first estimate how much heat the structure will need during adverse winter conditions and at night. The solar heater must be able to provide not only heat during the sunny days but also have additional capacity for heat *storage*.

The best, method presently available for storing heat ,or cold in large amounts is large *water tanks* filled, or almost filled, with water. We can store about three times as much warmth as cold, since we cannot use such a large temperature range with cold without running into the complication of freezing the water. The mechanics of storing heat in water are simple and water is available almost everywhere.

Heat can also be stored by means of *rock beds*. These can't freeze or leak, but their capacity is limited. However, they can be safely used under a building since not much can happen to them once they're put in place.

In considering all these options for solar systems, we must remember that the space of a lesson does not permit in-depth construction details—there are hundreds of books on solar technology of all sorts, and one must refer to other sources in order to learn the specifics. There have been many, many experiments made with various building materials, designs, and theories, and there are always several methods available for arriving at the same effect, whether this be heating, cooling, or whatever. An individual must determine what best meets his needs as to what's best for his climate, living structure and finances.

4.4 Solar Cooling Systems

There is no way to use the heat of the sun *directly* to produce cooling, however, we can use the heat to produce hot water or steam, and with that we can refrigerate, using the process known as *absorption refrigeration*. This was first discovered in 1824, then, about 100 years later, this principle was used for household refrigerators.

Cooling can be achieved with the aid of a humidifier and by controlling the heat radiation of the thermal mass. The thermal mass itself can be used for cooling during the summer by opening the windows and exposing it to the cool evening void. The stored heat is then radiated back to the depths of space. One way to cool a building which is tight and well-insulated is to close it up during the day. This is done with massive adobe houses. Insulated shutters, thermal curtains, or window quilts can help to keep the heat out and the coolness in.

An example of solar cooling is the "Sytherm Systems" developed by Harold Hay. These systems have large water containers on the roof that are cooled at night and keep the building cool during the day. During the winter days, they collect warmth and radiate it into the dwellings at night.

Shade roofs are roofs with extremely large overhangs and will cool a building; they are especially good in the tropics. Placement of windows to allow breezes through a structure is also helpful in cooling a building. Perhaps the very best way to keep a building cool is to build it underground in the layer of the earth that is always naturally cool in the summer.

4.5 Solar Electricity

About a century ago, a Frenchman, Becquerel, found that sunlight could produce minute amounts of electricity when it entered a very special kind of "wet cell" battery. Later, other workers found that sunlight could change the resistance of certain metals and that very small amounts of electricity would be generated when sunlight illuminated discs of selenium or certain types of copper oxide. These devices were useful as light meters but didn't produce enough power to do anything more than move a pointer on a meter or activate a very sensitive relay. In 1954, a new treatment for ultra-pure silicon was discovered which gave it the property of generating electricity from sunlight with a conversion efficiency of 6%. This was 10 times better than any previous efficiency for the direct conversion of sunlight into electricity, and the invention was immediately applied to a small transistorized radio transmitter and receiver.

In 1957, the space program found a unique application for the silicon solar battery. NASA put silicon cells on its first permanent satellite, and they worked so well that all but one of the satellites orbited since that time have been powered by increasingly complex arrays of silicon solar cells. Communication satellites use tens of thousands of these cells. Each cell alone contributes a small amount of power, but silicon cell technology has advanced so rapidly that tens of thousands of individual cells can be connected together, rapidly and reliably. Today the communications satellite has become the standard means of intercontinental communication for voice, television, and even computer language.

The cost is still a bit high for installation of great panels of solar cells on every rooftop, but great strides are being made, and the cost has already been reduced from $1,000 per watt to $20 per watt with more reductions on the way. Ways of producing less expensive silicon cells are being intensely studied. Some specialists say the cost will come down to $2 per watt within another decade.

Solar cells come in a wide variety of sizes. There are larger units for supplying large amounts of power, and small photovoltaic devices to supply operating power for devices such as electronic watches, calculators, and flashlights. These small solar devices are called microgenerators, and are actually made up of several extremely small solar cells connected in series.

A solar electric system has no moving parts and usually requires little, if any, maintenance. The two main considerations in the design of any solar electric power system are, first how much sunlight is available at the proposed site and how it varies with the seasons of the year (this tells us the size of the solar electric generator needed to supply any given amount of power), and the second consideration is the characteristics of the load including the average current requirement and the duty cycle (this tells us how much storage battery capacity we will need to keep the system operating when sunlight isn't available).

Solar cells can be used in radio and television, in agriculture (for irrigation, pumping water, charging storage batteries at remote locations, etc.), at construction sites where electricity isn't yet available, in remote areas, for work or recreation, and so on.

Solar arrays should face due south, but "trackers" have been developed, whereby the solar panels are mounted so that they can move, so as to remain pointed in the correct direction at all times for maximum sunlight. A small sensor on the array provides electrical signals that tell the control system which way to turn the array to get the most sun.

4.6 Solar Water Distillers

A solar water distiller consists of a water-tight compartment painted black to absorb the solar radiation which enters through the glass roof of the still. Water which is brackish or impure flows through the box in a four- to six-inch deep channel, where the intense solar heat in the box forces the water to evaporate and to condense on the inner side of the roof where it is drained off to a holding tank. The end result is pure drinking water.

The ocean rescue still, developed in 1940 by Dr. Maria Telkes, can be used to make drinking water from ocean water.

Dr. M. Kobayashi of Tokyo developed a solar still that could extract water from virtually any kind of soil, and tested it at the top of Mt. Fuji where the soil is volcanic ash and in the arid deserts of Pakistan, and he has never failed to produce water that is pure and potable.

4.7 Solar Food Dryers

Solar energy has always been used to dry crops of fruits and vegetables. Essentially this was done by exposing the food to the sun's rays and hoping it wouldn't rain. A more "sophisticated" technology has evolved to use the sun's thermal power and minimize contamination from dust and airborne debris, insects and their larvae, and animal or human interference. The drying area must be covered with a transparent material. A drying "hot box" is constructed and insulated (glass wool is preferred since it can survive any temperature and does not support insect, life). Ventilation holes at the top and bottom allow air to enter and carry away the moisture. An access door makes loading and unloading easier. The interior of the cabinet should be painted black and the exteriors of the side and rear panels painted with aluminium paint. Drying trays can be made with galvanized wire mesh. Where electricity is available, a small fan may be used to draw air through the dryer, but it is not necessary.

The dryer should be glazed, preferably with two layers of glass, fitted in with adequate room for thermal expansion. Ventilation is essential so that moisture can escape and can be provided by screened air holes in the bottom, sides, and back of the cabinet. Such a dryer can keep produce dry during rain storms, so the glazed top should be watertight. The ventilation is also needed to prevent overheating, since a hot box of this type can readily attain temperatures above 200° F.

4.8 Solar Cookers

The first solar cooker was probably the one built in Bombay in 1880, and several other ingenious ovens have originated in India, as well as in other areas of the world. We won't go into detail since the Hygienic way of life doesn't advocate cooking food, but the student must at least be aware that the technology is available—even if we don't cook, we all know people who do. Solar cooking is cleaner than gas cooking, which sends its toxic combustion products into the room.

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5. A Solar Home

5.1 Solarizing Your Present Home

The first step in solarizing your present home is to do an energy "audit"—to determine where the major heat losses occur and where the greatest energy efficiency gains can be made.

Every situation will vary, but one generally good strategy is to add a sunroom or a greenhouse onto the south side of the house. If this isn't possible, at least more *windows* can be added on the south side. If you do have a porch on the south side, or one that at least has a south wall, consider converting it into a greenhouse or sunroom. A south-facing window can be converted into a solar window box greenhouse. We must always make the *most* out of what sun we get.

There are a number of other basic steps that can be taken to conserve energy, thus working with passive solar principles to improve what you already have. Some of these are:

1. Lower thermostat or turn down heater.
2. Turn water heater thermostat down to 120 degrees, and insulate it.
3. Weatherstrip doors and windows.
4. Caulk and seal openings.
5. Add storm windows.
6. Add awnings.
7. Add attic insulation; insulate walls.
8. Convert from gas or electric to wood heat; replace inefficient heaters with more efficient ones.
9. Add fans, vents, and ceiling fans.
10. Insulate pipes and ducts.
11. Add a solar water heater.
12. Add thermal heat storage or thermal mass (one example is a hot tub).
13. Add wood solar hot water heater.
14. Add entry room to act as an air buffer so that massive energy isn't exchanged each time a door is opened (small adjoining room).

15. Add backup active solar systems for air and hot water heating.
16. Add insulated shutters and drapes.

Emphasis should be made again about the importance of providing *adequate ventilation*. We have already discussed the harmful fumes and byproducts of combustion that are present in rooms heated by most conventional methods and fumes that result from unhealthful building materials. Insulation must not become a threat to health. Ideally we could all use clean solar heat, but even then, we would want to remember that fresh air is essential to quality of life. In any case, it's better to add a blanket and sleep with windows cracked—I remember visiting in Switzerland in the mountains a few years ago, and at night we just climbed under the thick down covers—the bedrooms upstairs weren't even heated at all.

We should be conscious of the air quality in our living spaces at all times, waking and sleeping.

5.2 Building a Solar Home

The art of solar building design perhaps began when the cave men carved their dwellings into the south face of a hill in order to benefit most from the warm rays of the sun.

The use of south-facing windows to increase heat gain into a building became popular in the 30s and 40s in this country. In the summer, when the sun is higher in the sky than in winter, carefully designed overhangs shade the south windows and keep the building from overheating. Double-glazed windows or those insulated at night reduce the heat loss more.

The use of a greenhouse as a heat trap is an extension of the solar window design. On dark, cloudy days and at night, the greenhouse can be sealed off from the rest of the house to prevent heat loss. The greenhouse serves as a thermal mass to reradiate stored solar heat at night.

Water provides an excellent thermal mass, and has the highest heat capacity per pound of ordinary material. The storage tank is usually insulated to reduce conductive heat losses.

The seasonal angle of the sun changes in a regular, predictable cycle. When designing overhangs and collector angles, you need to know your latitude and the maximum high and low angles of the sun. The sun changes about 46 degrees from the summer to the winter solstice, higher in summer and lower in the sky in winter.

The *insolation* (or *in*cident *sol*ar radi*ation*) is the amount of energy that reaches the surface at a given location. Insolation tables are available for various latitudes.

Another factor to be considered in choosing a solar site is the amount of shading available. This can be in the form of overhangs or natural vegetation. A combination of shading, cooling, and ventilation elements must be considered as well as the solar factors. Evergreen trees planted to the north of a building help block the cold winter north winds, rain, and snow. Deciduous trees (those that lose their leaves in winter), such as fruit trees, are suitable for planting on the south, east, and west sides. In the fall and winter when the trees are bare, the sun's rays penetrate to the building and in the spring and summer, the hot sun is blocked because the trees are full of leaves, flowers, and fruit. A simple idea thus becomes delicious and rewarding. Vines and climbers can also be planted to shade east, west, and south facades, as well as lattices or trellises covered with growth.

Walls should be as well insulated as possible on the outside and include thermal mass on the inside for heat retention. Thermal mass can consist of 55-gallon drums (water-filled) painted black for maximum absorption, or large rocks. Rocks can be used in the foundation and walls. (If using painted barrels, the nonsolar-collecting sides can be painted any colors.)

Inside walls that receive sunlight can be faced with brick or stone. There should be an insulator like gravel under the floor. Clay tile floors store heat well. They come in a rainbow of colors and designs, making some beautiful mosaics possible, that are both functional *and* aesthetic.

We receive our life nourishment from the sun, so it is only natural that we harness its energy and put it to good use.

5.3 The Solar Greenhouse

The primary reason for building a greenhouse is, of course, food production. Growing your own food saves money, and it is always ready to be picked—fresh, ripe, and organic, grown without the need for any farm machinery.

As mentioned, the greenhouse may be built on the south side of the building where it will receive full sun. It can be constructed quite simply with concrete blocks for the foundation, and other massive building materials such as ceramic brick, stone, adobe, poured concrete, or cinder blocks can be used for thermal mass. These massive walls are insulated on the outside surface.

For the glazing or clear film that is attached to the frame there arc many choices of material: glass, roll plastic, sheet plastic, corrugated clear plastic, etc. Doors and vents must be tight-fitting and weatherstripped, and all surfaces should fit tightly together.

At night, the windows should be blocked with movable insulating forms or covered with shutters or curtains. This will keep the heat level constant at night.

Heated air in the greenhouse rises and flows into a high opening to the home, and a low opening in the shared wall lets cool air from the house enter the greenhouse for heating. The plants in the greenhouse convert carbon dioxide into oxygen-rich air for the house occupants.

When you build a greenhouse, you will be creating a special space, a microcosm, a living place that will grow and truly add life to your home.

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6. Solar Energy And You

Now that you know why it is so important to make the change to renewable energy sources, hopefully you'll try to incorporate some of these changes into your lives. Anything you can do to get other persons in your community involved in promoting the use of solar power and other renewable energy sources will be a step toward saving our planet.

There are solar industries springing up all over the place that you and other interested persons can contact for advice and support.

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7. The Future And Politics Of Solar Energy

If there is one organized body capable of the political leverage needed to give solar energy a boost, it is the American union movement. They will be able to see the job potential of solar energy. However, the job-creating powers of solar energy could hold it back in *corporate* circles because industrialists want to keep a certain measure of control over people when there is adequate *unemployment* to hold down wages. That is, the more people out of work, the more competition there is for what jobs are available, and the easier to keep wages down and hold back unions (of course, no one will admit to this outright). Remember, the nuclear power industry has $100 billion dollars on the line.

In this country the top 19% of families owns about 76% of all the privately-held wealth, with the bottom 25% having no assets at all (Dr. L. C. Thurow, M.I.T. Department of Economics, 1979). The concentration of power and wealth is such that the top 5% of the American population owns more assets than the bottom 81% combined. Goods produced, no matter what their function, are looked at in terms of selling them at a profit. Purchasers are locked into a system of dependence with built-in obsolescence. Products that become a *necessity* in life and that can't be made by the purchasers themselves are considered best. Centralized energy fits into this category, and decentralized solar energy gets only lip service from our rulers. The people themselves are surely intelligent enough to see that solar energy works in their best interest.

A newsclip from June 1981, stated that "in a sharp reduction of the federal government's role in solar energy, the Reagan administration has ordered the dismissal of 370 of the 959 employees at the four-year-old Solar Energy Research Institute at Golden, Colorado, and has fired its director." In addition, the institute's budget was to be cut to $50 million for the next year, which was a 50% reduction. This would reduce spending for outside research. The Reagan administration's "logic" was that most development work should be carried out by private industry—it increased the budget for nuclear power, however. An internal Department of Energy report concluded that American taxpayers have quietly subsidized the private U.S. nuclear industry with almost $40 *billion* over the past 30 years. In reality, nuclear-generated electricity is actually costing Americans two times what the atomic industry claims. So, is it alright for us to subsidize nuclear power, but different when solar power is concerned? The report says that between 1950 and 1979, billions of dollars in federal subsidies went for such things as designing early reactors, getting low-cost fuel to reactors and guaranteeing loans to power plants.

The Energy Research and Development Administration (formerly the Atomic Energy Commission) says "solar energy falling on about 3% of land, if utilized at about 10% efficiency, could meet the total projected U.S. energy requirements for the year 2000."

The big hurdle in promoting solar energy is getting the public enlightened. Changes must really be made on a *worldwide* basis in order to be effective, because the biosphere is like one big aquarium—we have seen how pollution affects *everyone*. We who are already enlightened about pure diets based on living food, and using alternative, renewable energy sources, should reach out to others and share the knowledge.

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8. Other Renewable Energy Sources

8.1 Water Power

We've all seen destruction caused by floods, erosion, and the energy of water in the sea waves, and swift rivers and streams. Water power also has a great capacity for useful work. Water power is essentially a form of solar energy, because the sun begins the hydrologic cycle by evaporating water from lakes and oceans and then heating the air. The hot air then rises over the water, carrying moisture with it to the land. The cycle continues when the water falls as precipitation onto the land, then it starts over again.

Water is relatively easy to control and produces a high efficiency, because from 80% to 90% of water energy can usually be converted to work, compared with 25-45% efficiency for solar, chemical, and thermal energy systems. For this reason many rivers have been dammed so that waterwheels and water turbines could capture the energy of water.

Individuals and communities can harness this energy to produce power in small hydroplants. The dam increases the reliability and power available from the stream, and is a means for regulating the water flow and depth. People should be aware that a dam changes the local ecosystem, though, and should only do so conscientiously.

Water turbines can produce either direct current (D.C.) or alternating current (A.C.) electricity. The power available will not always supply the total amount desired, so it is useful to think of an integrated power systems approach from the beginning, and combine this with another renewable power source.

8.2 Wind Power

Wind is another form of energy created by, the sun—the heating of our atmosphere during the day and its absence cooling the night sky—like the earth is *breathing*. Wind is the reaction of our atmosphere to the incoming energy from the sun—heat causes low-pressure areas and the lack of heat results in high-pressure areas, causing the wind.

The wind is probably the oldest and most constant energy source, probably one of the first sources harnessed by man, and now it's being rediscovered as "new."

Wind energy is not as constant and predictable as the sun and water, but there are also solutions to this problem. Usually a *storage* system is installed that is designed to have the energy available when it is needed. The selection of the site for wind power is very important—for example, it shouldn't be placed near trees that are growing taller, etc. Other factors should be considered on a basis of *frequency* and *intensity*: rain, freezing temperatures, icing, sleet, hail, sandstorms, or lightning.

Windmills have been known for centuries. Even Persia had a primitive horizontal windmill in the tenth century that was used to grind corn. Mills were commonly used in China for irrigation. Modern wind generators not only use the wind for mechanical energy, but also convert the energy into electricity. Wind water pumpers are also available. Most generators consist of the tower, devices to regulate the generator or voltage, the propeller and hub system, the tail vane, a storage system to store power during windless days, and an inverter that converts the stored D.C. into regulated A.C. if it is required. There is often an optional backup system (such as a gas or diesel generator) to provide power through extremely long calm periods. Even better, of course, would be a solar backup system.

8.3 Biofuels

Biofuels are renewable energy sources from living things. Fossil fuels are also of biological origin, but they are *nonrenewable*. All biofuels are derived from plants, which capture the sun's energy, convert it to chemical energy by photosynthesis, and in the process of-being eaten or decayed, they pass this energy onto the rest of the living world. In this sense, all forms of life, and their byproducts and wastes are storehouses of solar energy.

Every day, over 200 times more energy from the sun falls on our planet than is used by the U.S. in a *year*. About half this energy is reflected back into space, and what does penetrate the atmosphere charges all our energy systems.

All plant matter is called *biomass*. Microbes, plants, trees, animals, vegetable oils, animal fats, manure garbage, and fossil fuels are all forms of biomass energy that can be produced, cultivated, or converted in different ways for our needs. All we need to do is use it. Each year the U.S. produces over 870 million dry tons, of discarded organic matter.

Agriculture is the means by which solar energy becomes our food energy, and organic farming techniques and a realization that planting fruit trees is a *priority* in attaining higher quality of life for humans are the goals we should be pursuing. Please refer to the lessons on organic gardening and tree crop agriculture for more information.

When organic material decays it yields useful byproducts, depending on the conditions under which decay takes place—it can be aerobic (with oxygen) or anaerobic (without oxygen). Any kind of organic matter can be broken down either way, the end products of each will be different. If we imitate the natural anaerobic process and put manure and vegetable matter into insulated, air-tight containers called *digesters*, biogas or methane can be produced.

Another source of energy is *alcohol* in its pure form, which can be used for heating, cooking, lighting, and motor fuel. It is high energy and clean burning. There are two types of alcohol: ethyl alcohol (ethanol or grain alcohol) and methyl alcohol (methanol or wood alcohol). Ethanol can be produced from carbohydrates (starches, sugars, cellulose) found in various farm products such as sugar beets, sugar cane, molasses, fruits, starch crops, grains, etc. Methanol can be produced from wood, sawdust, farm wastes, and urban refuse.

Wood is a renewable energy source that should be used with a conscientious replanting plan, and can be used to supplement other renewable energy systems. (A word of caution: even though wood fires are considered "natural" or "romantic," they put carcinogenic agents into the air. In fact, efficient, slow-burning stoves pose a bigger hazard than roaring flames, since they produce more polycyclic organic compounds (POMs, linked to lung cancer).

We need to learn how to integrate the heat from solar energy, the mechanical power from wind and water energy, and the chemical energy from biofuels, in order to get as much continuous energy as possible from the diverse energy sources.

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9. Questions & Answers

A lot of people are talking about underground homes nowadays. What's the story on this?

> An "underground house" above ground can be had with a sod roof—the earth covering acts as a moisture barrier and insulates the roof. Actually, nowadays people are discovering that underground houses are very comfortable. In hot and cold climates, weather isn't as extreme underground, and the homes aren't dark, damp, or dismal either, which might be our first impression when thinking about living below the ground. Many homes are built with a regular south wall with windows, and the rest under the ground. In either case, skylights can provide lighting. Less heating or cooling needs to be done in an underground home, so energy is conserved, and underground buildings are quiet and blend nicely with their environment, leaving nature virtually untouched.
>
> There is a subdesertic region of Turkey, Cappadocia, where people have been living in underground towns and cities since the years B.C. in settlements, some of which extend eight or ten stories below ground. They are hewn out of the soft stone common to the area. The climate there is comfortable despite harsh variations of heat and cold on the surface. There are even some "luxury" caves in France's Loire Valley where some caverns were furnished and carpeted and sold to wealthy city dwellers who appreciate the coolness in summer and natural winter warmth.
>
> Underground homes don't need to be painted, roofs don't need to be replaced, pipes don't

freeze, and they have a low-cost construction.

What is the effect of radiation in the gene pool?

> For people still in their reproductive years, whether male or female, injury can occur either to the sperm-generating cells in the testes or the ovum-generating cells in the ovary, and injury to the genes there can cause hereditary changes or disease or death in generations for many generations beyond the irradiated individuals.

What about the effect of radiation on a developing fetus?

> Radiation injures the genetic material that is guiding the cells in a developing fetus to form the various organs and tissues. Evidence indicates that the developing fetus is more sensitive to ionizing radiation in terms of the effects caused than children are, and children in turn are more sensitive than adults. (In fact, the fetus is even more sensitive to radiation in the *first* trimester of pregnancy than in the third.)

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Article #1: Truths About X Rays by Virginia Vetrano

Television radiation is an addition to background radiation, fallout, luminous dial watches, radiation from medical and dental X rays, fluoroscopy, and radiation from fluorescent lights, under which most workers have to work. These sources must be added, not compared, because it is the way it works in the living organism. All radiation is cumulative, that is, it is additive, one dose is added to another, and so even if one would appear unharmed by X rays, the cell never seems to recover completely. The least amount of radiation absorbed in living tissue produces damage.

It has been known for a number of years that X rays produce cataracts. The lens of the eye is extremely sensitive to radiation and is irreversibly damaged by ionizing rays.

The cell is capable of preventing most drugs from entering and combining with it, thereby killing it. But the cell has no defense against the onslaught of X rays. At high speed they penetrate the cell like bullets and damage enzymes and enzyme systems, disrupt proteins, genes, fats, and other large molecules, impair some metabolic processes and completely block others. Irreparable damage is done so quickly that defense is impossible. There remains only cellular confusion with feeble attempts at repair.

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Article #2: No Permissible Radiation Level by Virginia Vetrano

At the Atom Bomb Hospital in Hiroshima, survivors of the August 6, 1945, holocaust are still dying at the rate of four to six a month. Even this figure does not represent the total death rate, for there are other hospitals, and not everyone patronizes hospitals in the first place. The paper from which I received the above figures says: "After years of study, world scientists are still unable to agree just how lethal the latent after-effects of exposure to an atomic bomb can be." The scientists don't wish to admit that every one of the victims will die ultimately, from the latent effects of exposure to radiation. Instead of an instant death these survivors will suffer long years of miserable sickness until finally, after a continuous struggle to repair damaged tissue, the organism will succumb to the deteriorating forces.

It is well-known that all radiation, however small it may be, shortens one's life. Hence, all radiation is lethal. Watch for equivocal and ambiguous scientific cant and you will be amazed at their unequivocal dishonesty.

All talk of protection against atomic radiation, of bomb-proof shelters, etc., is based on wishful thinking. Eventually one will have to come out of the shelter to eat, drink and breathe, and consequently be exposed to the excessive radiation still in the air, food, and water. Hence, one is thus subjected to the process of a slow and painful death. There is but one possible protection and this is the immediate cessation of all nuclear explosions. Dr. Shelton says of this, "As our world is a lunatic asylum controlled by the worst elements of our population, it is doubtful that this will be done." However, we must still try.

But we have to be educated into understanding the double talk of the hired scientists before we can realize that damage is being done from all these nuclear bomb tests, which eventually, may lead to another nuclear holocaust. The tests themselves are contaminating the earth and causing many lethal illnesses. The hired scientists cover up the facts by saying that there will not be any "statistically significant" deaths from these tests. To these scientists we are looked upon as *so many guinea pigs*, so if 1,000,000 guinea pigs should die in a population of say, 180,000,000, that is statistically insignificant. Do you feel statistically insignificant?

To continue bomb testing, the Atomic Energy Commission (AEC) had to rationalize their actions. It is their attitude that, so long as we can't observe the persons being harmed with our own eyes, then they can continue testing and permit the fallout level to rise just that much and the masses won't rebel.

The "permissible" level of radioactivity to be absorbed by the population as a whole is based on the ideas discussed above. Many well-informed persons have stated that the true facts are *not* disclosed to the general public.

Reassuring statements regarding fallout hazards are always preferred by the majority, hence they close their ears to anyone telling the truth about these matters and label them "alarmists." To the statement that fallout is definitely doing damage to the genetic pool as well as to somatic tissue, they retort exactly what has been brainwashed into them: "That the radiation from fallout is not more than what we have, all through the years, been accustomed to from natural background radiation." These people are fooled by such statements. They are not thinking for themselves, or they would realize that fallout is, in addition to background radiation, augmenting the dosage which we habitually receive as the radioactive fallout increases. A book which contains many selected reviews by AEC scientists reads: "As more and more experience with X rays and gamma rays has accumulated, however, the concept of 'tolerance dose' has changed somewhat to the thought that there is no such thing as a literally harmless dose of radiation —that any amount, however small, does some damage."

Moreover, many experiments involving radiation have been made on rats, and it has been proved that man is *more susceptible* to radiation than the rat.

Scientists know now that the least possible amount of radiation does cause various diseases, but this does not make them stop the arm's race. Why? Obviously, since the United States is vulnerable to an economic collapse as a result of a sharp decline in arms production, so tests and weapons production will continue as a means of saving our tottering capitalism.

An important thing which we must not overlook when evaluating the "permissible" dose of radiation is that it disregards completely the hereditary damage done to our genetic pool.

Article #3: To Mutate or Not to Mutate by Virginia Vetrano

The result of the Manhattan Project, an experiment to determine the effects of radiation, are very terrifying. The Manhattan Project was top secret but some scientists were permitted to view the experimental animals at various stages because it was the project that developed the first atom bomb dropped on Hiroshima.

Groups of mice were exposed to gamma rays from the experimental piles, each succeeding group receiving double the dose of radiation of its predecessor, until a point was reached where the mice were being obviously burned. The mice were kept and the developments recorded over the next several months. All except the first three groups were dead or showed signs of lethal damage at the end of a few weeks, leaving no progeny. After being watched for a month or two the "undamaged" mice were set aside for other experiments—that is, they were treated as new stock and all seemed to go well until the next generation.

Then a startling discovery was made. Many abnormalities and "mutation" showed up. A higher and higher percentage of the mice exhibited degenerative changes and deformity each generation. Although, in almost all cases, the deviation from normal was accompanied by sterility, this was not always so. Then some of the slightly deformed mice produced larger and better looking mice than usual.

All of these mice, large and small, degenerate and deformed, were allowed to breed and in the fifteenth generation, all had warped and distorted limbs and bodies, and what was even more noticeable, queer behavior and unreliable temperaments. Stillbirths were increasing and greater numbers of the survivors were sterile and suffered from nonhealing sores or cancers. From the twenty-first to the twenty-fifth generations all had become cancerous imbeciles, unable to feed themselves. Handfed, a few survived to produce a twenty-ninth generation, but these mice were paralyzed and brain cells were growing on the outside of the skulls.

All of this happened to mice that were by all appearance and by all tests completely undamaged by the radiation. Is this evidence that mutations, like somatic damages, can develop latently as I suggested in the first part of the article? But this was not all, many of the offspring of these mice were born albinos and many were born blind, than after the seventh generation not only were they born blind, but many were born without eyes at all and many did not grow any bones, apparently because the bonegrowing genes had been omitted, and their skulls and teeth did not grow. Beginning with the twentieth generation the brain protruded unprotected and exposed to the open air. There were many monstrous developments, such as young born growing together, twins were born with only parts of their bodies separated. Many of that generation were born with what the investigators call the "death gene," which means that their progeny were completely sterile, which is, perhaps, the best solution to a condition so abnormal.

According to the Public Health Service Report, man is more susceptible than the mouse and logically an experiment made on mice would be magnified in man.

If human "mutations" develop at the same rate as those observed in the mice, we must wait up to 250 years, to know that we have come through the present spread of radiation over the earth, while, to develop the worst effects from present day exposure we must wait 400 to 600 years.

The gonads are integral parts of the body and are fed by the same bloodstream that feeds all other parts of the body. Experiments with radioactive isotopes prove conclusively that radioactive substances are carried by the bloodstream to all parts of the body. It is certain that radioactive materials, such as strontium 90, are carried to the gonads where they reach the hereditary units carried in these glands. What effect does this have on the chromosomes and genes? Is it as destructive to the germinal material as to the bones and other tissues? Will its presence, even in minute amounts, result in the production of mutations? If so, what kind of mutations may we expect?

Radiation escaping from industrial plants so constitutes a menace, not only to workers in these plants, but to the populations living within the contaminated areas. George Truman, vice-chairman of the Chemical Worker's Union, said in a speech before the conference on Industrial Health, in Manchester, England, in 1955, that men at the atomic works were sterilized by the radiation to which they were subjected. The same thing has been found to result to the men working at Oak Ridge in this country. It is obvious that scientists, militarists and manufacturers, who plan to make use of atomic power in industry, are playing with a dangerous fire that may ultimately extinguish the whole human race, even without the occurrence of an atomic war. The plain fact is that nobody knows how to bypass the unspeakable biological debasement which always follows any widespread increase in nuclear radiation.

Due to the fact that certain tissues tend to concentrate particular chemical elements, sometimes to tens of thousands of times that present in the surroundings, even though only traces of radioactive substance may be present in the water from an atomic power station, plants growing in the water or air may absorb and store the substance until a really high concentration is built up. Animals eating these plants will receive and suffer from radiation. The Japanese found, to their horror, that it takes a surprisingly short time for fish to eat slightly contaminated smaller forms to become themselves highly radioactive.

Most all the inhabitants of the earth are receiving minute, but *cumulative* doses of radioactivity and all future testing of atomic hydrogen and cobalt bombs will increase the danger to human, animal, and plant existence.

When in April of 1958 Dr. Linus Pauling called attention to the radioactive menace of carbon 14, which results from nuclear explosions, his statements were hooted at the subsidized scientists of the Atomic Energy Commission, who said that his statements were exaggerated and they accused him of irresponsibility. He had said, among other things, that the radiocarbon from thirty megatons of fission "will ultimately be responsible for the birth of 230,000 defective children and also 430,000 embryonic and neonatal deaths."

The scientists of the AEC have since eaten their words. A document titled, "The Biological Hazard to Man of Carbon 14 From Nuclear Weapons," has sustained Pauling's estimates. Dr. Ralph E. Lapp, of the commission, says that Dr. I. Leipunsky, also of the AEC, concludes that "bomb carbon 14 as of 1960 may ultimately involve 100,000 cases of gross physical and mental defects, 380,000 cases of stillbirths and childhood deaths and 900,000 cases of embryonic and neonatal deaths. Dr. Pauling's previous estimate was based on thirty megatons, which were about half the megatons exploded up the summer of 1958. His estimates are quite close to those of the AEC. Lapp adds: "Absolute numbers, such as those cited for carbon 14 genetic damage are impressive, especially when they apply to the 266 future generations covered by the persistence of carbon 14s long life (average life of 8,000 years").

I would substitute the word *frightening* for the word impressive in this last statement. The fact is that today, nobody—physician, physicist, biologist, or geneticist, knows the long-term, ultimate effects of radiation. The study of these effects is only in its infancy and there remains much yet to be learned. Indeed, there is reason to think that there is much already known that has not been made public.

It is noteworthy that from the outset of the study of radioactive damages, there has been a repeated downward revision of the maximum permissible dose. Looking back, it is obvious that our scientists have constantly underestimated the hazard. The permissible dose of 1931 was reduced by half in 1936 and then to less than half again in 1950. By 1957 the figure had been reduced to less than a third of the 1950 dosage. This is a total reduction to one-fifteenth of the 1930 dosage. It is now generally thought that that there is no threshold dosage, as I have mentioned before. Commenting upon this steady-lowering of the permitted maximum dose, Dr. L. S. Taylor, of the U.S. Bureau of Standards, said: "It will be extremely difficult to lower the standards further and still permit the effective use of radiation in medicine, industry and research."

A luminous dial wrist watch worn twenty-four hours a day would give the central body including the sex organs a dose of about 40 mr/year. Airplane pilots also receive a considerable dosage per year from luminous instrument panels. It seems that every modern invention is fraught with danger, and the only intelligent thing to do is to scrap the so-called "modern conveniences" (the harmful ones) if we wish to preserve the human race in some intelligible form.

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Article #4: A New Pathway to Extinction by Virginia Vetrano

The only way to stop the threat of an atomic war is to ban the use of all nuclear weapons and cease manufacturing fission products by the use of atomic power plants. Power plants are contributing heavily to the pollution of our streams, rivers, seas, and our atmosphere. If this rate of pollution continues, soon there will be no food, no water, or air which is safe to eat, drink, and breathe respectively. We are destroying our planet and working for the extinction of mankind. We must stop all nuclear explosions and all atomic power plants. There is no need to be cowards and let ourselves be pushed around from now to eternity, which won't be far off if this testing of nuclear weapons is not stopped and atomic power plants abolished.

With increased bomb testing, we have nothing to look forward to but showers of invisible radioactive dust pouring down upon us and penetrating out bodies by means of our air, food, and water for the next five to seven years or more. The most ominous threat, however, is to our children. They are the ones who will reap most of the harvest of this madness called "preparedness for peace," and the younger the child the more sensitive and more easily damaged are his cells from radiation.

Dr. Linus Pauling most forcibly says, "The only safe amount of strontium 90 in the bones of children is zero." Unfortunately atom and hydrogen bombs never yield this safe amount. He further emphasizes that if testing of atomic bombs continues, about 100,000 children of the next generation in the United States will die. He also stated, and this was before the French tests in the Sahara, that "these bomb tests will also cause the birth of 200,000 seriously defective children in the next generation of human beings, children with serious mental deficiency or serious physical defects."

Can we afford to "relax and enjoy life" when the very essence of life is being destroyed? The pool of human germ plasm is being greatly damaged, our mental capacities are diminishing, our physical capacities deteriorating and yet we do nothing. A national revolt is no longer adequate; what we need is a world revolt. Billions of yet unborn children will come into this world with diminished mental capacities and serious physical defects *because we, the thinking portion of the population, have not made ourselves* heard. It is we who are to blame for this gross crime committed against the future human race. In the history of the United States, no unwanted thing continued to exist when the whole population stood together and rebelled. Unfortunately, rebellion and singularity seems to have been knocked out of all Americans.

We must unite to fight every profession using X rays for diagnosis and therapy, we must fight the Atomic Energy Commission and every other nation which desires to enter in the atomic race. Every source of damage to our children and future children must be abolished less we perish from this earth. We must expect much strong opposition from all these sources because not only are their bread and butter in jeopardy but also their diamonds, fur coats, and Cadillacs.

Furthermore, this class of people won't stop their damaging practices unless they are forced to do so, as is evidenced by the cumulated facts before us. Despite the fact that scientists have predicted the strontium 90 content in Japan would be beyond the AEC safety limit by 1962, and that in 1959 stillborn babies of Southern Japan were being found with the Sr 90 content already exceeding the so-called "safe limit," nations continue to clamor for more testing of atomic and hydrogen bombs. Other evidence that force is necessary to stop these damaging influences is the fact that the x-raying of pregnant women has been continued well into the present time, although for years it has been known that exposing a fetus or an embryo, even momentarily, to X rays could cause cancer in early childhood.

Even authorities, such as Schubert and Lapp are disturbed over what they call "our irradiated children." They say "thousands of infants and children in the United States are needlessly exposed to more radiation in one year than would be allowed atomic energy workers in a lifetime." They were speaking of medical and dental sources of X rays, which is another thing the AEC overlooks when planning on contaminating the air with more fallout; the fact that our population as a whole is already over irradiated from medical and dental uses of X rays only more aggravates the hurt. Our responsibility is to protect our children from these unnecessary and inimical sources of radiation. Fortunately, it is still within our power to refuse medical and dental X rays, although we are still helpless under the blanket of fallout blasted into the air by our "mad scientists."

Rapidly dividing cells, as seen in embryos, infants, and young children, are more sensitive to all kinds of radiation, i.e., they are more easily damaged. The younger the child, the more likely will he suffer from delayed effects such as cancer and leukemia. A person of advanced age, receiving a dose of radiation, will probably die before cancer has a chance to develop, but if an American boy, with an average life span of 66 years, or a girl with an average life span of 72 years, has been irradiated in the embryonic state or in early infancy, there is more than ample time for him or her to develop cancer or leukemia in early life.

The fact that the young are more sensitive to radiation and that they have many more years to live is reason enough to exclude all sources of radiation from them, but there is another very important reason which we should not overlook. These children will grow up to reproduce their kind and if no more effort on the part of hospitals, physicians, and radiologists is made to shield the germinal elements of these children than has been made in the past, *the human race will be mutated out of existence*. Through surveys made by prominent men, it has been shown over and over again that physicians fail to protect the gonads while x-raying and that even in the best and well-equipped hospitals no effort is made to protect the gonads of children while treating them. The many thousands of articles written to warn physicians of the dangers engendered by failing to protect the gonads of the young are written to no avail as the advice seems not to be heeded. It is still up to the people themselves to stop the practice of irradiating the young altogether.

During the early embyronic stages, from the moment of fertilization to approximately the end of the third month, human cells are most sensitive to radiation. Investigations have shown that even small doses of radiation during this period may lead to malformations and sterility. Just as there are certain stages in cell division (mitosis), in which the cell is more sensitive to radiation, there are also certain stages in embryonic development when organs and organ-systems have an augmented sensitivity to radiation.

Reprinted from Dr. Shelton 's Hygienic Review, July, 1960

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Article #5: Solar Energy Will Revolutionize Your Life

How would you like to see your *total direct* energy bill drop from say $1,500 per year to a mere $50 to $75? And your *indirect energy bill*, as represented in the products you buy, drop yet another $ 1,000 or so?

Fantasy?

Absolutely not! The technology is here now, today!

There is a gremlin in the works, however. But we're betting this dark shadow will not be around long. There's too much in favor of this getting into foreign hands, etc.

An inventor and electronics specialist, Stanford R. Ovshinsky of Troy, Michigan, has made the most startling energy breakthrough in all history! In fact it is so revolutionary that all other forms of energy utilization are immediately obsolete! And therein is the rub.

Mr. Ovshinsky developed what he called "ovonic materials" for applications in the computer industry. Imagine how stunned the scientific world was to learn that not only were the materials "dirt cheap" but that they transformed solar energy directly into electricity at a cost of about 1/25 of the cost of such conventional sources as coal, water power, etc., presently our cheapest sources for power.

Can you imagine paying a service station say $5 for a battery power back chance for your car and driving from 500 to 700 miles before having to change packs or, if you have the time, of recharging the battery pack from your own home-owned generator made of ovonic materials? Or of having your own power generator made of ovonic materials right on the roof of the your car?

Can you imagine meeting all your home power needs with a few solar panels located on your roof or wherever you place them such that they capture the sun?

Can you imagine the great grid power system that mars our land with endless lines disappearing?

Can you imagine yourself being free of outside energy needs altogether? Of being an island unto yourself in meeting your energy needs just as you presently meet your needs for air?

The revolution will be so sweeping anything you visualize will probably be far short of the mark.

But the rub? What is that little gremlin we spoke of?

Mr. Ovshinsky went heavily into debt. Help came in the form of monies from two industrial giants who, to all appearances, want to keep ovonic materials AWAY from consumers.

The easy path Mr. Ovshinsky took to free himself of burdens was to sell part interest in his solar devices to, *and get this*, United Nuclear Corporation and Exxon Corporation.

United may well find rescue in the new technology. But Exxon? Do you for a moment think they have anything to gain? Do you think they will let their multibillion dollar investment in oil and coal go down the drain? Do you think they will permit their annual multibillion dollar income to plummet to near nothing by marketing a solar device that practically kicks them out of the energy marketplace?

Much remains to be seen in this case. We're confident that overriding factors even larger than United and Exxon will bring ovonic materials or even better materials to the consumer and relatively soon.

Mr. Ovshinsky must be hailed as having made the most humanitarian invention of this century. And we must push with all our mights as interested parties to see that this invention sees widespread application as soon as technically possible.

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Lesson 54 - Weather And Human Well-Being

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- Article #1: The Weather In Your Health By Mike Benton

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1. Introduction

At first glance, a discussion of that universal subject—the weather—might seem out of place in a Life Science/Hygiene course in human nutrition. But, since nutrition is a unified or total body process, any influence that can disrupt this complicated and marvelous process anywhere along the great chain of nutritive systems would seem to justify its study in relation to human health and nutrition. And, while many sincere investigators (past and present) have delved deeply into nature's secrets of human nutrition, as yet we cannot see but can only infer by deductive reasoning the mysteries of the inner metabolic processes going on in the living cells of the body. We can deduce that certain things are going on, but we cannot be sure all these deductions are infallibly correct.

1.1 Twentieth-Century Technology—A Two-Edged Sword

Meanwhile, the mounting evidence seems worthy of note and concern that the human race—the 20th-century human race—has caused "unnatural" weather conditions (such as worldwide air pollution, nuclear blasts, burning of fossil fuels, etc.), which can then become a cause of "unnatural" stimulation or shock to living bodies, on the same order that drug poisons create an unnatural stimulation (shock reaction, etc.) to living bodies. Of course, the effect of the weather will be different on different people, depending on the condition of their bodies. The heat of a noon-day sun (shining through visible and invisible layers of air pollution) will have a different effect on a sober person from the effect it will have on a drunkard (including a food drunkard).

One of Life Science/Hygiene's most vital concerns is the mounting evidence that the two-edged sword of modern technology may be creating a technological world which, instead of enhancing life on this planet, could be making it unbearable (and unlivable!).

One area, however, that 20th-century technology would seem to deserve credit for opening some dramatically revealing new studies is in the area of this planet's weather, and how recent findings would seem to lead to the conclusion that air, electricity, ions, weird winds, sunspots, etc., have a greater effect on human health, nutrition, moods, etc., than was thought in the past. Those Life Scientists seeking new challenges should find this area of study fascinating.

1.2 Our Fabulous Body Intelligence

This new field of scientific investigation of how weather affects living things has been given the name of "biometeorology." The findings so far show that when the weather changes, the body wisdom quickly makes changes in the body—adjusts our marvelous internal body systems to keep the vital functions at the constant level necessary for life. All the body's functions give evidence of marvelous intelligence, prevision, and provision, and nowhere is this better exemplified than in the living body's master thermostat called the "hypothalamus." Working faster than the most advanced modern computer, this temperature control system of the brain adjusts the body to external changes of cold or heat with lightning speed. It, and other body control systems, make possible the seasonal acclimation process of living bodies. This entire process of adjusting and switching the entire metabolism if living bodies from one season to another, or to sudden hocking changes in the weather during a mid-season, should show even the most hardened skeptic that the wisdom that created the living body and maintains it is (and always will be) greater than the conscious mind of man can conceive. Our duty, according to Hygiene/Life Science philosophy, is to learn all we can about it and how it works, but to never lose our awe and respect for it.

But these natural responses of the inner body wisdom to sustained or changing weather conditions can be hammered, and interfered with by a myriad of external and internal factors and conditions. One analogy of the living body would be to liken it to a fine electric motor that someone drops a wrench in. The wrench stops the motor though the electric power that ran the motor is still here ready to do its job of starting the motor when the wrench is removed. We can, for purposes of analogy only liken the marvelous, intelligent life force that "builds" and runs the human body to the electric force of the motor. And, we can liken such things as the weather, wrong diet, drugs, etc., as the wrenches that thwart the body wisdom in its work. Life Scientists should include the weather, and its influence on living bodies, in their studies on nutrition.

We constantly hear people say that they "can't take the weather as well as they used to when they were younger." But, the cause is not their age in years, per se, but the accumulated wrongs done to their bodies over a period of years. Many of these wrongs are self-inflicted, but not all. There is very little we can do to change the weather, and evidence is mounting that certain weather conditions can have deleterious effects on the living body, causing such maladies as migraine headaches, depression, heart irregularities, metabolic disruptions, and a host of other ills. The body, and its governing wisdom, though astounding in its capabilities and sensitive adjustments, cannot dominate he external environment (like it reigns over the internal environment), except to a very limited extent. Even the culmination of some of this century's most vaunted technology, such as NASA's space shuttle, must pay obeisance to the weather, as happened recently with the voyage of Space Shuttle Columbia, when it was forced to stay in earth orbit an extra day due to very strong cross-winds at the prime landing site.

1.3 Natural Weather and Manmade Weather Affect Health and Nutrition

Theoretically it seems possible (even probable) that the present "arms race," with its continued nuclear explosions (one by Russia in the sixty-megaton range!), may have already upset nature's delicate balance at the electronic level. And, some of these weird winds, and strange weather patterns all over the planet, in these hectic, closing years of the twentieth century, may be nature's way of trying to restore the atomic and electronic balance! If either of the so-called "super-powers" have done any investigation into whether or not their continued insane atomic blasts have disrupted nature at the atomic and electronic level, they are keeping their findings well hidden. And, of course, in addition to this new manmade atmospheric pollution and disruption, nature has to contend with natural pollution—such as the recent catastrophic volcano eruption in the Yucatan peninsula of Mexico. Incalculable tons of molten ash and other volcanic debris were exploded into the upper atmosphere changing the immediate weather picture around the world, according to meteorologists!

And, as far as humans on this planet are concerned, our natural atmosphere is our most vital natural resource, for we must breathe it all the days and nights of our lives. And, the electromagnetic condition of the atmosphere has been shown (by recent biometeorology research) to exert probable and significant effects on life on this planet! As this century draws to a close, evidence is mounting that man has (over the years) with sometimes good intentions, but with seldom any thought of future consequences, probably interfered in the natural environment so much that the natural electronic balance may have been vastly disrupted to the detriment of life on this planet. Nuclear explosions are the latest and greatest madness in tampering with the natural balance of our environment. Technologically-advanced "civilization" does not necessarily mean a culturally-advanced one!

We can, to a limited extent, help the body's adjustment to external environmental conditions (sudden weather changes, etc.), with artificial "microclimates" of our 20th-century technology. But, as in the use of anything artificial, this again proves to be a two-edged sword. The best and most astounding piece of "machinery" human beings can have is their own bodies. And these marvelous systems of living equipment have their natural rhythms, their natural systems of adjustment, etc.," to maintain certain standard levels of function within the body. These can be interfered with by artificial climates, etc. However, in some conditions of impaired health and disrupted nutritional (metabolic) functions, the temporary use of artificial climates has proven to have a temporary helpful influence. But, our bodies were designed by an incredible, invisible power and wisdom to respond naturally to weather conditions. These natural responses can be thwarted and weakened by artificial (technological) conditions.

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2. The Body's Natural Protective Systems

Clearly, in the living body, the body "chemistry" changes when there are changes in the weather. Technology can thwart the body's efforts at correct changes. But, modern technology is not the only thing that interferes with the body's natural functioning and responses to changed conditions in order to maintain internal temperature and other vital functions at a constant level. As Hygienists know, "toxemia" can play havoc with the body's internal economy; prolonged mental or physical stress can disrupt the body's internal adjustive mechanisms, and present a constant interference with the body's natural functions; and, of course, one of the worst causes of complete and deadly disruption of natural body functions is drugs.

2.1 Drugs Thwart and Impede Internal Vital Functions

Both the so-called "primary" and "side effects" of many drugs can critically interfere with the body's natural functions. For instance, tranquilizers, prescribed to "relieve" stress during prolonged heat waves, have actually killed people due to their "side effects" of blocking the body's natural system of cooling itself by sweating! And, it has long been known that the drug, nicotine, can constrict circulation in the extremities. The western world's love affair with coffee makes millions of addicts to caffeine, another drug that can cause the constriction of blood vessels, causing a rise in blood pressure and giving a deceptive feeling that the body is naturally warmer. Other drugs, such as amphetamines, marijuana, and King Alcohol, can play havoc with the body's natural temperature-regulating systems.

The body's incredible sensitivity to changes in atmospheric pressure, and its remarkable internal adjustments to stabilize its functions in relation to external changes, can be fatally interfered with by drugs. According to scientific studies, the side effects of certain drugs prescribed for heart patients, for instance, can prove fatal to some patients taken under conditions such as the sudden dropping of atmospheric pressure preceding a storm, or in the lowered air pressure of the mountains.

2.2 More Influences on the Body

And, who knows how many highway accidents, job-related accidents, marital break-ups, etc., are caused by the changing weather's effect on "weather-sensitive" people, who develop circulatory problems, fatigue, inability to concentrate, moodiness, depression, instant anger, migraine headaches, etc. The nervous system of the marvelous living body is so sensitive to external influences (such as infrasound influences) that it can "feel" certain sounds that winds make which are of too low a vibration to affect the human ear.

Every year, in certain parts of this planet, weird winds spring up that in folklore have been called "witch's winds," because in their wake there seems to be a rise in accidents, illnesses, crimes, etc. Both weather-sensitive humans and animals seem to "sense" the coming of these winds. Now a scientific explanation has been given this folk wisdom of the ages. Scientists researching this phenomena now call this the "ion influence." They claim that in weather changes, it is these ions or electrically-charged molecules of air, to which people are really sensitive. They theorize that a natural balance of positive to negative ions of five to four increases strikingly as these "witch's storms" approach. The conclusions of these bio-meteorology researchers is that this upsetting of the ion balance causes immediate and drastic changes in the body-regulating systems of weather-sensitive people who are truly living barometers. One widely-noted effect is the overproduction of adrenalin, which as a secondary effect causes adrenal exhaustion symptoms such as extreme fatigue, nervous tension, moodiness, depression, etc.

Ion research at the University of California, Berkeley, has discovered that negative ions reduce normal blood levels of serotonin, a hormone that "carries messages" (according to brain specialists) within the brain processes. These findings concluded that positive ions, on the other hand, increase serotonin levels. This increase in serotonin caused by an increase of positive ions is declared to be the cause of illnesses related to "witch's winds," according to ion researchers. The theory is that wind friction caused by moving air masses, layers of wind, etc., creating friction with existing, relatively motionless surrounding air, tends to cause massive electrical disturbances by "knocking off" negative ions and increasing the overdose of the number of positive ions. Ion researchers now conclude that an overdose of positive ions affects the body processes, metabolism, temperature regulating, etc., of all living creatures on this planet.

2.3 How Can We Control How the Weather Affects Us?

If these current findings about weather-related illnesses caused by an upsetting of the body's internal systems hold true after much future investigation, then an equal, if not more important, area of investigation would be to see if we can discover how the body itself best copes with these outward, adverse changes and influences. Life Science already has a key understanding in that the healthy, normally-functioning body can more quickly adjust to and overcome enormous external adverse influences. But, the body's energies and intelligence not only have to be expended in adjusting to massive external influences, like the weather, but it also has to use its precious life energies neutralizing and expelling drugs that are deadly to the body's internal processes; plus the processing and expelling of wrong foods, bad combinations, etc. But, the primary law of physiology of the body is "self-preservation" by the great wisdom within. Life Science/Hygiene teach that a living body not burdened with toxemia, and correctly nourished, can withstand external environmental changes, like the weather, with a remarkable resilience, and that weather influences on such a healthy body are more temporary with less lasting disruption of body economy.

We've all heard the saying, "Everybody talks about the weather, but nobody does anything about it?" But we all can do something about it by correct living in such a way that we help the body to help itself, in its readjustments and responses to the disruption of its internal equilibrium by such conditions as sudden weather changes, etc., and not in such a way that we are constantly throwing deadly "wrenches" in the body's incredibly complex works. Or, to put it another way, study and listen to your own body, for its wisdom and marvelous workings are the best indicator, maintainer, and adjuster of total body health (physical and mental) whether in weather changes or whatever, and not some external authority, drug prescription, injection, etc.

Thus, the constantly increasing discoveries of how the weather can be a disrupting factor in health, nutrition, etc., show dramatically, again, the great value of the Hygiene/Life Science way of life, as the best way of helping the body cope with these disruptions. One of the basic pillars of the Hygiene/Life Science way of life is correct nutrition. We have already mentioned the deadly effects of many prescription drugs on the body's ability to adjust to weather changes. But few of the contemporary works on nutrition equate all the harmful additives in food as being drugs also, and just as poisonous as prescription drugs to the living economy.

Many things popularly thought to be foods are really poisons. For instance, sugar and salt are not foods, but poisons. The enormous amounts of salt and sugar consumed by Westerners produce untold ill health, misery, and death. Salt buildup in the body causes increased loss of potassium, and this depletion of potassium can lead to heat prostration, headache, lassitude, sleeplessness, localized pain, inability to concentrate, etc. Much evidence is available to show that its cumulative effect over a period of years is one of the culprits in kidney disease, high blood pressure, heart enlargement, etc. Refined sugar is consumed in towering amounts by our Western society and culture, and is suspected of being a major factor in heart disease, arterial diseases, teeth and bone deterioration, etc.

It is not hard to see how the complex body system, disrupted constantly by the ingestion or injection of dangerous drugs, chemical additives/etc., could be unable to cope with sudden and vast changes in the weather. On the other hand, a smooth functioning body whose cells and tissues are kept well cleansed and well nourished with the biologically-suitable diet of mankind—fruits, uncooked vegetables (especially green, leafy salads), and nuts, can withstand and adjust to weather changes to a remarkable degree.

Space is limited, so this must necessarily be a rather general survey and summary of some of the recent investigations and discoveries in this fruitful and fascinating field of biometeorology—the study of weather, climate, etc.—and its mysterious influence (in several aspects) on human health. Here is surely a fertile field for present and future investigation, for those Life Scientists/Hygienists who desire to strike out into newer fields of creative thinking, investigation, and discovery for the benefit and betterment of humankind.

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3. Bioelectronic Factors In Nutrition

Those who probe, poke, and pry into the living body trying to force it to reveal its innermost secrets of nutrition and life, finally come to an invisible, impenetrable wall, and the message of nature seems to clearly proclaim: "Thus far shalt thou go, and no further!" All investigation seems to run out into unfathomable mystery. The living body's ultimate processes of nutrition are a nature-kept, or life-kept, secret. Nor, is it necessary that we know these ultimate nutritive processes, for nature (or the invisible life force of nature) would still have to do the ultimate processing by the same natural laws as it has done since life first began on this planet.

The one vital area where nature requires our conscious participation is that first important step along the long and winding nutritive road, of providing the body with the biologically-correct food, and of course, proper mastication of that food.

Even our 20th-century technology, remarkable as it is in some areas, cannot take a television camera into the inner recesses of the living cell and show us its ultimate nutritive processes. Thus, it has always been, and shall always probably be. We can only speculate, theorize about ultimate processes, and up until recently that seemed counterproductive since nature goes right on with her great secret work regardless of our questions about it. But, in the light of recent investigations and findings (as summarized in the first segment of this lesson, on the weather), showing that weather, climate, drugs, etc., can seemingly have an often devastating effect on living bodies by disrupting electrical balances, etc., perhaps a renewed, more intense speculative look, or theorizing, about what may go on behind the great barrier of effects in living nutritive processes may now be more fruitful.

And, it must be admitted at the outset that this will be mostly theoretical and speculative, as, in this writer's opinion, investigations of invisible ultimate nutritive matters (no matter how sincere and dedicated) cannot at present (if ever) be considered as having absolutely-established conclusions that present final "scientific proof." But, Hygiene/Life Science ever seeks to increase the light of human understanding and betterment, and if questioning and theorizing into new fields of thinking lead to that worthy goal, then more power to it—as long, of course, as this thinking does not subvert or take us astray from the time-honored and proven basic principles of Hygiene/Life Science.

Since all material things seem to run out into invisible electronic mysteries, for purposes of this lesson let us approach the living body from that standpoint. The pioneer in "bioelectronics" was George W. Crile, who as early as 1889 began his researches into the electronic nature of the living cell, and reached the conclusion that every cell of the human body is really a tiny bipolar battery carrying two electronic charges—a negative charge on the outside, and a positive charge at the center. But Crile, and the bio-electronic researchers after him, started their investigations with a "full-blown" cell which has turned out to be a very complex thing indeed!

Crile's researches and findings were later duplicated and verified by Lakhovsky and others. They concluded that a predominance of a positive electronic charge brings total health, abundant energy, extended youthfulness, etc., while a predominance of negative charge or potential in the cells caused cellular fatigue, structural deterioration, exhaustion, and eventual death of the cells.

This might lead some to conclude that electricity, or electronic energy is life, or the life force. We are no more able to resolve the problem of the ultimate nature, essence, mystery, and miracle of life than any other Hygienist/Life Scientist, and claim no special mandate to give such final dispensation. We can only offer our own ideas held at the present (which could change in the future, in the light of newer thinking and investigation) with no implication that we think these are final and unshakeable conclusions. And, with the hope that present and future Life Scientists/Hygienists can delve further into this great mystery. There are those who will dogmatically state that the life force is you, or your subconscious mind, etc. But such statements lack absolute, demonstrable proof, and therefore are assumptions, not conclusions. Others will claim, just as dogmatically, that the life force is electricity.

It is this writer's considered opinion, however, that life, or the life power, is probably not the same as electricity, but that the life power "uses" electronic energy to "build" or form the body and put it' into a certain condition so that life can manifest more fully. There are just too many unresolved (and probably unresolvable) differences between the life force and electricity. Perhaps there are even "life fields" and "body fields" that intermingle and interpenetrate. The pioneering work of Harold Saxon Burr is highly interesting along these lines of investigation of the ultimate cause of the great barrier of effects in living processes.

And, to try to reduce the life force to the same size as the "electronic building blocks" it uses, as the reductionists try to do, is as futile as trying to describe and reduce the brick mason to the same size as the bricks he uses! Those, who in their philosophical considerations, try to reduce the life force to its tiniest "building blocks," are following a wrong theory, in this writer's opinion.

But, who can say they know, and can prove for absolute certainty, what life really is? Perhaps we will never know what the life force is, in its ultimate essence. It is a nature-kept, or life-kept secret, and one that Mother Nature seems not to want to share with us! Perhaps, for us humans, it is just as important to know that life is *not* as to know what it is!

Many Hygienists/Life Scientists of old wrote as though they considered the life force and nerve force as the same thing. I have expressed my own opinion (above) that I do not think the life force and electricity are the same. Yet, nerve force does appear to be some form of electricity or electronic energy. How do we resolve this? Theorizing from bioelectronic research findings, and from Hygiene/Life Science philosophy, the conclusion seems inescapable that here, perhaps, we can deduce a reasonable hypothetical explanation to account for the perplexing paradoxes and contradictory aspects of nerve force and life force. They are apparently two different things! At least that is the conclusion we are drawn to, at this time, by our evaluation of current bioelectronic research. It should remain an "open-ended" subject, however, and it should be understood that we are not here claiming to present absolutely final conclusions about it! To return from this needed digression to the comparison of the life force and nerve force—nerve force is a variable factor—life force is a constant. Nerve force would appear to be the "positive aspects" of the bioelectronic energy of the nervous system, and rises and falls with certain conditions. Life force, on the other hand, is a constant and not a variable factor. It is not "used" by the body, but uses the body and nerve force as its manifesting instruments. Life force initiates intelligent action in the body, while nerve force, being apparently a form of electricity or bioelectronic energy, has no power of intelligent initiation. And the Hygiene/Life Science philosophy shows that even life, itself, must work within the confines of biological laws.

At the present state of bioelectronic research, nerve force would appear to be generated within the body, although there are those who think it also can, to some extent, be generated from without. Here, as elsewhere, the infinite power and wisdom of the life force may have designed more than one way of doing things as an emergency, self-preservative influx. Who knows? But, if our bioelectronic theorizing is to be consistently developed as a theoretical explanation of the differences between the life force and nerve force, we must postulate that for the maximum healthful functioning of the body, and full manifestation of life's powers, the life force apparently must maintain a nerve force balance of positive and negative electronic energy charges, with slightly more of the positive charge predominating.

Since all matter in the universe is built, and has an electronic basis, food must also have its electronic basis with its positive and negative electronic charges. And, it would seem logical, and consistent with our bioelectronic theorizing, to conclude that all foods either have a predominantly positive potential or a predominantly negative potential, or else a near balance of positive and negative potentials.

We do not get life from food, for food cannot give what it does not possess in the first place. Food, in the state it is taken into the body for nourishment, is dead, inert material that is acted on by the life force, Let those who claim that electricity is life explain this—food matter contains electricity (electronic factors) in its very basic makeup, but it does not contain life. A predominance of negative electronic potential in inert matter, as in dead bodies and dead foods, is still electricity or basic electronic factors. Is not a dead body still composed of electricity in the material of which it is still composed? And, yet it does not contain or manifest life. We do not get life from dead, inert material like food. What we do apparently get from food (at its ultimate breakdown by digestive processes) is electronic energy, if our electronic theorizing is to be consistent. Reducing food to its cells, the food cells themselves are further reducible to molecular and then to atomic and subatomic or electronic levels. Upon correct and complete digestion and assimilation, the electronic energy is freed from the foods. Thus, under the bioelectronic view, we see that the so-called "biochemistry" system of food science would not be correct food science, and would be of relatively minus value to the Life Scientist/Hygienist, as its conclusions are reached from the data and studies of contrived experiments, research on rats, manufactured deficiencies, and research on dead bodies, dead foods, and the dead chemical elements of these.

But, under the bioelectronic view, it is seemingly the electronic energy in the foods (according to bioelectronic research), and not the chemical elements that should form the real basis for a genuine science of living nutrition. Reasoning from the findings of the bioelectronic researchers leads to the conclusion that the chemical elements in foods are apparently the transport-carriers of the electronic energy that is seemingly the real goal of the long chain of nutritive processes in the body. When this electronic energy has been released from food cells, the chemical transporters that are left, and that are not utilizable by the body, are poison to the living body and must be speedily eliminated by the self-preservative instincts of the body wisdom. Pursuing this reasoning further, another apparent conclusion to be drawn is that fractured and fragmented food supplements are unusable by the body, and therefore foreign to it (poison), and also must be quickly eliminated as life-threatening materials.

3.1 Food and Electronic Energy

A bioelectronic food science based on the electronic energy would show whether a food had a predominance of positive or negative electronic potentials, or is almost neutrally balanced. But, this does not mean that we need to always follow some complicated chart showing the positive and negative, or neutral potentials of every food in existence. Nor does it mean we have to be always keeping the positive and negative electronic condition of the body in mind, so that we will be sure to eat foods and maintain a proper balance to keep us healthy and fully alive. As in so many other things, wise old Mother Nature has preceded us and provided the perfect balanced food to maintain maximum health. Since this is the natural, biological food for humans, and since health results from its use (other things being equal, of course), it seems a fact of observation that this food, designed by wise nature for human use, has a perfect balance of electronic potentials to maintain the living human body at its highest level. That perfect natural food of mankind is, of course, the many wonderful varieties of edible fruit, along with uncooked vegetables (especially green, leafy ones), and nuts. In the master drama of human nutrition, our prime role or duty is to see that we eat the natural diet that contains the essential nutritive factors. And, we can then put our trust in the great wisdom within to do its marvelous work of building our bodies as healthily as possible—as it has done for untold ages past, since life first manifested on this planet Earth.

3.2 The Body As a Bioelectronic Phenomenon

In the first segment of this lesson, I indicated that scientific findings show that disruption of body processes by weather is done at the electronic level. But, how much greater is this electronic disruption from wrong food, and wrong food combinations? And yet, nature has seemingly made our correct biological diet such a relatively simple objective for us, and we humans seem to want to make it so complicated. Our theoretical reasoning leads us to believe that the wisdom in nature has made the natural food of mankind so perfect as to its ultimate electronic potentials needed for the body processes that no human genius in electronics, or the most sophisticated modern computer, could even begin to compare with it.

Thus, theorizing (or deducing) from the bioelectronic viewpoint, nutrition at its ultimate invisible goal after releasing or unlocking of the electronic energy, possibly consists of some magical (and there's no better word to describe it) transformation of ultimate electronic factors of foods into some higher state or condition that is closest to the essence of the life force, itself, and can best be utilized by it in that "higher" condition. Perhaps, again, this ultimate energy unlocked from food consists of some peculiar and higher form of vibration of the released electronic factors. Thus, certain radiations, at certain wavelengths, might be the invisible "building blocks" that the life force uses in building and maintaining animate bodies.

Of course, the mysterious energies locked up in the ideal foods—fruit, uncooked vegetables, and nuts, in correct combinations, cannot be available to the life force unless they are unlocked and set free by correct functioning digestive processes all the way down the Ion road of nutritive processes. And these digestive processes can be interfered with and disrupted and perverted in a myriad of ways and conditions, such as sudden weather changes, wrong food combinations, enervation and toxemia, wrong emotions, overwork, etc.

3.3 The Hygienic/Life Science Way

And, while fruits, uncooked vegetables, and nuts, in correct combinations, are nature's ordained diet for mankind! it may be that with more knowledge in the future we will discover that during certain times, and under certain conditions, we should favor the combining and eating of certain fruits, vegetables, and nuts over others, for their slightly different predominance of electronic potentials. For example, future findings might show that *specific* fruits, vegetables, and nuts, properly combined, may be better for weather-sensitive people whose ion balance has been upset by adverse weather conditions, etc. This is, of course, speculative, and awaits more research for possible verification in the future; but, as stated at the beginning of this part of the lesson, this brief speculative analysis of bio-meteorology and bioelectronics hopefully may arouse further thinking and investigation by Hygienists/Life Scientists into these relatively little investigated areas of nutrition and related subjects. For we can never reach the omnipotence and omniscience of nature, or the life force and wisdom that ever remains hidden within manifested nature; but in the constant journey, struggle and out-reaching to learn more of nature's secrets, in order that we may learn to live in compatibility with her ordained ways, we grow and expand our lives and our consciousness. And, creative outreaching is initially speculative, until more definite evidence catches up to it.

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4. Questions & Answers

You say if one eats Hygienically and is in good health that he or she will not be adversely affected by the weather. But I'm in very good health, eat no wrong foods, and yet as soon as winter comes (I live in Michigan), I get sick for long periods of time. Could it be that my attitude toward the weather (I hate winter and being indoors) has physiological effects on me?

> Most certainly, yes. Attitude is a very important factor in human health—almost as important as diet. Observe those around you who are always negative in their thought processes—check how often they become ill despite their diets and lifestyles. This does not mean, however, that you should neglect your diet. Maintain a good, healthy diet and a good, healthy attitude.

Every time it rains my joints ache. I've been to the doctor for this problem on several occasions and he says I don't have arthritis or anything like that. What could cause this?

> Apparently your diet and your lifestyle are not as pure as they need to be to maintain optimum health. Try adding more fresh, raw fruits, vegetables, nuts, and seeds and eliminate harmful items in your diet such as refined products, salt, condiments, alcohol, drugs, meats, etc. You'll be amazed at the difference the next time it rains.

Whenever it is just slightly cold out and everyone around me says it's just right—such as when the temperature is about 65 or 70 degrees—I still feel cold. The same is true when it's in the upper 70s and 80s—everyone around me says it feels good and I'm too hot. Why is this so?

> Perhaps your body's temperature controlling device, the hypothalamus, is not functioning properly. This is caused by improper diet, poor environment (too much artificial cooling and heating), not enough exercise, fresh air, or sunshine. Try improving your diet and getting out in the open air and sunshine for exercise regularly.

> In this lesson I have shown that the weather can and does affect one's health. I have also shown that it will have less effect on you if you abide by nature's laws—that is eat only of natural fare (raw fruits, vegetables, nuts, and seeds), drink only pure water, take exercise, fresh air, and sunshine, and apply the other essentials of life as taught previous to this lesson. This lesson pointed out that every cell of our bodies has an electronic nature—that is, a

> positive and negative charge. The food we eat also has electronic energy which when released from the food's cells, nourishes our bodies. More studies need to be conducted regarding the electronic nature of foods and how they affect our well-being.

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Article #1: The Weather In Your Health by Mike Benton

It was many years ago. I was a small boy visiting my great-uncle on his farm in the back country.

On a warm and sunny day in early November, he told me, "Better pick all those fall tomatoes. Probably be snow on them by tomorrow."

I thought he was joking, but I harvested all the tomatoes just the same, sweating in the garden in a pair of shorts.

The next morning I woke up and saw snow all over the fall garden. My uncle met me at breakfast. "It's my wrist," he told me. "Better than any weather vane. Always acts up before a snow or a rain."

How many times have you heard people say that they knew a storm was coming by the "way their bones felt?" How about hearing people complain that they feel "under the weather?" How about yourself? Do you drag around when it's cloudy and feel great only when the sun shines?

No doubt about it. Weather affects all of us in some way or another. Many people seem more strongly bothered by the weather than other people. Some blame the weather for that ache or pain, or their own poor health in general. But what roles does weather play in how good or healthy we feel? Is the weather responsible for the many symptoms that people feel, or is it something else?

Weather Sensitivity

How weather influences living things is what the science of *biometeorology* is all about. The biometeorologist studies how the daily and seasonal changes in the weather influence animals and humans.

These "weathermen-biologists" say that while changes in the weather affect everybody, about one in three people is extremely sensitive to these changes (like my great-uncle) and that they may express one or more of over forty different symptoms associated with changing weather.

For instance, pains in the joints or other parts of the body that precede a change in weather have been known since the times of ancient Greece. Rheumatism sufferers are the most affected—sometimes up to two days ahead of the changes in the weather. Many people with fractures, dislocations, burns, and even chafed areas or corns have a sort of weather barometer "in their bones."

Other symptoms that accompany weather changes in sensitive people are migraine headaches, back pain, upset stomach, irritability, loss of appetite, severe depression, feelings of uneasiness, and so on. Some people blame all their ills on the weather.

However, it is important to remember that the weather itself does not produce weather-sensitive people. *The sensitivity people experience with changes in the weather is a function of their own physiological makeup.*

"A healthy, robust, and well-balanced person is rarely sensitive to changes in the weather," says Michel

Ganquelin, a weather researcher. Generally speaking, people who are overly sensitive to the weather tend to suffer from chronic diseases, and they react with pain to barometric changes.

A strong and healthy person can endure stress on several levels and not exhibit any signs of illness or discomfort. Weather is probably the most basic stress that all humans experience. It changes almost every day, and with these changes come new situations and stresses that we must adjust to.

The Weather Fronts

Perhaps the most stressful weather condition is the passing of cold and warm fronts. William Thomson, author of *Climate and Health*, believes that people respond more to weather fronts than to any other single weather factor.

A cold front coming through means more than just a drop in temperature. It also means complex changes in the barometric pressure, wind direction, humidity, and even pollutants and radioactive fallout may be carried in. All of these changes affect our bodies, our endocrine systems, our nervous systems, and our cardiovascular systems.

The biometeorologist, Dr. De Rudder of Paris, says that the "death rate often increases while fronts are passing." For people in good health, fronts may only cause temporary feelings of discomfort. But for the person whose system is weakened, or who has undergone surgery or has high blood pressure, this feeling of discomfort can become something much more critical. Heart attacks often accompany weather front passages, and in general any disease which is aggravated by stress increases in intensity when a front goes by.

While a healthy person does not react as severely to the passing of a front as does a "weather-sensitive" person, all people experience many physiological changes that are being constantly modified by the climate and weather.

Weather and the Changes In Your Body

Here are some of the findings of weather researchers and biologists about how just one weather phenomenon—weather fronts—affect *everybody.*

1. Blood clotting occurs faster just before a front passes.
2. Fibrinolysis, or the dissolving of blood clots, increases after the passage of cold fronts.
3. The amount of urine passed increases when cold fronts are passing and decreases when a warm front has passed.
4. The blood-sugar level is changed by the passage of a front, as are the levels of calcium, phosphates, sodium, and magnesium in the bloodstream.
5. The amount of blood in the body decreases and the blood sedimentation rate is lower after the passage of a cold front.
6. White blood cells increase in number when the barometer falls sharply.

A Case History In Weather Changes: Rheumatoid Arthritis

In healthy people, the changes that accompany passing weather fronts are minor, almost unnoticed. In an individual with rheumatoid arthritis, however, the changes can be quite serious.

A seven-year-old girl who already had arthritis was asked when her pain was the worst. "Whenever we have a storm, my joints feel stiff and I'm sore all over. Sometimes I get stiff before the storm starts, and sometimes I feel better before it stops raining."

Weather researchers have found that in 93% of all arthritic pain, there was a major change in barometric pressure. One suggestion for this affect is that people with rheumatoid arthritis have peripheral blood vessels that are easily constricted. The passage of. fronts often causes changes in these blood vessels, causing them to constrict farther, which decreases circulation and increases pain for those with arthritis.

A fall in barometric pressure also leads to a retention of water in the body. The cells of rheumatic tissue are not as permeable as healthy cells, so they retain this fluid more. This retention of fluid leads to the pain and swelling of the afflicted body part.

The weather did not "cause" the condition; the condition already existed, and the weather simply aggravated it. Besides arthritis, there are many other illnesses of the body that can be made more intense by weather changes.

The Weather Thermostats In Your Body

Obviously weather does affect all of us greatly. Depending upon how healthy we are, we can either shake off these effects or succumb to them. To understand a little more how weather affects your body and, consequently, your health, let's look at some of the inner workings of the body as they relate to weather.

There's a portion of your brain called the *hypothalamus*. It controls digestion, water retention in the body, how we sleep, and our body temperature. The front part of the hypothalamus tells us when to lose heat by making us sweat and opening up our blood capillaries to cool us off. The back part of the hypothalamus can make the capillaries contract which helps keep our body heat in.

In older and sick people, the hypothalamus does not always function properly. This is why these people seem to chill so easily in the winter or become overheated in the summer. Toxins in the bloodstream, brought about by improper diet and poor elimination, poison the hypothalamus. Dr. N. W. Walker has said that the best way to keep the hypothalamus healthy is by eating mostly raw foods. Noxious substances from improper foods can slowly destroy the hypothalamus, which is actually the body's thermostat.

Notice, too, that the hypothalamus also controls such functions as appetite and sleeping. This might help to explain why weather, which affects the hypothalamus, can also make a person lose his appetite or have trouble getting to sleep.

The *pituitary gland* at the base of the skull controls the body's metabolism in cold and hot weather. It, too, regulates the water level in our body for heating and cooling. The posterior part of the pituitary also regulates the temperature of the body as the temperature changes. It's responsible for blood temperature, the perspiration process, and opening and closing the pores of the skin during hot and cold weather. A healthy pituitary gland can help us adapt to weather changes more easily. Again the best foods for optimum functioning of the pituitary are fresh fruits and vegetables, according to Dr. Walker who has made a close study on glandular health and diet.

If we keep the pituitary and hypothalamus healthy by proper diet, we can stay atop the weather more easily. A pure bloodstream from a proper diet, along with regular exercise, can insure the well-being for these two body parts as well as the entire organism.

Diet and Weather

Your diet can help you adjust to the changes in the weather if you'll remember two things: 1) When it's hot, you need more fluids for the body; 2) When it's cold, you need more fuel.

People used to automatically change their diets to meet the seasons because they ate what foods were naturally available, such as fresh fruits and vegetables in the summer and the dried fruits, nuts and greens in the fall and winter. Nowadays, with supermarket and technological junk foods, people can eat the same poor diet all year round.

During the hot months of the summer, my own diet is chiefly melons, tomatoes, and peaches. These are high-fluid foods, and they help to keep the body water-cooled. The summer fruits are also high in potassium and sodium, which are important minerals in maintaining the bock's water balance.

You do not need extra salt or any salt in the summer. . People that eat salt sweat it out during tie summer because the body is trying to eliminate it. The mistake is made that since salt is leaving the body, it must be replaced, so they eat more salt and the body must work all the harder to get rid of it again. Salt serves no purpose in the human diet, and its use in the summer (or anytime) is not recommended.

When the weather is cold, you'll need more *carbohydrates* in your diet for winter fuel—not fats or proteins. A public health nutritionist in New York, Beverly Daniel, puts it this way: "In very cold weather, people need to eat a diet heavy in carbohydrates—like fruits and vegetables. Eating fat is a good way to get fat. Fats are hard to digest in summer or winter. About seven years ago, the army tested soldiers stationed in cold mountain areas. They always picked carbohydrate foods over fats and proteins for their body's fuel needs."

Dried fruits and the more-concentrated fresh fruits (like bananas and persimmons) are the best high-carbohydrate sources for winter needs.

Incidentally, a layer of fat is *not* a good idea in winter or summer. In a 1958 government test, overweight men did feel the cold less than thin people, but when the exposure to the cold was prolonged, the underweight individuals suffered less cumulative effects of cold stress than those with heavy fat layers. Without exception, the thin people also readjusted to the heat much better than those that were overweight.

So don't use winter as an excuse to pile on layers of fat— unless, like the bear, you plan to sleep and fast until spring!

Manmade Weather

Another way you can better adapt to weather changes is by avoiding as much "manmade weather" as possible, such as unnecessary heating and cooling.

Humans have a definite metabolic need for fresh air to pass over their exposed skins. Especially while sleeping do we need an open circulation of fresh air.

By living in tightly-sealed, climatically controlled buildings all year-round, we lose our ability to readily adjust to weather changes. In the perfect environment for man, temperature extremes would not require artificial heating or cooling. Actually, air conditioning in the summer is a real newcomer, and with appropriate building design and dress, it could be eliminated.

Don't make yourself uncomfortable, but do take every opportunity to keep your living and work areas open to the current weather. Don't let "manmade weather" be your constant year-round environment.

Becoming Less Weather Sensitive

To become less sensitive to weather changes, improve your physical health and review your emotional attitudes. Weather sensitivity can be decreased by changing your lifestyle and the way you view the world. Weather sensitivity does change throughout your life, perhaps reflecting your strength and state of health. Infants and elderly people are the most sensitive to weather changes, followed by adolescents and adults. Young children are the least sensitive of all.

Ever notice how preschool children can play outside in the hottest sun or run around without their jackets in the snow? Their young bodies still possess boundless health and vitality that allows them to rise above the weather conditions.

We can achieve that state again, too, if we follow a few simple rules:

1. Reduce your dependence on manmade weather (heating and cooling) while still maintaining a reasonable comfort zone;

2. Eat a diet in our natural food (fresh fruits and vegetables) and eat in season—juicy fruits in the summer and more concentrated carbohydrates (dried fruits, nuts, etc.) in the winter;
3. Fast or follow an optimum diet to detoxify your body so that it will become less weather-sensitive. This is especially beneficial for arthritis and those that complain of weather-related pains, aches and allergies;
4. Exercise outside in the open on a year-round basis, even if only for five or ten minutes (if weather is severe).
5. Spend more and more time outside in the open air and less time in buildings. Living in buildings removes us from our natural environment and increases our "sensitivity" to natural changes in the weather, etc. Besides paying attention to such physical details, you might also need to consider your weather sensitivity in a psychological light.

Adapting to weather changes may just reflect a difficulty in adapting to all changes in life. People who complain about the weather all the time may be "set in their ways" and be afraid or resist any kind of change—even a passing cool front!

Weather-sensitive people, according to the biometeorologist, Dr. De Rudder, are often very emotional, perspire profusely when nervous, color rapidly when annoyed, and rarely say that they feel well. Some of these people use the weather as a convenient way to blame their own negative feelings and emotions.

Then, too, weather sensitivity may also be a reflection of our general sensitivity to life itself. Highly aware people are tuned into all aspects of their environment, including the weather. Many famous artists, musicians, and writers have often discussed their oversensitivity to changes in the weather. Being aware of weather changes is one thing; having them dominate your life is another.

Weather You Believe It or Not...

The weather is the great equalizer of mankind. Rich and poor, old and young—we all share the weather again.

Like any other aspect of our environment, the weather is going to affect each of us in different ways. The way your body responds to the weather is dependent on your level of health, both physical and emotional.

You've heard it said that you can't do anything about the weather but talk about it. Well, that's not true when it comes to your own health. A healthier person does adapt to weather changes better than his sickly neighbor.

So don't just talk about your health, do something about it, and you'll never feel under the weather again!

Lesson 55 - Prenatal Care For Better Infant And Maternal Health And Less Painful Childbirth

- 1. Introduction
- 2. Preparation For Pregnancy—Preconceptional Care
- 3. Care During Pregnancy
- 4. Conclusion
- 5. Questions & Answers
- Article #1: Joyous Childbirth, Hygienically By Ralph C. Cinque, D.C.
- Article #2: Feeding Mothers By Herbert M. Shelton
- Article #3: Prenatal Life By William L. Esser

1. Introduction

Approaches to pregnancy and childbirth have changed gradually through the ages. Primitive women went through their entire pregnancies with no problems. When the time to give birth arose, she merely went about it quietly and with little or no pain. There was no interference from anyone. The whole birth process took her away from regular life activities for perhaps a couple of hours.

As people became more "civilized" (in their diets and lifestyles), they began creating means of intervention—attending the processes of pregnancy, labor, and delivery "better than nature" could. One tribe of people is reported to have hung pregnant women upside down from a tree to scare the baby out. Another tribe had someone sit on a pregnant woman's belly to force out the child. These people had no understanding of the mechanics of labor and childbirth.

Man had a wonder and fear of childbirth as he had never observed it. He believed women possessed some sort of "power." Because of this, he eventually took charge of the entire birth process (from conception to birth) by interfering in its natural progression: Practices such as drugging during labor, Caesarean sections, forceps deliveries, drugs for various "complications" of pregnancy, etc., were ushered in.

Now there are even more devices to "aid" women through labor and delivery. Devices such as sonar sound, fetal heart monitors, etc., are very commonplace in hospital deliveries. You can even find out the sex of your baby ahead of time now.

Humans seem to have lost faith in nature and most do not believe that a birth can be natural. Most of us have little or no knowledge of the factors that create a normal pregnancy and childbirth. Pregnancy is regarded as disease to be treated. Women usually give birth in hospitals for the convenience of physicians. Physicians have long since discovered that interference in childbirth is an economic plus for them.

Despite all of this, there is a growing number of women (usually educated) that no longer patronize physician/hospital births. They are choosing homebirths attended by midwives or by their husbands alone. These women have a thorough knowledge of the mechanics of their bodies throughout the birthing process and also know that diet, exercise, etc., during preconception and pregnancy have much to do with how well the birth process will go and how healthy the child will be.

2. Preparation For Pregnancy—Preconceptional Care

The quality of a child's life is determined before birth—it even begins before conception. A woman's body must be healthy prior to conception to insure proper development of the new being.

The prospective mother needs to exercise regularly, think positively, breathe fresh air, take sunshine, keep clean, get adequate sleep, and, above all, improve her diet at least six months prior to conception (if it is not already good). (However, any improvement in the diet at any time during pregnancy is better than no improvement at all.) The fetus will then develop in an already clean, healthful environment.

2.1 Fasting To Improve Baby's Future Environment

The best way to create an ideal fetal environment is to fast. It's sort of like cleaning your house before the arrival of a guest. A fast will enable the body to eject uneliminated toxins from tissues. Toxins may have been building up for years. Ridding the body of toxins causes better assimilation of foods and thus better nutrition. One long fast or a series of short fasts followed by a diet mostly of raw fruits with some vegetables, nuts, seeds, and sprouts will prove very helpful before and during pregnancy and lactation.

2.2 Improving the Diet

The best time to improve the diet is *before* conception. An all-raw diet following a fast will be less difficult to achieve than switching directly from a conventional diet to the Hygienic diet. But for some it is easiest to *gradually* eliminate meats, grains, processed and cooked foods, etc., and to eat more and more fresh fruits and vegetables as time goes on. Which way is chosen to improve the diet is less important than the fact that the diet is improved at this crucial tie.

2.3 Exercise

"The stronger the body, the more it obeys; the weaker the body, the more it commands."
—Rousseau

A woman's muscles need to be firm and well toned to allow for ease of delivery and less pain during the processes of pregnancy and childbirth. Starting an exercise program before conception, if not already on one, is essential. To start an exercise program during pregnancy when the body has been inactive prior to that time and the muscles are flaccid, could be dangerous.

Many women are accustomed to wearing tight-fitting clothing. Therefore their muscles haven't been used to support their internal organs as they should. Muscles, especially those of the abdomen, become flabby and weak when not used. These are the muscles to which most attention should be focused in preparing the body for pregnancy and childbirth.

Exercises such as sit ups, push ups, deep-knee bends, leg lifts, and yoga postures strengthen the abdominal, back, and leg muscles. These exercises should be as vigorous as the woman's physical condition permits. Start out slowly and gradually work out more and more and establish an exercising routine that works for you.

Many women suffer from lower back pain during pregnancy and labor. Had these women strengthened their spine and its supporting muscles prior to this time, this pain would not have occurred. These muscles will have the strength to support extra weight while pregnant if used regularly as they should be. (Note: the lower back is also a dumping site for toxins if the body is in a toxic state—exercise alone cannot alleviate back pain—a pure body is also necessary.)

2.4 Effects of Birth Control Pills, IUDs, and Abortions Prior to Conception

Women should not conceive immediately after stopping use of birth control pills or after the removal of an IUD because this can pose danger to the fetus. Prior abortions, which stress the woman's reproductive organs, also pose danger to future fetuses. They can cause babies to be born prematurely.

The body needs a housecleaning to prepare for the fetus. Fasting, followed by a proper diet and other life essentials will prepare the body for the incredible feat of pregnancy and birth.

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3. Care During Pregnancy

Women are convinced by the media, their physicians, relatives, etc., that prenatal care means going to the doctor for regular checkups. Frequent examinations are required by physicians to check for sugar in the urine, blood count, edema, etc. These "complications" are considered by conventional standards to be normal and therefore need to be checked for. Instead of avoiding these complications by right living, these abnormalities are tested for throughout pregnancy. What women are not told is that all these tests (especially vaginal exams) are very enervating and should be avoided and, in fact, visits to physicians are not only needless but fraught with many dangers for both mother and progeny.

We are told that only an uneducated, ignorant woman would neglect visiting an obstetrician regularly during pregnancy to make sure everything is going okay. But why wouldn't everything be okay? These obstetricians are trained to treat pregnancy as a disease rather than the normal and natural condition that it is.

The medical establishment conducts many tests on pregnant women to discover trouble only after it is developed. They have no ways of guiding women to health—they deal with pathological effects, not causes. Normally, physicians utilize drugging, which adds to the harm, to "remedy" the "problems" they purport to discover with their tests.

Prenatal care, however, does not mean visiting your obstetrician at all. It means providing the healthful conditions so as to produce and maintain better health and development in the unborn child. In other words, the child is very much so "at the mercy of the mother" for all the requisites of development and growth and freedom from harmful toxins. As Dr. Shelton says, "the child's needs are best served when those of the mother are perfectly supplied."

Prenatal care includes wholesome outdoor exercise, pure air, rest and sleep, sunshine, freedom from worry or anxiety, absence of overwork, and most importantly, proper food. The unborn child is totally dependent upon the mother to provide these things prudently.

Pregnant women need not eat more food than they did prior to pregnancy as is commonly asserted. They need only eat the best of foods—raw fruits, vegetables, nuts, and seeds. These foods will provide an abundance of minerals, vitamins, and high-grade proteins for both mother and baby. Good foods are the raw materials for better eyes, better bones, better teeth, a better nervous system, a better brain, and better development all around the baby. Proper foods also improve the health and comfort of the mother and allow, for greater ease in delivery and healthier nursing.

Good food is not enough, however. A pregnant woman must secure the best conditions for efficient utilization (assimilation) of her food. She must observe food combining rules, eat only when hungry, never overeat or eat when emotionally upset or physically tired, never drink with her meals, etc.

> "Well-nourished mothers (this does not mean overfed) give birth to well-nourished and, therefore, well-developed and vital children. Not merely the bones and teeth and respiratory organs are involved in the results of adequate or inadequate diets, but every tissue in the body is weakened or strengthened, as the case may be, by the mother's food. Mother's nutrition is the real prenatal influence." — Dr. Herbert M. Shelton, *Hygienic Care of Children*

3.1 Proper Diet

The best diet for a pregnant woman (and, indeed, for everyone) is that which has a proper balance of carbohydrates, fats, and proteins. This can be obtained by eating a variety of mostly raw fruits with some vegetables, nuts, seeds, and sprouts. In eating this diet, the pregnant woman provides her baby with all the mineral salts, vitamins, and other food elements necessary for its proper growth and development.

The mother to be must also make sure she combines the foods according to food combining rules (no fruits with vegetables, no proteins with fruits, no starches with proteins, etc.) so she will assimilate the nutrients in these foods most efficiently and place the least burden upon her digestive facilities. Also, eating in an atmosphere of peacefulness as opposed to upset, in a well-ventilated environment, and in moderation are very important factors in proper nourishment.

Although most people will strongly advise against fasting while pregnant, it can be advantageous to both mother and baby to undertake a short fast (one to three days) during the early months of pregnancy. Many women, at this time, experience some form of nausea and discomfort and loss of appetite. This is not due to her pregnancy, but to her toxemic state. Needless to say, when there is no appetite, no food should be taken. Nature knows best and attempts to put the physiological house in order causing the pregnant woman discomfort and lack of appetite. A few days of fasting should restore comfort to the mother and enable her to eat without distress. Many people will tell the mother that harm will come to her baby and to her if she does not eat plenty of "good nourishing food" at this time, but what will she gain if she eats when she is nauseous and then ejects the food as soon as it is eaten? (See section on complications in pregnancy.)

A long fast during pregnancy, however, is not recommended. The fetus is growing and obtaining nourishment from the mother and can only go so long before deficiency will result.

Short fasts give the body a chance to adjust to the pregnant state. They allow the organs to rest and cleanse themselves to prevent abnormality of the fetus. Short fasts improve assimilation and utilization of nutrients from the food taken following the fast. Fasting also improves metabolism which makes nutrition more complete, not only in the intestinal phase, but also when it reaches the cell of the fetus.

3.2 Items To Avoid While Pregnant

While it is true that eating fresh, raw fruits and vegetables will have a positive influence on the health of the offspring; it is also true that consuming unnatural and toxic substances such as drugs, coffee, alcohol, fluoride, salt, vinegar, condiments, preservatives, processed foods, etc., will have a detrimental effect. These items, and more, must be avoided if optimum health is desired, for one's child.

3.3 Drugs, Alcohol, and Cigarettes

More and more young women drink alcohol and coffee, smoke cigarettes, and eat junkier foods than in the past. Along with this fact the number of unhealthy and defective babies born each year increases.

Many studies have been conducted in recent years that indicate the harmfulness of alcohol, drugs, and cigarettes on the unborn baby. It is known that even moderate consumption of alcohol—in fact, even one drink—can have an effect on the fetus. Severe birth defects have been caused by alcohol consumption in pregnant women. Some babies are born with "fetal alcohol syndrome"—that is, they have shortened features, a pugnacious cast to their faces, and their eyes are very close together. Spontaneous abortion, smaller than normal babies, very small head size, mental retardation, complications of pregnancy (see section on this), and a broad range of other adverse effects are caused by alcohol consumption.

The placenta, which supposedly filters out harmful substances ingested by the mother, does not filter out drugs, alcohol, tobacco poisons, caffeine, spices, etc. This is why it is imperative that these substances be avoided by pregnant women (and everyone).

Smoking while pregnant causes a baby to be smaller and weaker. The smoke in the mother's bloodstream prevents oxygen from getting through to the fetus. Thirty-five percent of premature births (terms of eight months or less) are from smokers. Also, babies born with weights of less than 4.3 pounds are almost always from smoking women. Physicians, in many cases, merely warn their pregnant "patients" to cut down on cigarettes rather than to cease them completely. The same is true for alcohol.

An example of how deadly drugs can be is as follows: in the 1950s and 60s, a drug called thalidomide was marketed. It was frequently prescribed to pregnant women to help them to sleep. Not only did it not help them to sleep; it also caused them to prickle, perspire, tremble, vomit, become giddy, lose feeling in their extremities, and worst of all caused their babies to be born with severe deformities. Thalidomide babies were often born with seal-like flippers for arms and legs among other deformities. Seven thousand of these defective babies were born before the drug was removed from the market.

This is just one drug, however, amongst the myriad of drugs that has been, and still is being, prescribed to pregnant women to remedy a variety of symptoms ranging from morning sickness, eclampsia, etc., to sleeplessness, nervousness, etc. All drugs are harmful to everyone who takes them but even moreso to an unborn child.

Various parts of the fetus' body are formed at different times during pregnancy. For example, the nervous system forms 15-25 days after conception; the limbs 24-36 days after conception; the heart 28-45 days after conception; the fingers and toes 36-42 days after conception; and the ears and nose at 29-45 days. A drug taken at any one of these stages of development can cause defects of varying degrees to the body part that is developing. "Medicines," tranquilizers, X rays, insecticide sprays, exposure to smog, etc., are all very harmful to the fetus and should be avoided as much as possible.

A recent test conducted on 3,528 drugged (anesthetics, pain relievers, tranquilizers, muscle relaxants, etc.) pregnant women proved that children born of these women were slightly to severely mentally retarded. They lagged in language and learning skills. Their perception and memory were below normal and their judgments were faulty.

Physicians, in spite of the results of this test, say that the FDA is stringent in its protection of pregnant women. They claim there is not one nonprescription drug that has adverse effects on the fetus. (What about aspirin?) It is also claimed that obstetricians will not prescribe drugs that are harmful to baby. Yet they prescribe all of the drugs that have proven harmful in the above-mentioned test, oftentimes just to "keep a woman happy" without warning them of the possible "side effects" of the drugs. Remember: all drugs are very harmful to the unborn child. Drugs never produce health—only untoward effects.

3.4 Coffee and Other Caffeinated Beverages

A study conducted by the FDA has found that caffeine causes birth defects. This drug is found in coffee, teas, soft drinks (mostly colas), chocolates, and in numerous over-the-counter drugs. Most of these items are routinely consumed during pregnancy.

3.5 Fluoride and Salt

Physicians tell many pregnant women that the fluoride put into our drinking water will prevent future dental caries in their offspring. They're told to drink much of it while they're pregnant for this reason.

However, these same physicians admit that if these women drink too much of it, it will cause mottling of the child's teeth. But how much is too much? I'll tell you—any amount. Pregnant women should drink only distilled water and that only if they are thirsty. Fluoride is poisonous and cannot be helpful to anyone. We cannot be poisoned into health.

Salt is poisonous, but especially for pregnant women and their fetuses. Edema is attributed to a high salt intake. This problem is very common in pregnant women in this country as the salt intake is incredible—salt is in almost every processed or prepared "food." But if only fresh, raw fruits and vegetables are eaten, there will be no problem with ingesting salt that is harmful to both mother and child.

3.6 Processed Foods

Pregnant women are advised to drink pasteurized milk to insure they get enough calcium for their babies bones and teeth formation. Pasteurization (boiling) is, however, just another form of processing that destroys food elements. Therefore, a woman drinking pasteurized milk thinking she is getting adequate calcium and vitamin D from it is being deceived and is depriving her child of much needed nutrients. Adults do not have the digestive faculties to get calcium from milk for it is bound in the indigestible protein complement, casein. If the milk is pasteurized, it becomes unusable due to heat derangement.

Many pregnant women are also told by their obstetricians that they should give in to their cravings—pamper themselves. They eat such abominations as cakes, pies, ice cream, pickles, candy, canned fruits and vegetables, etc., all jumbled together in a haphazard way which causes both mother and baby to be undernourished. Being filled up on these harmful foods which contain preservatives, additives, food colorings, salt, sugar, white flour, etc., a woman is no longer hungry for those foods she should be eating for adequate nourishment. Processed sugars and refined white flour and rice rob the body of calcium and other nutrients that are so greatly needed during this crucial time. The body must surrender its previous supplies of minerals and nutrients to metabolize these denuded products.

In tampering with the foods nature intended for us, man has succeeded in destroying the natural balance of his diet. But these food indiscretions are not the only causal factors in the lack of health that is so prevalent in our modern times. Such factors as foul air, polluted waters, lack of exposure to the sun, lack of exercise, lack of sleep and rest, living a fast-paced life, taking drugs and stimulants, overworking, domestic inharmonies, economic strife, etc., arc also contributors to much disease common today-including the birth of many unhealthy and inferior children.

3.7 Overeating and Weight Gain

Despite the fact that most women have increased appetites during pregnancy, food intake should not be increased. The greatest weight gain during gestation should be about 20 pounds. The pregnancy itself (fetus, placenta, amniotic fluid, enlargement of the uterus and breasts) weighs only about 15 pounds. Anything in excess of this is merely fat which will be difficult to remove later. This extra weight can harm both mother and the baby. It causes an increased risk and a more difficult delivery. In fact, a group of midwives in Austin, Texas, will not take on clients that are overweight for this reason. They're left for the obstetricians to handle in a hospital setting and labelled as high risk.

During gestation, a woman must exercise willpower and common sense when eating. Keep meals simple and never eat between meals. Keeping meals simple means to have not more than a few items of food at once, eating them plain—no additions such as salt, condiments, oils, margarine, butter, etc., and mostly raw.

When pregnant, all of the internal organs are "squeezed" by the growing fetus inside. For this reason, it is even more imperative not to overeat or eat foods difficult to digest or eat too often as this can cause constipation. Constipation plagues many pregnant women who, instead of complying with the aforementioned, rules, take laxatives (X-lax, herbal teas, etc.), eat bran, or give themselves enemas. These are all taxing to the system and should be shunned.

Part of the reason that a woman on a conventional diet eats so much more when she is pregnant is because this diet is deficient in most elements essential to the normal growth of the fetus. She eats more in an effort to meet the body's demands. This is unwise. It is best to eat of Hygienic fare in moderate amounts for a healthy fetus (and mother).

Other troubles overeating and wrong eating cause are morning sickness, indigestion, hemorrhoids, swollen ankles, varicose veins, overdistension of the abdomen, a fat baby, and a difficult delivery. Restricting the diet, rather than overfeeding prevents postnatal hemorrhage so common in overweight women, who have a very toxic condition.

3.8 Exercise and Work, Stress

It is very important for a pregnant woman to get regular and systematic exercise. This is to insure muscle tone, elasticity, and stamina for the marvelous upcoming event (childbirth). However, it is unwise to undertake a strenuous exercise program such as horse-back riding, tennis, motorcycling, etc., while pregnant unless it was indulged before pregnancy. If a woman was, however, not much of an exerciser prior to pregnancy and wants to obtain optimum health for herself and her unborn baby, it is still possible for her to incorporate exercise into her daily life. These exercises should be taken up gradually. Exercises that are not very strenuous such as walking in the open air and sunshine or swimming are recommended.

There are a wide variety of books on the market that are very good for pointing out specific exercises for pregnant women. These may include prenatal yoga or other stretching formats that strengthen the area of the body that will be put to use during labor—the abdomen and back. Exercises that helped me when I was pregnant are leg lifts (tightened abdomen and back muscles), deep-knee bends, and kagels.

Whatever exercises a woman in gestation chooses to undertake are okay so long as she remembers to do them regularly rather than sporadically. If she exercises only occasionally, she will more likely end up with sore muscles rather than benefits. Some women claim that their ritualistic schedule of exercise achieved painless childbirth for them.

Without exercise, abdominal muscles (and all muscles) will be lax (atrophied) and will be unable to support the womb and its appendages. A very common cause of aborted pregnancies is the debility of the mother. It takes strength to carry a child and to bring it into this world and proper nourishment alone will not provide it.

Exercise improves circulation and thus there will be a greater supply of nourishment to the fetus. This, in turn, will produce a more well-developed child. It will also provide the mother with stamina during labor.

If a woman is working during pregnancy (employed), it's fine to work right up until the last day before birth if in reasonably good health and if she wants to. However, sit-down jobs can contribute to backaches (toxins settle in the lower back when sitting a lot). Sit-down jobs also prevent a woman from getting the proper exercise, fresh air and sunshine she needs to be healthy. If a woman has a sit-down job however, she should try to get up and move about regularly and to get outside whenever possible and walk in the open air.

Avoid jobs that require overwork (overtime, few breaks, etc.) as a pregnant woman needs much rest and relaxation also. A job that is very stressful should also be avoided. Stress affects your mental state which can injure the child to the extent that it impairs nutrition and thus causes a supply of faulty nutriment to reach the fetus.

3.9 Rest and Relaxation, Sleep

Rushing about doing this and that is not necessary and can be harmful, especially while pregnant. Taking the time to rest when fatigued or to relax regularly instead of pushing oneself is very necessary. The human body assimilates nutriment' better when in a rested and relaxed state as opposed to a nervous, rushing state which produces indigestion and other problems.

In our modern world, many people truly do not know how to relax. We need to learn how. During pregnancy is a good time to learn as during labor is too late. Regular practicing of relaxation techniques while pregnant will prevent tenseness during labor which is a major cause of pain and tearing of the perineum.

A definite figure as to how much sleep a pregnant woman needs is as fallacious as is a set amount of vitamins and minerals that are necessary. Each individual's needs are different. If a pregnant woman eats well, rests and relaxes regularly, exercises, and has little or no stress in her life, she will need less sleep than one who eats wrong foods, overeats, has a stressful job, is nervous, etc. The amount of sleep a woman needs while pregnant is generally no more than she needed prior to pregnancy. However, she may tire more easily in the last months of pregnancy as there is a greater strain on her body. A mid-afternoon nap is very helpful.

3.10 Supplements and Deficiency Diseases

Most obstetricians recommend that pregnant women should take calcium and iron tablets and other supplements to assure proper growth and formation of bones and teeth and to prevent anemia in the mother. They also say that women have an increased vitamin need now that there are two instead of one and therefore should supplement the diet. This is a fallacy. First of all, if the woman is eating adequately of proper foods she will not need any "extra." Secondly, humans are not able to utilize inorganic minerals. Taking unnatural supplements can only cause extra strain on the mother for she will have to eliminate these toxic substances.

Milk is often used as a supplement during pregnancy. Women are told to drink preposterous amounts of milk to get their calcium. They are scared into drinking it by doctors who tell them quite correctly that calcium will be taken from their bones and teeth if not in adequate amounts in their diets. This is true, but she will not obtain proper calcium from milk. As mentioned earlier, most milk is pasteurized and therefore deranged.

Also, humans lack the enzymes, lactase and rennin, to properly digest and utilize milk even if it is raw milk, and the calcium in cow's milk has been known to absorb the finer calcium in human cells thus making it harmful rather than helpful. (See Lesson 33 for details on the harmfulness of milk consumption.)

Calcium tablets are also taken in abundance by pregnant women. These are harmful rather than helpful. They produce acidity and actually rob the body of calcium. They thus help to produce osteoporosis and osteomalacia.

A deficiency of calcium in the pregnant woman's body causes her child's bones and teeth to be malformed and weak. The child may later have dental caries, crooked teeth, etc., throughout life as a result. However, a deficiency of calcium is not due only to a lack of calcium in the diet but to poor assimilation and utilization. This may be caused by overeating, eating of wrong combinations of foods, etc., that impairs digestion and absorption from the intestinal tract. It may also be due to the faulty action of the body in general (general poor health) and the various organs in particular that handle this particular element. Also, adequate sunshine is necessary to assist in calcium metabolism. It is not how much calcium that is contained in the foods one eats, but how much is absorbed and retained that counts.

For those who do want to make sure the foods they eat contain calcium, here are some foods that have large amounts of it: fruits, cabbage, lettuce, green leaves, nuts (almonds), figs, asparagus, kohlrabi, etc. Also, Dr. Shelton in his book, *Hygienic Care of Children*, says that orange juice (fresh-squeezed) helps the body to retain calcium and phosphorus and to assimilate nitrogen (protein).

The fetus stores a calcium supply in its tissues. It can draw upon this supply at a later time. During the first months of pregnancy is when it is most crucial for a pregnant woman to obtain and retain adequate calcium for her and her baby's health.

Another mineral that most people tend to be fanatic about while pregnant is iron. A lack of iron causes anemia. Anemia is a deficiency disease with symptoms of lack of red blood cells, a pale complexion, nervousness, night sweats, and susceptibility to disease. It is not infrequent that pregnant women become anemic. This is because of improper nourishment and the inability of their bodies to use nutriment.

A lack of proper food or the inability to assimilate food leads to a gradual decline of the body's power to produce red blood cells. This is caused by imperfect nutrition—a lack of food iron or impairment of the digestive processes.

A short fast (one to three days) helps to rejuvenate the blood and the body's ability to assimilate moreso than to merely eat more iron-rich foods. Daily sun baths, exercise, and fresh air also help. Doctors recommend iron pills and eating lots of liver. Needless to say, these will not help but can only harm for they are inorganic and poisonous.

During a fast, red cells continue to drop and then new red cells with regular edges form (in the case of anemia). If wary of undertaking a fast at such a time, a pregnant woman should consult a professional Hygienist or someone else familiar with fasting.

Red cell count is tested by medics with a test called the hematocrit. When I was pregnant with my second son, I submitted to this test out of curiosity. My hematocrit was much higher than the other women that were tested at this clinic. My diet was mostly raw fruits with some vegetables and grains.

When I told the doctor this, he recommended I start taking iron tablets. He completely ignored the test results. These other women were doing everything he recommended (eating lots of iron-rich foods—organ meats, legumes, beets, etc., and taking iron tablets), and they were diagnosed as slightly anemic.You think that would've told him something!

If you eat a proper diet, you will have no problem meeting iron needs. There is no need to dwell on iron needs, or on any one nutrient. All of our needs are met by an adequate diet as mentioned earlier and all other essentials of life.

3.11 The Placenta

Mother's placenta does not magically extract only those good and necessary nutrients that mother gives. It also absorbs harmful substances. Most things mother takes in through the lungs, digestive tract, and skin show up in cells and tissues of the growing baby. These toxins irritate the newly-forming cells.

These toxins may just pass through the baby, or they may cause injury such as a birth mark or a major organ failure or some other injury. Drugs, environmental hazards, food additives, etc., interfere with organ development and can cause so-called congenital anomalies or birth defects.

In 27% or more births, defects occur and are continuously increasing as more and more chemicals enter our environment. Everything from drugs to additives in foods, sweeteners, aerosol sprays, car exhaust, pesticides, household cleaners, etc., are as harmful to the unborn child as they are to everyone.

Don't take risks even though so and so didn't take care of herself and still had a normal baby. However, it doesn't help to be afraid of or fanatical about the possible hazards in our environment as the baby can pick up on your fears. It is best to avoid as many hazards as you possibly can and don't worry as you can't control all of them. For example, don't use harmful pesticides or cleaning fluids in your home. Get plenty of fresh air in your home—open the windows. (It's best to live out in the country away from the pollution.) Try to avoid driving in heavy traffic. Eat organic fruits and vegetables when available. Don't eat *any* processed foods. These are just a few of the things a pregnant woman can do to avoid harmful substances from passing through her to the placenta and getting to her unborn child.

3.12 Sexual Relations While Pregnant

> "A farmer who would not permit a stallion to worry his pregnant mares, will not hesitate to make regular sexual demands upon his pregnant wife. In this he is encouraged by his medical adviser, although it is the universal rule throughout nature that pregnant females will not receive the male. There are reasons to believe that coition during pregnancy is responsible for the coating of vernix caseosa (white, greasy substance on baby's skin) found on so many infants at birth and that frequent coition during pregnancy also adds to the pains of childbirth." — Dr. Shelton, *Hygienic Care of Children*

In modern times, most people do indeed indulge in sex while the wife is pregnant. Most people feel there is no harm in this except during the last month when the baby is almost ready to enter our world. According to Dr. William Esser, a normal woman will discourage sexual union when pregnant because her instinct is against it. He also says that the entire animal kingdom frowns upon sex during gestation, and the pregnant female will defend herself against such a travesty.

Sex during pregnancy can cause the woman's procreation organs to become congested with blood. This is dangerous to the fetus as it can cause abortion. Oftentimes the initial signs of abortion are present after sex, but because the mother is of strong constitution, she will continue to carry the baby. Other problems caused by the uterus being congested with blood are that of an apathetic child or a congenital idiot being born.

3.13 Preparing for Childbirth—Classes

Nowadays childbirth preparation classes are very common. They may be conducted by a group of midwives or by hospitals or clinics. These classes may teach natural and/or unnatural methods of childbirth.

One thing most of these classes have in common though is that they give parents-to-be some knowledge of the physiology of pregnancy and childbirth. Stages of fetal growth are displayed. Parents are given an understanding of what is and will be occurring within a woman's body and how to deal with these changes.

Many classes (those given by hospitals and clinics that are medically oriented) teach parents which drugs will be available to them when the woman is in labor. They teach students what to expect when entering the hospital.

Taking childbirth preparation classes can be very advantageous choice for many parents to be. However, they are unnecessary. Reading the many excellent books and magazines (especially those with illustrations) that are available in libraries and bookstores as well as talking to other parents you know who have undergone homebirths is adequate for many. Knowledge of the mechanices of pregnancy and childbirth is definitely a necessity for those (and everyone) who plans a homebirth. I've found classes conducted by unorthodox (not medically oriented) midwives to be very helpful. I met other couples who planned to have midwife-assisted homebirths and we provided moral support for each other.

3.14 "Complications" of Pregnancy

This section should really be called "Abnormalities of Pregnancy" as there are no complications if care is taken to produce health. However, I will call them complications as a large percentage of women do experience some of them.

> "The unborn child is a parasite feeding upon the substance of the mother. If the mother's substance is physiologically, chemically, and magnetically correct according to nature's plan, the process of gestation is a comfortable and physiologically ideal experience. If there is in

> the pregnant woman a chemical imbalance—in other words, if the woman is toxemic—there comes sooner or later a physiological protest accompanied by an attempt toward correction of this abnormal state. Hence the reaction, the nausea and vomiting." — George S. Weger, M.D., "The Nausea and Vomiting of Pregnancy," *Dr. Shelton 's Hygienic Review*

There are many things that can go wrong during gestation if a woman is not in optimum health. Morning sickness, heartburn, constipation, vomiting, digestive difficulties, edema, eclampsia, varicose veins, breast pain, back pain, toxemia, etc., are some of the common complications. But pregnancy, being a normal physiological process, should not be accompanied by any discomfort or abnormal state.

It seems that most women when pregnant suffer from morning sickness of varying degrees (because of the many transgressions from the ideal lifestyle). For some, it is intense and lasts all day. They may vomit to the point of not keeping any food down. This is caused by a reaction to toxic saturation from eating wrong foods. It can be corrected by a short fast. Most physicians, however, prescribe drugs and other manipulations which are harmful to both mother and baby. They specialize in relieving symptoms and treating effects.

Some women who have milder cases of morning sickness (gastric uneasiness) experience slight nausea and lack appetite. These may feel relieved after eating a heavy, cooked meal while feeling nausea after eating fruit or nothing at all. These women then blame the fruit for their nausea. This is obviously not so. The heavy, cooked foods deaden or stop eliminations and fruits or fasting allow the body to start housecleaning, which frequently has unpleasant symptoms.

The reason a pregnant woman feels nauseous in the morning is because she's been fasting since the night before. This fast has allowed her body to recuperate vitality and to eliminate toxins.

> "There is a rebellion in the stomach; it rejects food. The liver speeds up its excretory function. Much bile is regurgitated into the stomach and is vomited. There may even develop a psychic revulsion to food, so determined is the organism to have its way and to clean house. If we can once understand that nature is trying to provide a clean house in which to evolve the new life, we can understand the need to cooperate in the work and not to throw monkey wrenches into the vital machinery." — Dr. Shelton, *Fasting Can Save Your Life*

Another common "complication" of pregnancy is toxemia. Toxemia is marked by a rise in blood pressure, undue weight gain with puffiness, headaches, and visual disturbances. Albumin (a water-soluble protein) is present in the urine. Toxemia in pregnant women results in malnutrition and poisoning of the fetus leading to difficulties later in the child's life if allowed to go on. Again, a fast will remove toxemia.

Many pregnant women experience eclampsia which is a form of toxemia. It usually occurs in women who gain over thirty pounds in weight during gestation. It has been observed in a study by Dr. Dieckman in the *American Journal of Obstetrics and Gynecology* that eclampsia is much more prevalent among people who eat high-protein, high-fat diets. Dr. Dieckman noted that during the second world war in Germany there was a decreased occurrence of eclampsia because of a reduction of consumption of meat and other such "luxury" foods as butter, refined products etc. He also found that eclampsia is very uncommon in the tropics where a low-protein, high-carbohydrate diet is eaten.

Other studies have indicated that women who are overweight before becoming pregnant will most likely have a prolonged labor, possible caesarean sections, other maternal complications, premature birth of their child, and toxemia. A Hygienic diet does not cause this.

Still another study found that women who abstain from refined flours, beans, peas, grains, milk, butter, and cheese and eat only fruits and vegetables will have babies born softer and smaller than other women. This is good because labor will be less complicated—it is normal for babies' bones to consolidate after birth rather than before to ease labor and delivery. The small and soft baby will soon grow in strength after birth.

Another factor that most women consider to be a "complication" in pregnancy is if they are over the age of 30. This just is not so. If the woman has been taking care of herself prior to pregnancy, during pregnancy, and continues to do so, there will be no problems.

Another abnormality common in pregnancy is edema— retention of fluids in the tissues, in the case of pregnant women usually around the ankles. This fluid is used to hold the toxins present in the woman's bloodstream in suspension so they will do the least harm. This edema is a part of the protective functions of the organism of the pregnant women to keep the embryo from suffering with fluid retention and metabolic disturbances.

There is only one reason for any types of complications when pregnant, and that is that the "ills of pregnancy, as well as those of the nonpregnant state are each and every one, of toxic origin: and the reaction, the crisis, is nature's way of calling our mention to the matter so that we may help her and thus help ourselves." (Dr. George S. Weger, "Nausea and Vomiting of Pregnancy," *Dr. Shelton's Hygienic Review.*)

3.15 Other Information Pertinent to Prenatal Care

One factor a pregnant woman should keep in mind is to dress comfortably and attractively in cotton clothes that are loose—not tight. Don't wear tight clothes such as garters, girdles, tight stockings, pants, etc. Wear flat shoes as high heeled shoes will put a strain on your back. They are also dangerous as you can fall easily or get them caught on things, etc.

Women, when pregnant, should take time to take walks out in the open air and sunshine so as to provide two of the essentials for themselves and their unborn babies. This also provides a time when the mother-to-be can find solitude and think about the new being inside of her and what he or she will be like.

It is wise to avoid any lengthy traveling while pregnant. This is generally when a woman feels like "bedding down" and being stable anyway—a time to feel a sense of security in her life. Traveling by car for long distances does not allow her to stretch and use her body as it should be. Also, bumpy roads cause a great deal of discomfort to her at this time. Traveling by airplane is to be advised against especially in the later months of pregnancy. The extreme pressure and speed while flying can cause, among other things, labor to be brought on prematurely.

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4. Conclusion

There is much more that could be said about prenatal care, labor, and childbirth. I could go on for many more pages about all the complications of labor and delivery that are possible if a woman does not take care of herself during pregnancy.

Even if a woman has taken proper care of herself during pregnancy, it is still not over. She has to be very cautious who she selects to help at the birth. She needs to decide whether to have a homebirth or a hospital birth. She needs to have confidence in herself, faith that all will go well, and courage to accomplish the feat of birth instead of fear.

For example, if a woman gives birth in a hospital she is at the hands of the medical personnel there—she has, in a sense, given the responsibility of her child's birth to them. Much unnecessary medical intervention such as shaving of pubic hair, giving enemas prior to delivery, giving episiotomies, strapping the woman down during labor, drugging, forceps deliveries, Caesarean sections, etc., may occur in hospitals—and those oftentimes for the convenience of the hospital staffs. All of these actions are enervating and harmful at a time when a woman needs to be at her best.

Providing the mother is in good health (normal), she will enjoy the actual childbirth experience and always remember it as a positive, enlightening experience. Giving birth in one's own home encourages this as the mother is surrounded by loving friends rather than by strangers. The baby will therefore enter a warm, loving world instead of the cold, antiseptic world of a hospital. No bright lights, masked strangers, spanks on the buttocks, chemicals in the eyes, premature cutting of he umbilical cords, etc., will occur in the home. The father can share the first days of the baby's life with him/her and the mother. The mother will be with the child and be able to nurse the baby when he/she is hungry rather than by the clock. The mother will have more opportunity to sleep and relax after the birth as there are no rigid schedules as in the hospital. Also, there will be no displaced siblings as they will share the baby's first days also.

So you see, not only does the mother need to take care of her health, she needs to make the correct decisions regarding the coming event. She needs to be aware of the importance of proper preparation to prevent undue stress at the last minutes.

5. Questions & Answers

I am 30 pounds overweight, and I've recently started on the Hygienic diet. Although I'm gradually losing weight, it is a very slow process and I’m eager to become pregnant?

> Excess in weight is usually toxin-laden fat that causes undue risks to both mother and unborn child. If you do get pregnant while overweight, try short fasts occasionally during the early months of pregnancy. Stick to Hygienic fare with lots of fresh fruit, and some green vegetables with very few nuts, seeds or avocados.
>
> Of course, it is best to undertake a long fast (two weeks or more) before becoming pregnant and to realiment on juicy fruits and vegetables with very few that are high in fat and sugar content. If that is not possible for whatever reason, the next best thing is to eat moderately of only fruits and vegetables of low-fat, low-sugar content excluding nuts, seeds, avocados, and dried fruits, etc., until down to the desired weight. Your body will then be ready for the fetus.

I'm two months pregnant, and I've just found out about the Hygienic diet and am trying to stick to it. I've been a vegetarian for many years but am experiencing a mild case of morning sickness. What can I do to rid myself of this nausea?

> Take a fast of three to five days—take nothing but distilled water and rest in bed as much as possible. Short fasts will do no harm to the fetus, they will merely help to eliminate toxins more quickly. You will no longer suffer morning sickness. After the fast, take raw fruits, vegetables, nuts, seeds, and sprouts, all properly combined to assure the best nourishment for you and your baby.

I'm pregnant and I live in an apartment in the city on a street with very much traffic. I don't open the windows often as I get strong odors of auto exhaust fumes from the street below. Is there anything I can do to improve my situation without moving which is not possible at this time?

Naturally, it would be best to live in a purer environment, but since that is not possible try purchasing house plants which will provide a rich source of oxygen in your home. Grow an indoor garden. Get a negative ion generator to help purify the air. Also, try to get out and exercise in the open air in the country or in nearby parks often.

I'm six months pregnant and just found out about the Hygienic diet. Is it okay for me to start on this diet from a conventional diet at this crucial lime?

It would not be good to all of a sudden just change your diet so drastically. You'd be sending so many toxins through your bloodstream at once that some of them could pass through the placenta and harm the baby. It is good to gradually eliminate harmful items in the diet, from the most harmful to the last harmful. Start with prescription and nonprescription drugs. Then stop eating red meats, then white meats, then fish, then dairy products, etc. Try to stay with each regimen for at least a week before eliminating another few items. This way you will be improving your baby's chances to be healthy even though you got a late start.

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Article #1: Joyous Childbirth, Hygienically by Ralph C. Cinque, D.C.

The process of giving birth is a normal, natural and largely spontaneous activity that shares many similarities with the process of defecating. I make this rather crude comparison not to be needlessly distasteful, but rather to emphasize the point that giving birth is as physiologically ordinary as having a bowel movement. Granted, it is inherently more demanding, more prolonged and more intense, but under normal conditions it is just as certain in its outcome. It calls upon many of the same muscles that are required to defecate. It occasions sensations that are very much like the urge to defecate.

If this is true, why has childbirth become such a traumatic, painful and debilitating event that commonly incurs injury to both mother and infant? Why is it that modern childbirth usually requires some kind of surgical intervention? By this I refer not only to outright surgeries, but also to the various manipulations and forcing measures that are so often employed in so-called "natural childbirths." It is vitally important to realize that under normal conditions, childbirth requires absolutely no intervention whatsoever. "Catching the baby" should be all the attendant has to do. Performing manual rotations, either internally or externally, manipulating the shoulders, guiding the head, stretching the perineum and other related procedures are in no way a normal part of the birth process. If we consider that humans in the remote past, living in a state of nature, had no understanding of the mechanics or the intricacies of birth and were therefore unable to constructively intervene during labor, we must conclude that Nature intended birth to be an entirely spontaneous process. This is certainly true of animals in the wild, who give birth unassisted. No doubt it was also true for women.

An entirely normal and natural childbirth occurs so rarely in this country that it is actually an oddity. By medical standards, anything less than a Caesarean section or a forceps delivery is considered a "natural" birth. No matter how much pain the woman suffers, no matter how prolonged the labor, no matter how much damage is done to the birth canal, whether or not the infant is battered, whether or not difficulty is encountered in obtaining the placenta and no matter how much meddling is necessary in order to accomplish the birth, as long as a major operation is avoided, the birth is considered "natural."

I attended a childbirth class once where a woman who had recently given birth at home was relating her experience. It seemed that she had succeeded at having a "natural" childbirth, even though she was in labor for over two days, even though tremendous fundal pressure was finally required in order to expel the infant (this entails pushing downward on the uterus through the abdomen to force the baby through the birth canal), even though she was given injections of pitocin (to stimulate uterine contractions), and despite the fact that extensive tearing occurred. Yet, she did avoid being admitted to the hospital, and therefore felt that she had indeed accomplished a natural childbirth. Her last comment was that, "it was a wonderful experience and I would encourage any woman to have a natural childbirth at home." Quite frankly, it all sounded less than wonderful to me and I didn't see how she could expect the other women to eagerly look forward to such a trying experience.

Natural childbirth and home deliveries are very popular today, and the demand for competent home birth attendants is greater than the supply. "Prepared childbirth" classes are being taught in the homes, schools and even in the hospitals. Thorough preparation, we are told, lessens the risk of complications in labor and delivery. We of the Hygienic School have no argument with this statement, but we insist that the most important aspect of this preparation should be achieving a high level of health. More important than learning the mechanisms of birth, more important than practicing breathing routines, and more important than securing sterile sheets and towels, is the attainment of superb health. If a woman begins labor in poor physical condition, the process of giving birth is apt to be an agonizing and grueling ordeal despite adequate preparation, in the usual sense of the word. In contrast, a woman who knows nothing about birth, but who arrives at term in splendid form and exemplary condition, is likely to have an easy and joyous experience in childbirth.

In saying that health is the most important prerequisite for success in childbirth, we imply that truly adequate preparation must begin well in advance of pregnancy. To stop smoking and drinking (alcohol), to cease eating refined foods, to avoid salt, to shun all drugs, to secure sufficient rest and sleep—these will prove to be highly beneficial to the woman who has conceived. But, why wait until conception to stop injuring yourself and to begin to thoroughly supply your body with its needs? Why not acquire high level health before becoming pregnant and thereby provide your unborn child with a perfect internal environment from the moment of its conception? Waiting until pregnancy begins is often too late to achieve one's desired health goals. The body does not suddenly become well nourished, suddenly become cleansed or suddenly become physically conditioned. These are physiological processes that take time. Furthermore, pregnancy often limits the full application of Hygienic measures. A pregnant woman cannot fast, except for short periods. Although I know of several women who have fasted for as long as two weeks at the beginning of pregnancy, with good results, I would not advise such fasting in the vast majority of cases. Pregnancy also limits a woman's prerogative to lose weight and physically condition herself. Building health is something that should be avidly pursued years before conception.

Poor health and poor conditioning cause most of the problems that occur during pregnancy. Pre-eclampsia and eclampsia (toxemia of pregnancy) are the direct result of unhygienic practices during pregnancy. This condition, characterized by some degree of edema (swelling), high blood pressure and albuminuria (protein in the urine) is caused by the consumption of large amounts of protein, particularly animal protein, the use of salt and the ingestion of drugs. I would state unequivocably that it is entirely avoidable in virtually all cases if a Hygienic regime is followed.

Malpositions of the fetus, which can impede or suspend the birth process, can also be related to the overall maternal condition. The fetus may assume a transverse lie (which is impossible to deliver naturally) because the tone of the uterine walls is not adequate to force the head downward. Ordinarily, the uterine muscle supplies enough resistance to allow gravity to draw down the heaviest portion of the fetus, which, of course, is the head. However, when the muscle tone of the uterus is weak, the organ may "give" abnormally, resulting in a transverse position of the fetus. Such incidents are often regarded as "accidents" when they are really a matter of cause and effect.

Dystocia, or prolonged labor, is often the result of cephalopelvic disproportion, wherein the fetus is literally too big to readily negotiate the birth canal. Most often this results from excessive weight gain during pregnancy which produces an overly large infant and an overly fat mother. Hygienists have long emphasized that a small, light infant represents the biological norm for humans at birth, as it does for other animals. A birth weight within the six-pound range is ideal. Yet, today, it is not uncommon to encounter births in which the weight of the newborn is 8, 9 or even 10 pounds. Such oversized, fat-encumbered infants are not healthy. They often injured in the birth process. The tendency toward flabbiness and bloatedness will in some cases persist indefinitely.

Excessive weight gain during pregnancy is the result of overeating. Too much food is generally recommended at natural childbirth classes, particularly in regard to high-protein foods. A pregnant woman actually requires only slightly more food than she would require under ordinary circumstances. If we assume that a woman gains approximately 20 pounds over the course of a normal gestational period of 280 days, this would amount to a weight gain of slightly more than one ounce per day, on the average. How much additional food does it require to gain an ounce a day? Quite obviously, not very much.

There is no reason to overemphasize proteins in the diet of a pregnant woman. The protein density of the fetus is actually less than that of the mother. Assuming that she is eating a diet of whole natural foods, largely or wholly uncooked, she will easily obtain the additional protein she needs by increasing her overall food consumption proportionately. Too much protein places a great stress upon the liver and kidneys. Since a pregnant woman already has the burden of eliminating the fetal waste products in addition to her own, it is foolish to add to this burden by overeating on proteins.

William's *Obstetrics* provides the following information about maternal weight gain during pregnancy:

> "During a normal pregnancy with a single fetus a weight gain of nearly 18 pounds can be accounted for on the basis of obvious pregnancy-induced physiologic changes. They include an increase of almost 11 pounds of intrauterine contents accounted for by fetus (7 1/2 pounds), placenta (a little over 1 pound), and amniotic fluid (2 pounds), in addition to a maternal contribution of 7 pounds accounted for by increase in the weights of the uterus (2 pounds), blood (3 1/2 pounds), and breasts (1 1/2 pounds). The moderate expansion of the volume of interstitial fluid in the pelvis and lower extremities directly attributable to the increased venous pressure created by the large pregnant uterus is a normal event. In the ambulatory woman it most likely adds 2-3 pounds more. There is, therefore, a physiologic basis for a maternal weight gain of about 20 pounds."

In the case of a Hygienically-conducted pregnancy with a smaller birth weight infant, these figures would be correspondingly lower. This is particularly true in regard to the amount of maternal fluid retention. Most women experience a slight to moderate degree of edema during pregnancy which has come to be accepted as normal. For a Hygienic woman whose weight is normal before pregnancy, we can assume a gain of about 18 pounds represents the physiological ideal. Yet today we find women gaining 30, 40 and more pounds during pregnancy with the blessings of their physicians. These women are fat, bloated, overly distended and often hypertensive. They experience shortness of breath, backaches, constipation, difficulty sleeping and difficulty walking. During their long and trying labors they suffer tremendously and often require intervention of one kind or another in order to facilitate birth. Malpositions of the fetus (such as occiput posterior) is common among this group. Their babies, too, are fat and bloated. It is impossible to look at these women at term without sharing their distress. A pregnant woman should look absolutely radiant, but these women look tired and disabled. It is no wonder that in modern times pregnancy has come to be regarded as a disease and childbirth as a surgical operation.

Exercise during pregnancy is another controversial issue. All childbirth instructors give their prospective mothers exercises to do, but in most cases these exercises are not vigorous enough to adequately condition the woman. Doing one or two deep-knee bends and tilting the pelvis in various ways hardly constitutes a thorough physical conditioning program. It behooves every pregnant woman to strengthen the muscles of her abdomen, back, thighs and buttocks. Squatting is an excellent exercise during pregnancy, particularly since women give birth in the squatting or semi-squatting position. Doing 50 or more deep squats with the legs spread and the feet turned out will develop the muscles of the thigh and back while at the same time stretching the adductor muscles on the inside of the thighs. Sit-ups or partial sit-ups will develop the abdominal muscles and these can be done safely throughout pregnancy. It is best to perform this exercise with the knees raised to avoid unnecessary strain on the lower back. Leg lefts can be performed lying on the back either outside on the lawn or indoors on the carpet. This will develop the psoas muscles and the lower abdominal muscles. The adductor muscles can be strengthened by assuming the "lotus" position (feet drawn up, heels together, knees apart). Place your hands on the outside of your knees and then try to lower your knees to the floor as you exert enough resistance with your hands to make it difficult. Having your husband or "labor coach" provide resistance is also a good way of performing this exercise. A good stretching exercise can be performed by holding on to a doorknob with one hand and then swinging the opposite leg and thigh in an arc from side to side like a pendulum. Then the exercise would be repeated on the opposite side. These and other calisthenics should be performed repeatedly in order to achieve a high level of fitness. Walking on all fours (on your hands and feet, not hands and knees) is an excellent exercise that works a broad spectrum of muscle groups. Jogging, bicycling, swimming and brisk walking are outstanding "aerobic" activities and there is no reason why a pregnant woman cannot fully participate in these wholesome sports. Consider what Dr. Bradley says in *Husband Coached Childbirth* about the prospect of injuring the fetus through vigorous activity:

> "Dismiss from your mind the idea that if your pregnant wife fell down skating, skiing, or whatever, that she would hurt her baby. Of course, if she doesn't know how to fall correctly she can hurt herself—just as she could when she's not pregnant. In my career I have never known a mother to have harmed a baby by an external trauma. The salt water (amniotic fluid) in which the baby is floating equalizes local pressure. This idea of falling down and thereby losing a baby is a superstition that probably began with the movie *Gone With The Wind*. Rhett Butler gave his wife a shove at the top of the stairs. She gracefully tumbled down the stairs and conveniently had a miscarriage at the foot of the stairs. Immediately thereafter doctors' offices and hospital emergency rooms were mobbed with out-of-wed-lock pregnant women who were battered black-and-blue and sore but still very much pregnant! It won't work."

Remember that exercise has a toning effect on involuntary muscles as well as voluntary muscles. A hypotonic uterus, either during or immediately after labor, is not likely to occur in a woman who is in prime athletic condition. So, get out and exercise during pregnancy and gradually acquire the strength, endurance, and flexibility that will serve you admirably during labor and delivery.

The dietary needs of a pregnant woman are not radically different from her needs under ordinary circumstances but the consequences of dietary deficiencies are more profound. An abundance of raw foods should be eaten, including fruits, vegetables, nuts, seeds and sprouts. Green leafy vegetables are particularly important. Two large salads per day should be the rule. An overly restricted diet should be avoided. A woman who has been eating the conventional mixed diet should not abruptly switch to an exclusive diet of raw fruits, nuts and vegetables during pregnancy. Although a completely raw food diet is the ideal, a woman who is unaccustomed to it might not be immediately capable of extracting and assimilating a complete array of nutrients from it.

It is unnecessary and undesirable to saturate oneself with "food supplements" during pregnancy. Large amounts of calcium, in particular, are usually foisted upon pregnant women, ignoring the fact that the skeleton of the fetus is largely cartilaginous.

In Oregon, where I attended home births with a naturopathic doctor I saw several instances of calcific deposits in the placenta. a pathological condition, in every instance, dolomite or some other calcium supplement had been administered. I have never witnessed this in cases where only food comprised the diet of the mother. It is possible that these abnormal calcifications can affect the circulation to the fetus. My advice is to add the dolomite to your garden soil and then grow green leafy vegetables. This will provide calcium in a usable form that will never cause harm.

There are certain Hygienic considerations that we may wish to note regarding the conduct of labor. For many years, elaborate and complicated breathing patterns were popular among natural childbirth circles. Chief among these was the Lamaze method. Fortunately, these methods are corning into disrepute. Remember that breathing is an automatic process and that whether you are eating, sleeping; running, or giving birth, your body is fully capable of regulating its own respiration. Hyperventilation is the most obvious danger of these forced breathing routines.

Until the cervix is fully effaced and dilated, the woman should simply try to relax. Premature pushing is likely to cause injury to the birth canal and may exert unnecessary pressure on the fetal head. Deep, slow, relaxed breathing is all that is necessary during the first stage. There is no need, however, for the woman to remain recumbent. Dr. Robert Caldeyro-Barcia of the American College of Obstetricians and Gynecologists reported recently that "the efficiency of the contractions is greater in the upright position. The greater efficiency combined with the increased force of gravity, and more advantageous drive angle between the fetal and maternal spines results in significant shortening of the first stage of labor."

Walking about between contractions during the first stage of labor has a gently stretching effect upon the uterine cervix while it also serves to ease tension on the mother-to-be.

In a Hygienically-managed pregnancy, the most likely consideration during the second stage of labor (the actual expulsion of the baby) is how to avoid a precipitous delivery. It is often necessary to discourage a woman from pushing so as to avoid causing vaginal or perineal tears. Having her lie down also helps to slow down the birth, should this be necessary.

Although it is best to avoid bright lights, it is equally unwise to try to give birth in the dark (or nearly so). A very good friend of mine practically lost his son at birth because dim lighting prevented him from immediately recognizing an asphyxiated condition. Provide enough lighting so that the birth attendant can readily observe the progress of the birth, the condition of the mother and the condition of the infant.

The Leboyer bath has become a very popular adjunct to a natural childbirth. Without objecting to this procedure, I hardly think that it is as indispensable as its proponents would lead us to believe. Why try to stimulate uterine conditions for an infant whom Nature has deemed ready to function in the outside world? It seems to me that being cuddled and carressed on mother's soft tummy is every bit as reassuring as a bath.

The experience of my dear wife Margaret would serve as a fitting example of the efficiency of Hygienic methods during pregnancy and childbirth. Margaret had a joyous pregnancy during which she engaged in vigorous physical exercise on a daily basis. The very day her labor began she went out running. She experienced no backaches, no nausea, no vomiting, no swelling and no shortness of breath. Her weight gain was 18 pounds. She gave birth naturally at home and from the first true labor contractions to the birth of the placenta, all of 3 1/2 hours elapsed.

She suffered some pain with her first stage contractions but claims that it "felt good" to push the baby out. Mark Shelton Cinque was born at 3:00 a.m. on May 12, 1974, weighing 6 pounds, 4 ounces. He was unusually bright and alert from the moment of his birth, as he has continued to be in the five years he has been with us.

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Article #2: Feeding Mothers by Herbert M. Shelton

It is a common adage that the pregnant mother must eat for two. Unfortunately, this adage is likely to be interpreted to mean that she must overeat and not be interpreted to mean that she should eat foods that meet the nutritive requirements of both herself and the evolving child. The influence of the mother's diet upon her unborn child is not sufficiently appreciated by women and their advisors. The newborn baby requires but half a pint of milk daily which is chiefly water. It is unlikely that the food needs of the unborn are greater than those of the newly born. There would, thus, seem to be no need for so much extra food before birth. The great demand of the unborn for nutriment would seem to be fictional.

Of old it was said: "The fathers have eaten sour grapes and the children's teeth are set on edge." Paraphrasing this ancient statement, we may say today that the mothers have eaten white bread and the children's teeth have holes in them. Many of the defects and deformities with which children are born today are direct results of a faulty diet eaten by mothers. What are called larval deficiencies are responsible for many defects in development.

Nutritional influences upon the development of the new being are commonly thought to start at conception, but there are myriads of facts that show conclusively that they begin much before this time. It is true that soft and malformed bones are not to be blamed upon a drunk father, except insofar as he fails to supply adequate nutriment for the mother during her pregnancy; but the gleam of health in the eyes of a two-year-old does not come from the grandfather and a bar of chocolate candy. It comes from fruits, green vegetables, nuts and whole natural foods. Nutrition begins with life and does not cease until death puts an end to all the life processes.

Pregnant women are urged to take plenty of milk and eggs and are often given calcium tablets; for, despite the fact that the bones of the baby will remain soft, no matter how much excess calcium the mother takes, the embryo is supposed to need lots of calcium for other purposes. So urgent is the demand for calcium that a mother's teeth and bones will be robbed to supply the needs of the unborn baby if her diet does not contain enough of it. This fact, however, does not demand that the pregnant woman should fill up on great quantities of milk, overeat on eggs and take the nonusable calcium supplied by the drug store. It means, rather, that she should eat whole, unprocessed foods—fruits and vegetables—and cease trying to nurse herself and her baby on white bread, white sugar, white rice, canned fruits and vegetables and other foodless "foods." The cow does not drink lots of milk and eat lots of eggs to provide herself and her calf with calcium. The calcium in her milk is not derived from these sources.

When it is considered that it is pasteurized milk which pregnant and nursing mothers are advised to drink in such quantities and that this milk is taken together with white bread, denatured cereals, cakes and pies, coffee and tea, chocolate and ice cream, candy and soft drinks, flesh and eggs, white sugar, canned fruits and vegetables, all jumbled together in the most haphazard and heterogeneous combinations, and that very little wholesome food is to be taken, it does not take much imagination to grasp the fact that both mothers and unborn babies are inadequately nourished.

It is understandable that women who eat such a diet, while pregnant, overeat in an effort to meet their nutritional needs. But this overeating leads to additional troubles, such as indigestion, morning sickness, constipation, hemorrhoids, swollen ankles, varicose veins, overdistension of the abdomen, a fat baby and difficult delivery. We have been conditioned to think that a fat baby is a well-nourished baby, although we know that fat at other ages of life is not a sign of good health and is not a desirable acquisition. The young of the mighty gorilla, which attains a size considerably larger than that of the largest man, weighs three pounds at birth. Some day, when we have learned to appreciate the value of proper nutrition, we will come to realize that the human infant should weigh three to five pounds at birth. Today we are very happy if the baby weighs eight to ten pounds. A fen-pound baby may be said to be five pounds of baby and five pounds of fat. Such a baby begins life with a handicap.

Many unborn babies are so "well nourished" that they weigh eight, nine, ten and more pounds at birth. This large size results in difficulties of delivery. Often instrument deliveries are performed. Due to their large size, fat babies are often injured in being born, these injuries rendering them liable to brain and cord inflammation. These "well nourished" babies are also prone to have trouble in teething, often throwing them into convulsion. When such babies and children are subjected to any enervating influence, such as prolonged heat of summer, they are likely to develop serious diseases.

The expectant mother, desirous of doing the most possible good to her unborn child, will avoid tobacco, alcohol, tea and coffee, and drugs as she would a rattlesnake and provide her offspring with the best possible food. Instead of the commonly-eaten processed and refined foods, canned, pickled, and spiced delicacies, she will provide herself with a more abundant supply of fresh fruits and vegetables, these largely, if not wholly, in their raw or uncooked state. These foods will provide for both the mother and the unborn baby an abundance of minerals and vitamins and of high-grade proteins. She will eat other protein foods, but eat them in moderate quantities and not stuff on them, as is the common practice. It is normal to seek a sense of repletion after eating, but this repletion should be secured by consuming more bulky foods and not be overeating on concentrated proteins, starches and sugars. Fruits and vegetables make the ideal foods with which to secure the sense of repletion.

It is quite true, as we indicated at the beginning of this article, that the pregnant mother must eat for two; but it is almost never true that she is required to increase her food intake. So nearly universal is the practice of overeating that most women eat enough for two at all times. To increase the food intake because one is pregnant may mean to take from three to five times as much food as is required. When we consider that the average gain per day of the human fetus, from conception to birth, is less than a half an ounce a day, we can readily understand that the commonly advised overeating is very unwise. There is ample evidence to show that the body makes more economical use of food during pregnancy than at other times, so that instead of increasing the food intake, it is often possible to decrease the amount of food eaten with benefit both to the mother and the unborn child. It has been observed that among animal mothers, even though they may bear more than one young at a time, there is little or no increase in food intake during pregnancy. Animal mothers may reduce their physical activities, but rarely increase their gastronomic activities.

It should come as no surprise to learn that many modern mothers have reared large families while adhering closely to the two-meals-a-day plan, for this was the almost universal practice in the past, when families were usually larger than at present. That woman who has been accustomed to eating but two meals a day will have no trouble in supporting both herself and her growing infant without the addition of a third meal.

The most important factor in the nutrition of the pregnant mother is not the quantity of food she eats, but its quality. She should not eat more food, but better food—more lettuce and celery and fewer potatoes; more apples and grapes and less flesh; more oranges and peaches and fewer eggs; more natural foods and no denatured foods. Such a diet will provide for adequate development and growth of the unborn child—for better eyes, better bones, better teeth, a better nervous system, and better tissues generally.

We cannot think wholly of the improvement that such a diet provides for the unborn child. We are justified in thinking also of the improved health and greater comfort of the pregnant woman and the grater ease of delivery. This diet also provides for a more certain, a more abundant and a more adequate milk supply when the child is born. It is a fortunate fact that the diet which is best for the unborn child is also best for the expectant mother and that the diet which best promotes the health of the one will also best promote the health of the other.

The expectant mother, desirous of maintaining high-level health during pregnancy and providing adequate nourishment for her unborn child, will not only eat a diet of natural foods, but she will eat this diet in a way to secure the best digestion and the most efficient utilization of her food. This is to say, she will observe all the rules of food combining and all the rules for eating. She will not eat if she is not hungry and she will not eat if she is physically distressed or emotionally disturbed. She will not eat if fatigued, but will rest first. She will not drink with meals nor soon thereafter. She will eat in moderation and without fear that in doing so she will injure her offspring.

Article #3: Prenatal Life by William L. Esser

In considering the hygienic life of a child, we must begin at the beginning. The belief that a child is born when it separates from its mother and becomes physiologically independent is erroneous. Life begins at conception, when male and female cells unite and the marvels of creation begin anew. But we should even go back several generations if we wish to consider the influences which bear on the life of the individual.

The child is fated through its whole earthly existence to endure or enjoy, as the case may be, the conditions which the good or bad qualities of its parents have forced upon it. Smoking, drinking, sexual excess and other inordinate practices may not outwardly be seriously affecting the health of adults, but when their children become nervous, epileptic and subject to all the pathologies to which mankind has descended, they may seriously contemplate the seriousness of their weaknesses.

Though the seeds of both parents are vital in influencing the future of the child, it is the mother who after initial union must assume the delicate responsibility of making its first nine months perfect. Nature has appointed woman to the mission of motherhood and by this mission she is directly charged with the early life of the child upon which so much of future good or ill depends. The rights of children begin while they are still in fetal life. Not by any will of their own do they come into existence.

Children are what parents make them. Children in later life are often condemned and punished for things for which parents are directly responsible.

Though it should be unnecessary to mention it, there are still those who harbor superstitions in connection with influences during pregnancy. It is thought that if the mother hears beautiful music while carrying her child it will develop into a musician, or that if she reads or thinks about certain favorable subjects, the child will have favorable tendencies in the particular field desired. It is desirable that the mother be surrounded by beautiful things, lovely music, inspiring books, because these things all contribute to poise and health, but listening to the moving passages of a Wagnerian masterpiece will not develop a little Wagner any more than looking at a Ford automobile will make a budding automotive genius out of little junior. These superstitions are just as untrue as the belief that the sight of a rat will cause a brown mark on his forehead, or that baby will certainly be an idiot because mother happened to see a case of insanity sometime after conception.

Russel T. Trall, M.D., has this to say for the expectant mother: "Motherhood should be normal. But it never will be and never can be under the prevailing fashions of society. A man might as well drink intoxicating liquor and then endeavor to walk erect with face upturned to Heaven, without gibbering or staggering, as a woman expects to eat, drink, cress and dissipate in the fashionable ways and be the mother of healthy offspring.

"One of the pernicious errors abroad is that woman is the 'weaker vessel' physically; thus accounting for, if not excusing, her manifold infirmities. Fashion is justified and nature blamed. This doctrine has its origin in viewing 'woman as she really is,' and not 'woman as she should be.' The fact that woman in civilized life is, as a rule, feebler than man is taken as evidence of constitutional and natural infirmity.

"There is no truth to this notion. Physically woman is man's equal. In bodily stamina, powers of endurance, vital resources and muscular strength, under the same circumstances of habit and education, she is no sense inferior; on the contrary, if there is a difference, it is in her favor. This should be so; and there is an anatomical and a physiological reason why it is so. The woman has not only to nourish herself but others. She must construct and replenish her own structures and those of her offspring. Hence she has the greater nutritive apparatus."

A woman living a rational life free from superficialities will have a normal, painless pregnancy and labor. The labor will be painless without the use of anesthesia and the abusive treatment of hospitalization. There are occasionally cases of badly formed pelvises which no amount of perfect living can alter, in which a certain amount of pain cannot be avoided. It is more important in these than in any that the patient live as closely to the laws of health as possible.

A pregnancy fraught with the usual discomforts, sickness and painful labor is simple to avoid. Mothers should live as close to their usual routine of duties as possible. This applies, of course, to women in the home rather than those who are working in defense plants and under other types of stress. A woman carrying a child should not be engaged in laborious occupations where she cannot rest when the inclination is there, and where she is subject to the vicious emotions of jealousy, hatred, deceit, etc. A poised, serene, self-controlled disposition should be cultivated. The atmosphere of the expectant mother should be one of quiet and refinement, one of happiness and love, and the husband should assist his wife in supplying that medium.

The unborn baby must have as perfect a home as possible. Its food supply which it receives from its mother's bloodstream should be clean and laden with rich nutriment for perfect growth. Hence the mother must take great pains to eat only the best food, in the best combinations and in the amounts best suited to her needs. Though it may sound like repetitious record, it is nevertheless important to stress the importance of not "eating for two" since the habit seems to be just as prevalent as always. A fat baby is diseased and because of its size will cause an uncomfortable pregnancy and a painful labor. Under normal circumstances a child's weight should be no more than six pounds at birth.

The child in the womb should have freedom of movement and for this purpose, the mother should allow her body all the freedom from dress that convention allows. She should dress comfortably and wear no tight garments of any kind. Her shoes should be low-heeled, or better still, have no heels at all. Whenever possible barefooted walking is good.

Sun-baths should be a regular part of the prospective mother's program. The sun creates vital changes in the body for the child and mother, improving the tone and vigor of the body. Women living in the north where the sun is scarce must be certain to expose themselves at every opportunity to insure at least a minimum amount. It is because of the need of sunshine that Dr. Herbert M. Shelton in *Care of Children* urged that babies be born in the spring. He writes as follows, "Babies born in the late fall or early winter, and who live through the winter, nearly all develop rickets to a greater or lesser degree. Fewer cases of rickets are seen in children who have the advantage of sunshine and sun-kissed food during their first months of life. That sunshine is absolutely essential to the normal assimilation and utilization of calcium (lime) and perhaps also of iron and other elements, is certain. This is true of plants, animals and man. If your child is born in the early spring or the closing of winter, it need never have rickets and will also have reasonable assurance against scrofula, tuberculosis, anemia and other diseases."

Exercise should be regular. Dancing, calisthenics, golf, hiking, tennis, swimming, if the water is not too cold, can and should be indulged in with care until the end of the pregnancy.

It should hardly be necessary to state that smoking, the use of alcoholics, coffee, cola drinks, and other suicidal habits must be outlawed. If a woman cannot make these sacrifices for her baby and for her own improvement, she certainly does not deserve the right and honour of having a child. These vicious habits make the mother a neurotic and the poor child nervous and irritable. There, can be no compromise.

Sexual abuse is a common and dangerous occurrence during pregnancy. Miscarriages are not infrequent and the abortion habit is often the result of this cause. It' is not uncommon to have expectant mothers forced into submission to this unnatural practice with threats of infidelity.

John H. Tilden, M.D. says. "The stockman, as well as the humane society, would prosecute anyone ignorant and stupid enough to allow the males of any breed of animals to tease and excite sexually the pregnant females; but this health destroying practice is permitted without protest among human animals."

The very least the husband can do is to cooperate with the mother of his child in this matter and other conditions pertaining to her's and the baby's health. He must consider that she is making much greater sacrifice in the deal than he, and that a little self control and a less stimulating mode of eating and living will reduce his rapacity and improve his health.

The Hygienic mother has nothing to fear. The parturition will be painless and the newborn babe blessed with the health and promise every proud parent wishes it to posses. Home or a hygienic institution are the best places for the birth to take place. Likewise, a midwife, if obtainable, is the safest practitioner to have present at the time. The hospital and its brutal methods of hastening the parturition with drugs, anesthesia, forceps, and Caesarian section (the latter being routine procedure in some establishments) should be avoided with rightful dread. Here, everything is anti-natural. The birth of a child is treated as though it were the removal of a cancer instead of a perfectly normal, completely physiological, function.

The hospital mother is rarely capable of performing the most important function for her child after it is born; namely, that of lactation, of nursing it at her breast, because of the destructive medical procedure. If she can, the milk has invariably been made unfit for the same reason and rarely lasts beyond the fourth or fifth week. To the hygienic mother, these are all nightmares and disappointments she will never experience.

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Lesson 56 - Normal Feeding Of Infants; Feeding Babies Under Abnormal Conditions Until Weaning Age

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1. History Of Infant Feeding

Until recently, women never considered not nursing their babies. It was the only means available to them at the time—the only way they knew how to feed their babies. In fact, not only did they breast-feed their babies but they did so until the child was at least two or three years of age.

Shelton points out in an article, "The Story of Infant Nursing," that most civilizations of people nursed their babies and for long periods of time. He included the Egyptians, the American Indians, the Mesopotamians, the Greeks, the Romans, and the Orientals in his documentation of this fact. In these cultures, a wet nurse (a woman with breast milk who nurses your baby for you) was utilized only by rich women who thought they were "above" nursing their own babies.

When babies were first artificially fed, it was on bread and water. Then came the use of cow's milk. The invention of the bottle naturally followed. The first bottle consisted of a cow's horn with a couple of pieces of leather sewn to the narrow end which had a hole in it. The baby sucked the milk through the holes between the stitches of the leather. Next came the invention of artificial formula milks and all sorts of canned baby foods—and needless to say, the deterioration of health.

Nursing, and in fact nursing for long periods, continued in this country until the beginning of this century. After this, the decline in breast-feeding was very rapid in America. This is largely due to the medical profession advising mothers that bottle-feeding is better (cleaner) for the baby and will allow them more freedom. This decline was also due to the rising dairy industry followed by the manufacture of artificial formula milks which were pushed for a profit.

By the 1920s, a women's rights movement began and breasts went out of style. Women were moving into a men's world and took jobs outside of the home. They were no longer able to stay home and nurse their babies.

Besides women being forced into the work world, doctors—and other "experts" were urging mothers not to breast-feed and if they do breast-feed, they should wean early. These "experts" claimed that if mothers nursed their babies too long, their child will become too attached to them, become emotionally retarded, or that it will ruin their marital relationships, etc.

With the 20th century came so-called scientific child rearing—rearing the child on a schedule rather than on instinct or common sense. Up until a generation ago, children mostly stayed home with their mothers until kindergarten or first grade. Each year it seems the age of children being cared for by those other than parents gets lowered. Now even infants are raised in day care centers. Much of this is due to the economic situation—our exploitive industrial society—forcing women to work and away from their children.

In the 1960s and 1970s the trend, however, came back toward breast-feeding. Women began questioning the "experts" and feeling there must be a better way. Now there are many books available on the subjects of natural birthing and breast-feeding. There are also organizations such as the La Leche League willing to help and urging women to go back to nature's way of nourishing their young.

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2. Importance Of Breast Feeding

> "Breast milk as the baby draws it directly from the maternal fountain without the interference of a middle man, is drawn from the living cells that produce it for the specific purpose of nourishing the baby. It is taken directly into the baby's stomach at the temperature at which it leaves the breast, without oxidation or contamination. Its ingredients and physical characteristics are especially adapted not only to the needs of the digestive organs of the human infant but also to the nutritive requirements of the infant. It is even designed to educate the digestive organs of the infant." — Dr. Herbert M. Shelton, "The Story of Infant Nursing," *Hygienic Review*
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> The only perfect food for an infant is its own mother's breast milk. Of course, under certain circumstances, it is not possible for the mother to breast-feed (this will be covered later in this lesson). However, most women can breast-feed their young and should if they want to have the healthiest baby possible.
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> "Nature has made provision for the infant to be nursed. She has equipped women with milk-producing glands and the normal woman is possessed of instincts that lead her to nurse her baby. At the same time, the baby itself is equipped with instincts that cause it to seek for the maternal breast and to extract its food from this source." — Dr. Herbert M. Shelton, "Baby's First Years," *Hygienic Review*

There are many advantages to breast-feeding your young which I will go into in the next section of this lesson. There are also some myths surrounding the advantages of breast-feeding. One of these is the idea of immunity. Most books or articles on the subject of breast-feeding state that breast milk produces an immunity in the suckling infant to certain diseases. From previous lessons touching on the subject of immunity you are probably aware that we can be made immune to nothing. If we indulge in the causes of disease, we suffer disease. The same holds true for infants. Breast-feeding builds stronger, healthier babies that—providing the mother is in good health and the infant isn't being fed any unwholesome foods in addition to breast milk and exposed to unwholesome environmental influences—will be free of disease.

Another claim by the aforementioned books and articles is that breast-feeding prevents breast cancer. Again, if the causes of cancer aren't indulged, cancer will not occur.

Perhaps the fact that most women who breast-feed their babies are much more health conscious than, those who bottle-feed is an explanation for the lower fate of breast cancer among these women.

In spite of these myths, however, there are many advantages to be had by breast-feeding your young.

2.1 Advantages of Breast-Feeding

Several years ago, a study was conducted by Dr. Randolph Paine of the University of Iowa's department of family practice. He tested 40 breast-fed babies and 66 bottle-fed babies for a period of six months from birth. He found that breast-fed babies visited a physician an average of 1.6 times due to illness. The bottle-fed babies visited 2.8 times during this period. This is nearly twice as often.

Other studies have shown that breast-fed babies have six times the chance of living through their first year as bottle-fed babies. Ninety percent of all infantile deaths occur in bottle-fed babies.

Breast-fed babies are vigorous and healthy and are less likely to develop diseases—especially, the so-called contagious diseases, breast-fed babies will be less likely to have bowel troubles and gastrointestinal impairments.

Breast milk is always ready—it requires no fixing and is always there. It does not contain dirt or contamination and doesn't need preparation or measuring. It is always fresh and cannot deteriorate.

Breast-feeding is cheaper than, bottle-feeding (it costs you nothing) and gives you more time to be with baby because you spend less time preparing, sterilizing, warming, cooking, and cleaning up after bottles.

Breast milk is formula perfect for baby's digestive system. It is readily assimilated and easy to digest, allowing baby more energy for better growth of brain and body.

A baby has an inexhaustible need to be loved. Breastfeeding shows him he is loved. It gives him a secure feeling of being snuggled closely to you when nursing. Breastfeeding provides closeness and warmth—a close contact that bonds a mother with her child.

Baby's sucking after birth helps the uterus of the mother to contract to its normal size quickly. This prevents excessive bleeding after delivery.

Babies that are breast-fed are less likely to be constipated or have skin disorders and respiratory ailments. They will not have any of the so-called "allergies" common among bottle-fed babies. They're also free of gastroenteritis, blood poisoning, and will have fewer dental problems later in life.

If a woman is breast-feeding solely, that is, not feeding her baby anything but breast milk, her ovulation will be postponed for as much as two years. This means that if she does indulge in sex while lactating, she will not get pregnant as soon. Thus, natural child spacing and no artificial means of birth control is necessary.

Another advantage of breast-feeding babies is that their stools will not smell foul. They smell sweet and are loose and yellowish in color rather than hard, dark-colored, and foul smelling as in bottle-fed babies. This is because breast milk is easily digested and it doesn't putrefy in the baby's body.

In spite of the many advantages of breast-feeding, it does not guarantee good mothering. There is much more to good mothering aside from providing the best food.

Also there is much to know about breast-feeding such as when to feed, how often to feed, under what conditions to feed, how much to feed, etc. This will be covered later in this lesson.

2.2 Bottle-feeding

Bottle-feeding became popular with the belief that it was cleaner, somehow better than breast milk. It was also considered advantageous for the woman on the go—she didn't have to be with baby all the time in order for him to be fed. Someone else could give him the bottle as well as she. It allowed her to go to work.

However, as far as I can see, there are no advantages to bottle-feeding. Even if a woman has to work there are ways to breast-feed her baby. She can hand express her milk before work in the morning or the night before and freeze it. It will be there for the caretaker to put out at room temperature ahead of lime and be ready for baby when baby is hungry.

There are many, many disadvantages to bottle-feeding though. One is it can lead to obesity. The artificial carbohydrates in formula milks are habit forming and increase consumption of artificial sweets later in life. Artificial formulas contain much salt which can lead to dehydration in infants and toxicity. There are high levels of lead in formula milk that has been stored in tin cans.

Bottle-feeding is a very unnatural approach to handling an infant's nutritional needs. It comes complete with schedules, bottles (which can easily become contaminated), complicated preparation, a waste of precious energy, a waste of time, etc. A mother has to be concerned with which formula to use, how to prepare it, how much to use, how often to feed, whether or not to hold the baby, etc. And at best, all the manufacturers can claim is that their formula is "most like mother's milk."

Bottle-fed babies are more likely to develop disease. So-called "allergic" reactions to the milk such as eczema are common. Many nutritional ailments are caused by bottle milks as mother's milk cannot be duplicated. No one even knows all the components of breast milk, and, therefore, formula milks are likely to be deficient in one or more necessary element. One formula milk was found deficient in vitamin B-6 after it was discovered that this vitamin is contained in breast milk.

Bottle milks are difficult for baby to digest. Therefore, much energy is spent in breaking these down to a usable form and less energy is directed toward baby's growth and development.

Bottle-fed babies who are fed cow's milk often have intestinal and gastric disturbances. This is because cow's milk is not suitable for the baby's digestive system. Cow's milk contains more fat, more calcium and much less tryptophan (an amino acid) and lecithin than mother's milk. Tryptophan and lecithin are used in building brains and nerves. Calcium is employed in building bones. This is why cow's milk has the components it has—a cow's bone structure grows rapidly, and its brains and nervous system are not highly or delicately organized. On the other hand, a baby is relatively small of bone and have a large, highly-organized brain with a perfection of senses and bodily control. Babies fed on cow's milk primarily have softer brains and are less likely to be as intelligent as breast-led babies. The excess of fat and cream in cow's milk also produces digestive disturbances in baby.

Cow's milk contributes to hardening of the arteries and high blood pressure later in life. It also can cause low-blood calcium in the newborn, an overload in the infant's kidneys from having to expel the excess proteins, diarrhea, respiratory infections, etc. Tonsillar and adenoid troubles are also common with babies fed cow's milk.

However, under certain, abnormal conditions, it becomes necessary for a mother to include cow's or other animals' milk in the diet of her baby. These will be included later.

Another problem with bottle milk is that it does not change with the hormonal and nutritional needs of the growing baby. The makers of baby formulas cannot duplicate the changes in composition or volume that takes place continuously in mother's milk as her baby grows.

Yes, mother's milk cannot be imitated in the laboratory. Nature had it perfect to begin with, and there is no perfect or near perfect substitute.

2.3 Common Worries and Apprehensions About Breast-feeding

Some women feel that because their breasts are small they will be unable to nurse their babies. They feel that somehow larger breasts are able to produce more milk. This is, most definitely, not true.

Other women feel that nursing will spoil the shape of their breasts. This is also not so if the woman is taking good care of herself—eating right and exercising. Even if this were so—which is more important, the shape of your breasts or your baby's health?

A belief that an inability to nurse exists because your mother or grandmother were unable to is also unfounded. No diseases or disfunctions are hereditary. Your equipment is entirely independent of your mother's.

A fear that your milk won't be rich enough is also unfounded. Studies conducted have shown that even the milk of unhealthy, emaciated mothers is better than artificial formulas.

What if I can't produce enough milk? If this happens, just nurse your baby more. The more often a baby nurses, the more milk is produced. Also, eat plenty of juicy fruits to produce good milk.

There's no way your baby can be "allergic" or sensitive to your milk. If you've eaten spicy foods, processed foods, etc., it will go through the milk and the baby will most certainly react negatively. This is why it is important for mother to eat right and avoid toxic substances. (See Don'ts While Breast-feeding.)

You may wonder if your baby is getting enough milk. If your baby is growing, energetic, sleeping well, and displaying other signs of health, don't worry. Nurse about ten minutes on each breast during each feeding if the baby wants to nurse that long and baby should be receiving enough milk. Also, overfeeding is much more of a problem than underfeeding.

If you have older children that have been breast-fed and especially if they still remember it, you have to be very careful in your handling of the situation. Older children need to be told ahead of time (before birth) that they are going to have a new sibling and that he or she will breastfeed just as they did. Older children tend to be jealous when they see you snuggling a baby to your breast. Show them as much love as you can to allay this.

Some special problems exist for the woman who has had a premature baby or a caesarean section. A premature baby may be in an incubator for as much as several months being fed on special hospital formulas. If you wish to breast-feed when you get your baby back, you still can. You need to hand express your milk while the baby is in an incubator to ensure your milk supply will keep flowing. When you do receive your baby, he will need even more closeness and nourishment than a term baby.

He may nurse very feebly at first and require much coaxing and patience on your part to get him nursing.

A woman who has a caesarean section has received an anesthetic and is not in as good shape as if she had delivered vaginally. She should wait until all the anesthetic is out of her system to breast-feed as this will get into the milk supply. It will take more patience and persistence to get the milk out as the natural cues of a vaginal birth are not present. She will have plenty of good rich milk, however, if she eats right and relaxes.

Another apprehension of mothers is that they should stop breast-feeding if their babies get sick. The chances of breast-fed babies getting sick are not that great, however, to cause worry. If they do get sick, they will probably not have the appetite they had when well. Just hand express the milk meanwhile to keep the supply flowing.

If you get sick, you can still nurse your baby. Your baby is already used to you and your biological makeup. He or she will not get sick by nursing from you.

If you feel you are too nervous to nurse, take some courses in relaxation or meditation techniques prior to birth. This will help you to relax when nursing for it is true that if you are tense, your milk supply can be held back.

If you have inverted nipples, you have a special problem—not one that is impossible though. I have seen mothers with this problem breast-feed normally. Pull the nipples out regularly before the birth to get them used to this. They need to be out in order for baby to latch on. Also leaving them exposed to air and sunlight fifteen to thirty minutes several times a day helps to bring them out.

Many women may feel sensitive to cultural attitudes toward breast-feeding—families discouraging you to breastfeed as they feel it's "too animal" or sensual. Some may find it disturbing and feel it's an interference in the marital relationship. In this case, try to explain to your husband beforehand why it is important to breast-feed the baby and perhaps coax him into reading books on the subject. It is important not to have people around you who are opposed to your breast-feeding while you are doing so. The baby may pick up on these feelings. Try not to let other peoples' attitudes make you tense while nursing or dissuade you from doing so. Be strong!

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3. The Mechanics Of Breastfeeding

Breast-feeding an infant is a supply and demand function. The more (and longer) a baby nurses, the more milk is produced. This causes the milk supply to keep up with the growing and developmental needs of an infant.

As explained in the definition of let-down reflex, there is front milk and hind milk. The front milk gets sucked out by the baby which causes a hormone to be released into the mother's body and lets the hind milk down. The hind milk is richer than the front milk and there is more of it. Sometimes when the hind milk lets down it drips out and may spray outward from mothers' breasts. Oftentimes the mere sound of the baby crying, the sight of him, or the thought of him, can cause this let-down reflex.

Sometimes the milk gushes out too fast for the baby to swallow and he may choke a little on it. He usually turns, his head to one side to catch a breath of air. He then gets squirted in the face. Keep a spare diaper or other cloth handy to absorb this extra milk. You may need to burp the baby after swallowing too much milk to prevent upsetting his stomach.

Nursing for just a few minutes on each breast will fail to let down the hind milk in most cases. The baby needs this richer, higher-quality milk in order to ensure his nutritional requirements. Make sure you nurse for at least five to ten minutes on each breast to obtain hind milk.

After a few weeks a new mother will get used to the feeling of the let-down reflex. She will recognize the tingling sensation in her breasts and the full feeling.

More milk will let down when a woman relaxes. If she is tense and upset, only the front milk will come out and baby will be dissatisfied. It is best to wait until calm to nurse.

Colostrum has long been thought of as useless—as a waste product—and yet it comes into a woman's breasts before birth and remains there for a few days following birth. Surely nature made no mistake in putting it there. Colostrum contains half the carbohydrates and fats of regular milk and a newborn has difficulty digesting these. Colostrum is specially adapted to meet the immediate needs of the newborn.

Many women have trouble with their breasts engorging with this fluid (colostrum) after birth. Her breasts may become swollen and sore. To alleviate this get the baby to nurse to express the colostrum. Once the nursing cycle is established this problem will disappear.

Another thing to consider with breast-feeding, especially if for the first time, is prenatal nipple care. Prior to birth "toughen up" the nipples so they won't get tender or sore from baby's sucking. Do not use soap on them as this causes them to dry and crack. To open milk ducts hand express colostrum by cupping breast in hand with one finger above nipple and the other below and then squeeze. Also exposing the breasts to air and sunlight will toughen them.

3.1 Mother's Diet

> "It is not possible to produce quantitatively and qualitatively adequate milk on a diet of white bread, embalmed meat, pasteurized milk, pies, cakes, mashed potatoes, etc. Eating large quantities of these rich foods is useless. These only impair digestion and destroy the mother's appetite. The one class of foods that greatly increases milk production in animals, and there are reasons for believing they will do so in women, are green foods. An abundance of these should be eaten." — Dr. Herbert M. Shelton, *Hygienic Care of Children*

A mother who eats of fruits and vegetables in their raw natural state will have no trouble producing adequate quantities of rich, healthy milk for her infant. The dairy products, herbal teas, excess drinking of water, etc., that are frequently recommended to increase production of milk in women are not only unnecessary but can be harmful.

Drinking excesses of cow's milk on the part of the mother rather than providing much calcium actually drains the calcium resources of the body. Excesses of fluid consumption cause extra strain on the kidneys to excrete them. Also herbs are irritants and not recommended.

Green vegetables have a high-calcium content and therefore should be consumed abundantly. Fruits are a rich source of a multitude of vitamins and minerals to produce the finest milk in mother.

A diet high in protein can result in excess protein in the milk and could be detrimental to the baby. Nervousness or lack of exercise can also result in too much protein in milk.

The same advice as in the last lesson on prenatal care also holds true while breast-feeding. Eat only when hungry, never overeat (to fullness or beyond), eat only when relaxed and in a positive state of mind, properly combine foods so they will digest most efficiently, exercise regularly, get plenty of rest and sleep, breathe fresh air, and get lots of sunshine.

The difference that diet makes to the breast milk is incredible. Breast milk does not remain the same no matter what you eat. It changes quite rapidly according to what you eat or otherwise ingest.

Remember, breast-feeding is easy if you eat well, live an easy, relaxed life without stress, and your family and friends have a good, supportive attitude toward breastfeeding.

3.2 Don'ts While Breast-Feeding

1. Do not keep long work hours, get too little sleep, get in frequent arguments, or surround yourself by critical family and friends. This affects the quality and quantity of breast milk.
2. Eating lots of contrived sweets (things sweetened with sugar, corn syrup, honey, etc.) and soft drinks. will reduce baby's appetite and cause diarrhea.
3. Hot and spicy foods result in diaper rash and indigestion in the baby.
4. Drugs, alcohol, and medicines pass through into breast milk and are harmful to baby—and you.
5. Brussel sprouts and cabbage have been known to create indigestion in babies when consumed by mother.
6. Smoking affects the taste and quality of the breast milk.
7. Eating chocolate severely cuts down on calcium level in breast milk.
8. A too-tight bra (or any bra for that matter) can cause a plugged milk duct. Symptoms of this are redness near nipple, and a core lump in breast caused by inadequate emptying of milk ducts. If this happens, let baby nurse a lot on that breast to express milk Also soak the dried secretions on outside of nipple with warm water. Keep breast empty and rest as much as possible.
9. Do not fast while lactating. A fast quickly reduces the quantity of milk and impairs its quality The milk becomes poorer in water, protein, sugar, and mineral salts. The fat content, however,

remain the same.

10. Grief, worry, anger, fear, excitement, etc., greatly diminish the secretion of milk or alter the composition of it.
11. It has been shown that sexual intercourse while lactating often induces premature menstruation, ruins the quality of milk, and induces termination of the nursing period. During orgasm, the quantity of phosphorus is reduced and this could retard brain development in the baby. Loss of lecithin is also caused by sexual indulgence. Lecithin produces brain growth. After sexual intercourse putrefying seminal fluids may be absorbed through the vaginal wall into the lymphatic system of the mother thus ruining the milk.

4. Methods Of Breast-Feeding

While nursing the baby it is best to sit up—not slouched—in a comfortable chair or cross-legged on the floor. Aim the breast downward as milk flows best downhill. To eliminate slouching bring the baby up to the breast rather than the breast down to baby.

Put the breast into the baby's mouth with as much of the areola in the baby's mouth as possible. This helps the baby latch on better and get the milk out more easily and at the same time you won't get sore nipples. Merely putting the nipple in the baby's mouth will cause him to chew on the nipple with his gums in an effort to get milk out. Aim the nipple upward in baby's mouth holding breast, up with hand with thumb on top. When baby is first born, it is more difficult for him to hold onto the breast and he needs your help.

Be sure to press the breast down just a little bit away from the baby's nose so that he can breathe. The fullness of your breasts could smother him.

If baby still acts hungry after you've emptied both breasts (usually about ten minutes on each side), he may merely want your company. A good baby carrier can help so you can resume your other duties. This provides the motion and closeness that the baby was used to in the womb.

Don't try to pull baby off of breast when still sucking. This will be painful. Release the suction by gently pressing in your breast on both sides of baby's mouth.

When baby falls asleep in your arms while you nurse him, don't just ly him down by himself. Ly down with him for awhile with your nipple still in his mouth. Then remove nipple and continue lying down with him. Then get up very slowly so as not to disturb him. The baby suddenly misses the presence and warmth of mother if not done gently and slowly and may awaken.

Babies like to be snuggled firmly and closely to mother while breast-feeding. This makes them feel secure and loved.

A baby's natural reflex is to suckle the nipple if its mouth is brought close to it. Bring baby's legs close to you angling baby so he can breathe. If baby still has trouble getting the nipple, hand express some milk first and let him taste it to create an impulse in him to begin nursing.

When baby cries, it doesn't always mean that he is hungry. Sometimes merely turning him from one side to another will stop him from crying. Other times he may want cuddling or motion. Don't always assume he is hungry and immediately push the breast in his mouth. This could create a problem later in life where he seeks food for security.

4.1 How Often to Breast-Feed—Overfeeding, Normal Feeding

Babies need only be breast-fed three times a day for the first day or two following birth. A normal, healthy baby may only awaken that number of times during a twenty-four-hour period. A baby should never be disturbed from his sleep to nurse.

By about the fifth day after birth to the second week baby should feed at about four-hour intervals during the day. A good schedule is at six a.m., 10 a.m., 2 p.m., and 6 p.m. Never feed baby at night. Nighttime is a time for sleep, not for the burden of digestion and elimination. It may be difficult at first to not nurse at night as baby might awaken, but once you get a routine established baby will follow it.

Shelton recommends merely turning your baby from one side to the other if he cries. If this does not work, perhaps walking baby will help.

Most mothers, especially new mothers, have a tendency to overfeed. They seem to think that whenever baby cries, he is hungry. In fact, some women dislike their baby's crying so much that they get into the habit of pushing the breast into baby's mouth every time he cries. This can be detrimental to baby. Overfeeding, such as this, inhibits function and retards growth and development.

Shelton recommends that following the second week after birth baby be cut back to three feedings a day. Of course, with this amount of feedings your baby will not be the fat little butterball that is considered so healthy in this society. But he will be much healthier and will develop and mature more quickly. He will develop good eating habits later in life as a result. In fact, most bad eating habits begin during infancy.

How long should baby nurse during each feeding? That depends entirely upon the flow of milk from the breast. Sometimes the baby will be thoroughly satisfied after only five minutes on each breast—sometimes it may take ten to fifteen minutes. Watch baby to see if he seems satisfied.

Besides creating fat, slowly-developed babies with bad eating habits, overfeeding causes baby to suffer from indigestion, gas, intestinal colic, diarrhea or constipation, stuffy noses, skin rashes. Overfeeding causes a frequency of urination and bowel action so that the mother is constantly changing diapers. Even at night when baby (and mother) should be sleeping, he is busy emptying his bladder and bowels.

Another common problem among infants is hiccoughs. Hiccoughs are the evidence of undigested residue. Their purpose is to eject the overload.

Most babies have regular hiccoughs and mother usually just stuffs more in—either water or sugar or both. Hiccoughs are also a result of overfeeding.

Other common complaints are drooling and spitting up so that baby can be seen wearing a bib as regularly as he would a diaper. Teething can be a painful ordeal if baby is overfed. A baby who is fed only what he needs and when he needs it does not have this problem.

Most doctors will say that baby should gain about a half a pound of weight per week for the first several months. This is an incredible amount and it is only fat that will eventually have to be lost as fat is merely toxins.

Most midwives or alternative doctors will recommend nursing your baby upon demand. But this also is not good advice as baby does not always know what amount is best for him. He needs to be trained in good eating habits— they don't necessarily come naturally. Shelton says, "In all nature there is not another, example among mammalian species where the female permits her young to feed upon demand., All of them exercise control over the nursing of their offspring...."

Oftentimes the cries of pain a baby, lets out because of intestinal distress from overfeeding are mistaken for cries of hunger and baby is fed more. The breast becomes like a pacifier and baby equates it with security. Most of these overfed babies will sleep off these feedings like a drunk sleeps off his binge. Their lives become a round of eating, vomiting, sleeping. Most people consider this a normal infant's life though.

After all the abuse an infant receives in infancy by overfeeding, his digestive organs may never function normally. He may have dyspepsia later in life and will be more susceptible to disease.

The three-feedings-a-day plan, although it may seem cruel to some of you, is definitely adequate. Many Hygienists have proven this with their own children. Their children grow faster and develop better.

They sleep better at night and give their parents less anxiety and require less attention as they're rarely complaining or sick.

The newborn possesses the power and ability to digest and assimilate, easily and continuously, only the amount of food necessary to produce normal growth. And you'll know that when you see it.

4.2 How Long To Breast-Feed

The normal nursing period of mammals, and that includes humans, is directly related to the time it takes for their young to develop. Mammals that grow rapidly and mature early have short nursing periods. Likewise, mammals that grow slowly, such as humans, have long nursing periods.

Shelton has divided the periods of feeding in a person's life into three parts. The first one is the infant period. During this period, the only food necessary to sustain normal life is breast milk. This period lasts until the infant has a mouth full of teeth—not just one or two teeth.

The next period is the transition period (discussed in next section on feeding) where baby is fed both breast milk and solid foods. This period begins when baby has the anatomical and physiological equipment (full mouth of teeth and adequate digestive juices) to digest solid foods and it ends with weaning from the breast.

The third and final period is the adult feeding period. This begins with weaning and continues until the end of life.

Most books and articles on the subjects of how long to breast-feed recommend feeding solids by the time a baby is three to six months old. They say as soon as baby begins getting teeth he is ready to handle solid food. This is obviously not so—how can anyone chew with only one or two teeth? So mother mashes, chews, and blends baby's food so that he may swallow it. But why? Breast milk is already in a form that baby can handle. When baby is ready for solids, he will have the tools to handle them.

Many doctors or books will advise mothers not to rely solely on nursing for her baby's nourishment once the baby reaches nine months to a year of age. They say mother's milk is no longer nutritionally sufficient to baby's needs and they need to supplement it. But why would nature do such a thing?—make baby's food insufficient before he is ready to deal with other foods. If mother is healthy, her milk is healthy.

The human infant is helpless much longer than any other animal. Therefore, there should be a longer nursing period. By about the age of three most children are ready to wean but some may wean earlier and others later.

By about the age of two a child has most of his teeth and has digestive enzymes to break down foods properly. By now mother's milk has insufficient amounts of iron and other nutrients as milk has already done its duty. This is a good time to include fruits and nonstarchy vegetables into the child's diet. However, this does not mean abruptly ending breast-feeding. Combine the two for as long as seems right for both you and your infant.

I realize that nursing babies for long periods such as three years, as a rule, is not an acceptable act in this culture. Many people will frown upon you and make snide remarks about it being sexual as the child is so old. Don't let this disapproval cause you to prematurely wean your child. Avoid situations and people that make you feel uncomfortable about nursing your toddler. Just remember you're raising your child as nature intended—in the best way possible.

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5. Feeding Solid Foods

Now that your child has most of his teeth, he is ready to start eating the same foods you eat. That is, if you are eating a diet of fresh fruits and vegetables in their raw state.

The best first food for children is fruits. Sweet juicy oranges, dates, figs, raisins, persimmons, well-ripened bananas, etc., are excellent first foods. Show your child how to eat them. Teach them to chew their foods properly and give them only when the child is truly hungry.

Feed them fresh fruits in the summer and dried fruits in the winter. Avoid nuts as these cannot be fully chewed by a small child and they have more protein than a small child needs or can handle. Never give them starches, contrived sugars, or pasteurized milks or other dairy products. Keep their foods simple. Don't combine too many foods at one meal and don't add things such as honey or spices to '"jazz up" their food. Their taste has not yet been perverted and foods, especially fruits, will be delicious to children in their natural state.

Starchy foods such as potatoes, yams, rice, cereals, etc.. cannot be digested by the young child. They lack the salivary enzyme ptyalin, to break clown starches und they cause them much difficulty when eaten. Also, it is difficult for a small child to chew starchy foods properly and totally ensalivate them before swallowing.

Some children will indicate a desire to take foods by the time they're a year old. I have seen infants grab for foods right out of their parents' mouths. My son "scarfed down" watermelon by the time he was only six months old. He did not seem to have any problems handling it as it didn't require much chewing. Swishing it between his gums made it liquidy enough to swallow. Freshly-squeezed fruit juices such as orange or grape juice are good for babies this young also. They may be substituted for one of baby's regular breast milk feedings.

Most children are not particularly fond of vegetables. It is different with each child. Of course, starchy vegetables such as carrots should be held off for the first few years. Some children love greens and sprouts and others will only eat the nonsweet fruits such as bell peppers, tomatoes, or cucumbers that most people consider vegetables. Experiment and see which vegetables your child will eat.

In order for your child to best assimilate the foods he eats, make sure he gets plenty of exercise, fresh air, and sunshine. Keep the home environment free of stress, arguments, and other negativities as this also affects the digestive processes. Give him lots of love.

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6. Feeding Under Abnormal Conditions

Naturally, it is always best to feed the baby with mother's own breast milk but if mother is unhealthy or for some reason no milk is being secreted from her breasts, it is necessary to feed the baby in other ways. Most Hygienists would recommend serving infants under these conditions goat's or cow's milk in its raw, unpasteurized state. Doctors and others will tell you not to feed baby raw milk as it contains bacteria that could cause baby to contract an infection or other health problem. This is not so. Pasteurizing, homogenizing, preserving, and then enriching milk is what creates the problems of intestinal and gastric disturbance when milk is consumed.

As mentioned under the bottle-feeding section of this lesson, animals milks are an imperfect substitute for mother's milk. However, they are better than no milk. In Shelton's article, "Baby's First Years," he states, "I have seen babies who could not handle cow's milk very well who did fine on goat's milk. I have seen other babies who could not handle goat's milk well thrive on cow's milk. And I have seen other babies that did not handle either cow's or goat's milk well who did well on soybean milk. As a rule, babies do not grow as well on soybean milk or other artificial milk as they do upon animal milks "Dr. Shelton recommends feeding them a spoonful of milk at a time and observe how they react. If favorably, gradually add more. If not, try another milk in the same fashion. Remember also never to combine milks with other foods. When milk is mixed with foods, it causes dyspepsia and constipation.

Give the baby orange juice and grape juice at separate feedings in addition to the milk. Make sure they are freshly squeezed to ensure that baby is getting all of their nutrients.

Try making nut milks by blanching almonds, adding distilled water to them (one part almonds to four parts distilled water), and then blending them until no chunks of nut remain. Strain through a clean cheesecloth to remove particles and give to baby on a spoon. Watch his reactions.

Since cow's or goal's milk are specifically designed for the needs of these animals, they are naturally deficient in nutrients necessary to the growth of a human infant. This is why it is imperative that fruit and vegetable juices are included in baby's diet. These provide the minerals, vitamins, and fruit sugars that are lacking in animal milks.

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7. Questions & Answers

How can a new mother tell if colostrum has come into her breasts yet?

> There really is no need to tell except for your own security in knowing it's there. Your baby is getting it if he is sucking. But if you must be reassured that your breasts are secreting colostrum roll your nipple around with your fingers and pinch it gently. The yellowish fluid should come out.

I have known many women who's hair has fallen out when nursing their babies. What causes this?

> I cannot give you a specific cause but as with all ailments and diseases a lack of health due to lifestyle and diet are causative. I would recommend cutting down on cooked, processed, refined, salted, or sugared foods and including more fresh, ripe, raw fruits and vegetables in the diet without sauces and dressings. Get plenty of exercise, fresh air, and sunshine to make sure you're assimilating the foods. Make sure you eat a variety of fruits and vegetables to get a plethora of vitamins and minerals.

I've noticed since the baby's born that my sex drive has diminished greatly. Is this normal?

> Yes, it is normal and natural. Nature worked out a plan so that everything would be perfect. Not only are you getting all of your touching needs fulfilled by your relationship with your baby, but your baby will be healthier without your vital fluids being drained from you. As for your husband's needs—well that's something you will have to work out together. Compassion and understanding are necessary in this case.

I know it's best for my baby to be breastfed, but I'm feeling very inhibited and concerned that the baby's sucking at my breasts will sexually stimulate me. Do other women experience these feelings and if so what do they do about them?

> Many women have inhibitions such as these and it is mostly because our society sells breasts as play things for men rather than what they truly are—for feeding of infants. When the baby is born, your natural instinct to nurse will come and your breasts will no longer feel like sexual objects. Your baby's needs will transcend sexual needs or desires.

What if I am six months pregnant and my first child who is two-and-a-half years old is still nursing? Will my unborn child be deprived of nutrients?

> If you are making sure that your diet is well-balanced—that is, it contains a wide variety of raw fruits and vegetables, with nuts included, then chances are it will do no physical harm to the baby. You also need much more rest than normal and light exercise, fresh air, and sunshine. However, the older child may become very jealous when the new baby comes if you suddenly wean him. You need to cut down gradually on your child's intake of breast milk and substitute other foods and juices so that by the time the baby comes he will be adjusted to not receiving as much milk as often. You also need to explain to him in as simple terms as possible that a new baby is coming and will be nursing often. You can nurse them both for awhile as long as the older child is not nursing very often—perhaps once a day or so.

Article #1: Simplicity of Infant Feeding by William L. Esser

Infants are submitted to a shocking array of foodstuffs and formulary in an effort to find just the right thing to make them fatter and supposedly healthier. Apprehensive parents and physicians are wont to rush from one "formula" to another, from one baby food to another, from one "lacto" something or other to another, in the desperate hope that they will find the magic panacea that will quiet the wailing babe and make it grow with rosy cheek and gurgling happiness.

The amount of money spent on expensive patented and prepared "baby foods" is vast. Nothing is too good for baby (or is nothing too "bad" for baby?) What a roundabout and torturous way to have a healthy baby. The farmer's wife will travel long miles to the big city to see her child specialist and to buy her baby's' formula in the drug and grocery stores while she has all the essentials within and around her for a healthy child.

We have frequently mentioned the importance of the pregnant woman's eating and living correctly to ensure normal birth and the ability to have rich, nourishing milk for her infant. We have also stressed the wisdom of having the baby at home at the hands of a midwife or an intelligent understanding doctor versed in the Hygienic method of delivery who avoids the use of drugs anesthetics, etc., not conducive to the health of mother and child and deleterious to the function of lactation.

It is pitiful to see well-built comparatively fit mothers unable to nurse their children, feeding them unwholesome, devitalized, demineralized substances deceitfully called foods. The female of each species of animal is best suited by nature to supply its young with the most perfect food for its normal and vigorous growth. No other animal can supply an equally good substitute. The young of the human animal have not as yet evolved to such a doubtfully happy position that they can thrive as well on substitutes whether they be of cows, goats, donkeys, or some unappetizing vegetable strewed to death in the snow white kitchen of a pickle factory or a chemist's scientific laboratory.

Dr. H. M. Shelton, in *The Hygienic Care of Children* quotes an eminent woman specialist as saving: "The finest and most important duty of motherhood is the breastfeeding of her baby. Next to the right of every child to be well born comes the right to his best food, his own mother's breast milk. Mother's milk is the perfect infant food; it cannot be imitated; and anyone who advises a mother differently is guilty of a serious crime against a helpless baby. When a baby is denied his mother's milk and put upon a bottle, he loses half his chance to be kept alive and nine-tenths of his chances to grow up into a normal healthy man or woman."

A mother who deprives her baby of this most vital link to a joyously vibrant life is to be pitied and shamed for her selfishness or ignorance. Nursing should be carried on for two years or more, not three weeks. Three weeks is the extent to which most hospital mothers can nurse their children. Then the milk dwindles away. They should fear hospitalization if they wish to nurse their baby and avoid disease, plus the pains of sleepless nights and worry.

Mothers should nurse their babies, but should prepare for it throughout pregnancy. An adequate diet of fruits, nuts, and vegetables properly balanced and combined will supply the needs of her own body as well as for the making of good nutritious milk.

If a nursing baby does not have a slow, gradual increase in growth and general aptitude, it is an indication that the mother's and child's health is being undermined because of an inadequate diet. The proper nourishment must immediately be introduced to the mother, otherwise the baby will have to be removed from the breast.

There are "students" of various health movements and reforms, who, having brushed against the skirts of Hygienic philosophy, seem to be of the impression that they have thereby become lay authorities on health and its laws. Frequently children and friends are made to suffer from nutritional deficiencies because of their half information. Mother's milk is the finest, the most perfect food for children—if—mother is in good health. If she is in very poor health, baby should be removed from the breast.

The baby may and should have supplemental feedings of undiluted orange or grapefruit juice within several weeks after its birth. Given two ounces at first the amount should gradually be increased over the following months until it may be given from six to eight ounces by the time it is eight months old. Oranges selected should be ripe and sweet. Sugar or other things should never be added to any fruit juices.

No more should be given regardless of generous feedings incited by baby's smiles or cries. Young puppies are constantly seeking out the mother to suckle, but the female dog only permits them to eat when instinct allows, otherwise they must exercise firm control throughout the infancy and youth of her children, else they will easily develop the glutton habit.

Baby should be permitted to empty both breasts at each feeding. It should require only ten minutes to accomplish this. Complete emptying ensures full meals at each feeding. If the mother's milk is unfit for her baby, the next best food adapted to the young digestion is goat's milk taken from a group of healthy animals. Three-, four-, or five-ounce feedings for the baby will be enough. At the sixth month, the quantity may be gradually increased six to eight ounces by the ninth month. When goat's milk is not to be had, clean cow's milk may be used. Milk should be diluted with equal parts of distilled water until the sixth month. Thereafter, one part water to two parts milk.

The controversy over raw or pasteurized milk goes on and on between the phantoms of the laboratory and the naturalists, but the facts remain the same. Recently a test was conducted in New York on a group of babies. One group was subjected to pasteurized human milk and the other to raw cow's milk. The ones given the raw cow's milk were superior in growth and I.Q.s to those who were given pasteurized human milk. Had the human milk been raw and from healthy mothers the result would have been the reverse.

Pasteurization is a process which submits the milk to a temperature of from 130° Fahrenheit to 160° Fahrenheit for a period of from ten to thirty minutes reputedly to destroy all harmful organisms. In destroying the organisms, it also destroys the vitamins and nutritive qualities of the milk.

After the first few months other fresh fruit juices such as grapes, figs, berries, etc., may be given in the same amounts as the orange and grapefruit juices.

Milk or fruit juices should be prepared immediately previous to feeding and not for the whole day's schedule. Food quickly loses nutritional value when prepared in advance. Room temperature is best for all foods given to the baby. Fruits should be left out of the refrigerator for a time previous to the feeding. Milk in the bottle should be immersed in a utensil filled with warm water to remove the chill, not poured into a pan and heated over a flame.

Nipples and bottles should be well cleaned after use but the superstition-inspired measures of sterilization are unneccessary.

So often repeated that mentioning should be unnecessary, we wish to stress the importance of not feeding the baby at night and of not awakening it at any time for a feeding. This will cause restlessness, rob the baby of sleep, and promote gluttony.

How adults love to watch baby's reaction when they offer it a foreign food! The digestions of most children suffer one outrage after another as fond papa, uncles, aunt and friends offer the helpless little life anything from drumsticks to pickles, cigarettes to coffee, and beer to salted peanuts. No doubt it is "cute" to watch the little one's face distort into amusing expressions but in addition to being "cute" it is also stupid, poisonous, and criminal,. Infant's arid children do not crave or desire these things. Adults seem to believe that the little innocents are born with the depraved habits which are theirs. Their bodies are still clean, pure, and undefiled. They are potentially strong, vigorous, and noble. Why offer them candies and ice cream? Why give them spoonful of the food from your own plate? Why coax them into eating rubbish that will destroy the beautiful handiwork of nature? If a man purchased a thoroughbred dog, horse, or livestock he would be most cautious about every ounce of food given to the animal and would sue the man that fed him otherwise. He would no more think of offering the creature beer to drink or spaghetti to eat than he would to feed him a dose of poison. Yet his own child, which should be far more precious to him, he treats as badly as a little boy does a grasshopper or fly as he plucks out wings and pushes needles through the squirming body.

Infants should not be fed if they do not take the feedings willingly and eagerly, they are sated or indisposed and the meal should be omitted. If a fever is evident, nothing but water should be given for a day or two. Every time a baby cries it is not hungry. Look for other causes.

Infant feeding is simple and must be kept so, otherwise the usual diseases of children will be developed. Forget the cereals, the drugstore pictures of fat, adenoidal babies, the strained vegetables, and feed the newborn babe the natural, wholesome, effortless, simple way which nature outlined far back in the dim recesses of time. It is a famous and proven recipe!

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Article #2: Indigestion in Babies by Dr. Herbert M. Shelton

I receive frequent letters from anxious mothers asking what causes indigestion in their infants (under two years) and what they can do about it. Indigestion in children under two seems to be very common.

Let us try to answer the first question: what causes it? Nerve energy is functioning power and anything that lowers nerve energy and brings on enervation will cause indigestion. Excessive play, overexcitement, overindulgence, overeating, eating between meals, eating when tired, or when excited, starch eating before the end of the second year, being tired from outings, neglect of the afternoon nap, being overheated, or chilled, drugging and anything that will use up nerve energy excessively may result from too much juice being fed the baby. Some mothers seem to want to drown their babies in juice.

The first symptoms of indigestion are "nervousness," irritability, bad breath, bloated bowels, coated tongue, cold feet, constipation, colic, hives, sleeplessness, grinding of the teeth in sleep, drooling. Babies are always irritable and cry easily when they have indigestion. There will be undigested curds in the stools and often foul stools.

Teething does not cause indigestion, but indigestion may result in difficulties in teething. There can be no doubt that teething, which is normally a painless and unnoticed process, can be very painful in sickly babies. The gums may become inflamed and painful, the baby will cry and fret and its digestion will be upset still more, but the basic cause of the indigestion, which is the forerunner of painful teething is enervation.

What can be done about indigestion? Remove the cause. How? Stop the overfeeding. Cease overexciting the baby. Discontinue feeding it between meals and at night. Cease feeding starch and other foods which it is not physiologically equipped to handle. Give it less juice. Stop over-bathing it. Dress it more warmly or less warmly, as required. Do not permit it to overplay. Give due attention to its afternoon sleep. Give up the drugging.

Mothers want to know what they should do immediately, when the baby has indigestion. The care required is simple. Put the baby to bed with something warm at its feet. Let it rest and keep quiet until it is normal. Often within twenty-four hours the baby will be able to eat. If baby wakes up smiling, in good humor and with a sweet breath, it is ready to be fed. But, if it wakes up crying and irritable, with pungent breath and white lines (lines of stomach irritation) around the mouth and nose, complaining of discomfort, the fast should be prolonged for another twenty-four hours. Indeed this program should be continued until the baby is normal, even if it takes several days. Mothers are usually in a hurry to feed and by feeding prematurely, they prolong the indigestion. Give the body an opportunity to get rid of the surplus food, toxemia, and to restore functioning power.

When baby is ready to resume feeding, the food should be a little fruit juice—orange juice, fresh tomato juice, or other fresh fruit juice in season (I have used watermelon juice, canteloupe juice, papaya juice, peach juice, apricot juice, plum juice, pear juice, apple juice, etc.) which may be given every three hours. If the baby goes through this first day of feeding comfortably and rests well through the night, the next day regular feeding may be resumed, giving but about one-third what had been previously given. In one or two days, if the baby continues to do well, the amount may be increased to half the amount the baby had been in the habit of eating. After another day or two a full diet may be resumed. By a full diet, I do not mean the diet conventionally fed to babies, nor do I mean a return to the prior overfeeding and feeding between meals.

Until the baby is two years old it needs and should have no other food but milk and fruit juices. The best food in the world for the baby is its own mother's milk. There is no adequate substitute for mother's milk. Baby is physiologically unequipped to chew and digest starches before the age of two years and starch foods should not be given before that age. Indeed, baby is not equipped to chew solid foods until it has a mouth full of teeth and, normally, a full set of deciduous teeth is developed at 24 months.

Mothers and others who care for children, whether under or over two years of age, should be able to recognize the symptoms that precede, accompany, and follow indigestion, constipation, gas, distention of the bowels, excessive urination, a gradual growing state of dissatisfaction, white curds in the stools of milk-feeding babies, hard stools, etc. It should be known that white curds in the stools indicate that the baby is getting more milk than it can digest. It is being overfed. Mothers should not wait until the child is pronouncedly sick before doing something about this. Cut down the milk one-half and continue this feeding program until the bowels are moving regularly and the stools show a normal consistency.

When the baby is obviously taking in adequate amounts of milk and there are still curds in the stools, it means indigestion. The indigestion must be remedied before more milk is given. Unfortunately, our love of feeding and fondness for "butter balls" causes us to want to overstuff babies at all times. If a baby is not gaining weight or if it is losing weight, we tend to become frantic and fly to extremes.

During the hot months, constipation often fluctuates with diarrhea. The diarrhea is the means of expelling the accumulation in the bowels. Some children will have both vomiting and diarrhea. The care in these cases should be the same as that previously described. Put the baby to bed, stop all food, and keep him/her warm. No food is to be given until all indications of diarrhea are gone. If there is pain in the abdomen, hot application to the abdomen may be used for relief.

I do not advise water for infants during the first year of life. So long as their diet is all fluid—milk and fruit juices—there can be little or no need for water. But, when the child is going without food, all the water it desires may be given.

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Article #3: The Long Nursing Period by Dr. Herbert M. Shelton

Recently a woman called the Health School from a distant city to make arrangements to come here for a fast. She stated that she was nursing her four-year-old son. Although, historically, the long nursing period has dominated human infant feeding until very recent times, such a long nursing period is at present considered an oddity. Under the able tutelage of physicians, pediatricians, the dairy industry and the manufacturers of canned baby foods, mothers of today tend to regard nursing their infants as an activity that belongs to lower stages of culture. They do not think of actively nursing their babies as a biological function, but as a mere cultural activity.

In the Renaissance, French upper-class women refused to breast-feed their babies. Not having cows as substitutes for mothers, they secured wet nurses, commonly young farm women, to nurse their offspring. This is not the first historical instance in which women have found it beneath their dignity to nurse their babies A leading Chicago pediatrician recently stated in a radio interview that in some parts of Africa, in which the people have been recently introduced to civilization, malnutrition in infants and children is on the increase due to a change in the infant-feeding pattern. As these countries become more civilized, he stated, mothers identify themselves with their more affluent counterparts and are turning away from breastfeeding.

Contrast this attitude and practice with that of the ancient Egyptians, among whom it was the custom to nurse their babies three or more years. Among these ancient peoples, declared by some students of the subject to have been the healthiest people that history records, even the goddesses nursed their young, as revealed by the fact that Isis nursed the baby Horus. Statues of the infant Horus drinking her milk and gazing up admiringly into her eyes may be the original Madonna and Child. Among a people whose goddesses do not find it beneath their dignity to nurse their offspring, those mothers who refused to do so must have been quite rare.

In *The Hygienic Care of Children*, I stressed the principle that the nursing period bears a definite relation to the time required for the young mammal to attain maturity. Animals that grow rapidly and mature early, as a rule, have short nursing periods; animals that grow slowly and mature later, as a rule, have longer nursing periods. There are exceptions to this rule, found largely among carnivorous animals. It is a significant fact that the young of carnivorous animals are more poorly developed at birth than the young of vegetarian animals, are likely to be born blind, and pass through a period of helplessness.

The female walrus suckles her young for two years, or until their tusks are long enough to dig for clams. This is an example of how young mammals are nursed until their anatomical equipment is sufficiently developed to enable them to eat other foods. Baby gar seals are weaned during the third week after birth, as the cows again take to the sea. They must now feed themselves. For the next two weeks they do not eat, but rely upon their accumulated food stores. Becoming hungry, they take to the sea and learn to find food.

The elephant matures at 14 years, but is ready for mating at 11 or 12 years. The usual range of life of the elephant is about 50 to 60 years. The young elephant sheds its milk tusks five or six months after birth, but continues to suckle for another two years. The young stay with the mother three to four years, perhaps sucking most of this time. Indeed, up to the age of five, the trunk is of little use to the young elephant; but at this age the youngster begins to gather grass and ceases to depend upon its mother's milk.

Man grows slowest and is longest in maturing of all the animals. We should naturally expect to see the normal human nursing period to be a rather lengthy one. And, indeed, it has been lengthy throughout recorded history until within the lifetime of many now living. Sixty years ago it was not unusual for mothers to nurse their babies for two, three, and four years.

An old book, *A Description of Pitcairn's Island and Its Inhabitants*, tells us that the women of Otaheite sometimes do not wean their babies for three to four years. The Dyak women, chopping wood and tending fires, while their husbands are out hunting, are still perfectly capable of nursing their offspring, whom they suckle until they are two to three years old. Aztec children were weaned in the third year.

The Spanish explorer, Cabeza de Vaca, who spent a few years among the now extinct Karankawa Indians who inhabited the coast, offshore islands and a narrow strip of mainland South Texas, from the west side of Galveston to Corpus Christi, tells us that they nursed their children until they were 12 years old, because, as they explained, it was frequently necessary to go without food for several days and the children had to be suckled for a long time. These food gatherers, living in a land where food was not abundant and wandering from campsite to campsite as the food supplies of one region were exhausted, seem to have often been short of food.

This may be accepted as an example of the manner in which the nursing practices of mankind have been determined by the exigencies of life. Where food has been plentiful and its character such that very young children could eat it, the children have been nursed for shorter periods; where food was scarce, often lacking entirely, and coarse, hence unsuited to the very young, the nursing period has been prolonged. Fortunately for these children, primitive women have been able to provide milk for their young. They have not called upon milk animals to substitute for them.

It may be reasoned that because in modern life food is abundant, of great variety, and our means of preparing it far beyond anything the primitive mother ever dreamed of, we are justified in reducing the nursing time of our infants to a bare minimum or in omitting nursing altogether. But inasmuch as no substitute for mother's milk has been found that equals it in meeting the needs of the human young, it seems that there is an irreducible minimum of time during which all babies should be nursed. Nursing is not only a nutritional must, it also possesses psychological value for which no adequate substitute has been found.

The foregoing fact was early recognized by Hygienists. Dr. Thomas Low Nichols gave expression to it when he said: "The best food for an infant is the milk of a healthy mother. The mother's love strengthens her babe, and their lives mingle in the act of nursing. A mother gives much more nourishment than her milk. She gives of her nervous power, her vital force, her heart and mind and soul." That there is any transfer of nerve energy or of vital force from mother to baby is extremely doubtful, but that the mother gives of her heart, mind, and soul, in that she gives the baby her love, comfort, a feeling of security and a feeling of belonging is now coming to be recognized by orthodox psychology.

During uncounted ages, antedating nursing bottles and nipples, the first sustenance the newborn baby received came from its mother's breasts. This is still the best source of nutriment for the human infant. There is another and, I think, fundamental question I should ask in this connection, namely: what are the results of breaking the normal sequences that have been established in nature? Pregnancy and birth are normally followed by a prolonged nursing period. When a woman fails to nurse her offspring, this normal sequence is interrupted. There must inevitably be unwanted consequences of this break into the normal order. A study of such consequences, if it were possible under present circumstances, might reveal some connection between woman's failure to nurse her babies and the increasing prevalence of breast cancer. It might also reveal a connection between this break in normal order and woman's nervous troubles.

Many women complain that they are unable to nurse their children. In most cases, it seems to me, this is merely a camouflage for her refusal to do so. I believe that most women can nurse their babies for prolonged periods if they really desire to do so. Life is hard in *primitive* societies and food is often scarce, but these mothers succeed in nursing their babies and children for a few years. Life has always been hard among the masses of mankind, yet peasant women, doing hard work in the fields, have throughout history nursed their babies for two, three, and four years. In many instances they have nursed their own baby and that of another woman.

When a woman's own mammary glands refuse to secrete food for her offspring, it is high time we stop and ask a few serious questions. Why are women so defective that they cannot secrete the essential food of their young? What has happened to them that the race could not survive except for the assistance of the cow or goat? If tomorrow all the milk cows of the land were killed or were to cease producing milk, hundreds of thousands of babies would suffer for lack of food. Many of them, no doubt, would perish. This is a precarious position for any species of animal life to find itself in. Is it possible to restore the human breast to full functioning power? If not, must the human race be forever be the unweaned parasite of the cow?

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Lesson 57 - Weaning The Infant; Feeding Children

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- Article #1: Feeding Your Child From Two to Three Years By Paula Duvall

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1. Introduction

Throughout history and in most cultures women never thought to stop nursing their babies until they are *both* emotionally and physiologically ready. It was natural (and still is) for a child to be nursed at least two or three years—until all their teeth have developed.

Until the advent of modern technology (bottles, blenders, baby food grinders, etc.) babies before about the age of two or so were fed only mother's milk. No other food was necessary nor was it available. Baby was unable to chew foods without teeth and mother had not the tools to make the food pureed.

In recent years doctors have advised mothers to feed solid foods to their babies younger and younger. They have told these mothers that their milk is inadequate and babies will have nutritional deficiencies if they don't stop nursing immediately and start feeding abominations as pureed meats and vegetables (cooked); cooked, enriched cereals; cooked, pureed fruits; etc. Mothers followed this advice and ended up with insecure, overweight, dyspeptic, and sickly babies.

But now, amongst more educated women, the trend is going back toward the natural way of raising our children. Women nurse their children for longer periods and wait until the physiological signs (teeth) and emotional signs (willingness to give up the breast) occur before totally weaning their babies.

In the last lesson I covered feeding baby as well as nursing before actual weaning. Now I will discuss totally weaning the baby from the breast, how to do it, why to do it, as well as feeding a child once it is totally weaned.

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2. Weaning

In his book, *Hygienic Care of Children*, Dr. Herbert M. Shelton said, "Weaning should be gradual, as we see it in nature, beginning at the age of two and lasting at least until the third birthday." If weaning is abrupt, it is no longer natural as no other creatures who suckle their young would suddenly cut them off. Babies need time to adjust to new foods as well as to emotionally adjust to not having the close physical contact with their mothers any longer. Also, women's breasts would become swollen and sore if they abruptly stopped nursing—they would become filled with the milk that was meant for their babies. Another problem with sudden weaning is that the natural child-spacing effect breast-feeding creates would be halted.

In the book *The Womanly Art of Breast-Feeding* by the La Leche League, the philosophy of weaning is to let the baby do it—let him nurse until he wants to stop. A mother should be sensitive to the specific needs of her baby and not follow the rigid guidelines of any book. Just as some babies get their first tooth at only five months old and others not until they're well over a year old, some are ready to wean at younger ages then others.

2.1 Should Baby Be Weaned?

This is a question asked by Dr. Shelton in his book, *Hygienic Care of Children*. He discusses the various reasons women have for weaning their children. He claims that most of the reasons are invalid and that babies need not be weaned at all until they are ready to. In other words, when the baby is six or nine months old or even a year old, he or she is most likely not ready to be weaned and should not be if superior growth and development is desired.

2.2 When to Wean

Naturally there is no specific date to wean your child. As I mentioned earlier, each individual child has its own needs and each grows and matures at different rates. You need not decide in advance when to wean. For example, most mothers when asked how long they plan to nurse their babies have an exact age in mind. Usually this date ends up passing and the baby is still nursing. The mother then wonders where she went wrong. I had planned to nurse my two sons for only two years and each one went months past that date. In fact, they would have nursed much longer if I had let them. Planning a time when baby and you will be ready is incorrect and may lead to disappointment or abrupt weaning. Let nature judge when the time is right.

But how will I know how to read nature's signs? When the time comes, your baby will let you know. This may be quite a bit later than you anticipated so you may wonder if there will ever be signs to know when to wean. But if you're patient, they will come. He/she will show an interest in food and this interest will gradually increase with his/her needs.

There is in our western culture an unacceptance of children nursing for two or three or perhaps four years. If you're out in public and your toddler expresses an interest in nursing and you nurse him, people may show disapproval in their facial expressions and comments. Ignore them if possible. Your breast-feeding relationship with your child is based upon your mutual needs and the opinions of others are not as important as you and your child's welfare.

In other cultures where lengthy breast-feeding is acceptable and weaning is done in a relaxed way children grow up to be gentle and agreeable and more well-adjusted. People may suggest that your baby will be too dependent if you nurse him too long but just the opposite appears to be so. La Leche League has shown that "little ones who have been allowed to grow out of nursing gradually and at their own pace, without anxiety or prematurity on the part of the mother, are happier, *more* independent little people."

Dr. C. E. Page in his book *How to Feed the Baby* explained that if a breast-feeding mother had fed her baby properly of breast milk, there would be little problem with weaning. He says, "They are virtually weaned already; for not being excessively, or too frequently, fed, the appetite will be sufficiently healthy to accept needed food whenever, and however presented."

In choosing the proper time to wean Dr. Page also says: "There are good grounds for preferring the cooler months of the year for weaning from the breast, and in general I would recommend an observance of this rule, though I do not hesitate to say this is less vitally important under the system herein recommended ..." Dr. Page did not give any specific reasons for this, however.

Many people in this country still recommend early weaning from the breast. In the book, *The Complete*

Book of Breast-Feeding, it is said, "At six months of age, the baby in a modern industrialized society can meet his nutritional needs through cow's milk and a wide variety of solid foods. ... After nine months, a nursing mother usually produces less milk and her let-down reflex takes longer to operate. ... at about nine months of age, when a baby can crawl around after food, has several teeth to chew it with and has the intestinal maturity to handle a diversity of foodstuffs." This is not good advice.

First of all, most babies (and adults) cannot properly handle cow's milk because they lack the enzymes to digest it properly and it is naturally for calves—not people. Second of all, nursing mothers naturally produce more milk as their babies needs increase. I, for one, produced just as much milk for my babies well past their second birthdays. Nursing is a supply-and-demand mechanism and, if you nurse regularly, and eat right of course, there will be, plenty of milk for your baby. It's when you start feeding your baby more and more solid foods that your milk production slows down.

Another falsity of this statement is that babies do not "crawl around after food." It is true that they put many things in their mouths but not necessarily for nourishment. This is their way of exploring various objects they come into contact with.

Having several teeth does not allow the baby to chew things very well either. Most of their food would have to be pureed in order for them not to choke on it. This, in itself, is unnatural. (Certain foods, however, do not require much chewing, such as watermelon which when the seeds are removed baby can merely squash with his/her gums and swallow.) Babies at nine months of age do not have the "intestinal maturity to handle a diversity of foodstuffs." Why do you think so many babies have "allergies" to so many fine foods at this time? They are not ready for them, that's why.

Basically, good advice as to when to stop nursing your baby completely is when he/she has all teeth and seems to enjoy the foods (preferably fruits) given. If the foods he/she eats, digest without causing the baby any discomfort, then baby is ready and nursing can be replaced with foods—gradually of course.

2.3 Why to Wean

The foremost reason to wean is because baby is ready for solid foods. He indicates an interest in foods and exhibits an ability to handle them. Gradually the child comes to ignore mother's milk.

As mentioned earlier, some women feel the need to wean because of social pressures. A child may be weaned from the breast prematurely and still have the need to suck. Therefore a bottle may be given. But is it any worse for a toddler to be nursing at the breast than it is for him to be running around with a bottle hanging out of his mouth?

If baby is going through emotional adjustments, such as a major move of the family, divorce of his/her parents, etc., it is best not to wean. He/she needs time to adjust to one new situation before being confronted with another.

Other reasons to wean are justified. For instance, if the mother has an acute or chronic disease that may impair the quality of her milk, it is best to feed whole, natural foods than to continue nursing.

If you should become pregnant again, immediate weaning is unnecessary. This is usually advised because it is too much of a drain on the mother to nourish two others besides herself. But, if mother is eating whole, natural foods and taking care of her other basic needs, she should have no difficulty in nursing well into the pregnancy. You can begin weaning early in the pregnancy so that by the time the second baby is born the first one will be completely weaned from the breast.

To sum up this section: baby needs to be weaned from the breast because he/she needs outside sources to obtain nutritional needs. The child needs to make gradual adaptations to these physiological changes. The only other reasons to wean are abnormal as mentioned above.

2.4 Methods of Weaning

Again, do not abruptly wean. Gradually wean baby from the breast. But how, you say?

Eliminate one breast-feeding at a time and replace with a serving of fruits—fresh, ripe, and raw and in a form that baby can properly handle. For example: say baby normally has four breast-feedings a day—one in the early morning upon arising, one in late morning, one in mid-afternoon, and one in the evening. Eliminate the late morning nursing and serve him/her some sliced bananas, a piece of deseeded watermelon, or some other fresh fruit in season. Stick to this schedule for at least a week or two.

Then eliminate the mid-afternoon feeding and replace it with a solid food. Stick with this schedule for a long enough period for baby to adjust to it. Remember not to introduce too many different foods to baby too quickly. Variety is not necessary. If he/she is truly hungry, the mono-meal of the same fruit each day will be relished and he/she will have time to adjust to the new food before another is tried.

It is important to remember not to refuse the breast during these early replacement feedings. Just don't offer it. Baby may fuss and refuse the foods offered. Try skipping this feeding—no food or breast milk.

If this seems too traumatic for baby, perhaps he/she is not ready to give up this breast-feeding. Try again at a later date.

A hint in deciding which feeding to eliminate first is to watch your baby and see which one is least interesting to him/her. Eliminate this one first. Continue, gradually, in this manner until he/she is completely weaned.

Be flexible in your weaning. If it seems to upset baby too much, wait a while. Also remember never be abrupt about it. This can cause psychological problems in your baby and also discomfort for you from milk pressure in your breasts.

La Leche League adds: "You will find that if you devote your attention to your baby-child not only when he is nursing but in other ways as well, his demand to be nursed lessens. ... Even an eighteen-month-old enjoys being read to or just talked to, not in an absent-minded, distracted way while you are preoccupied with other things, but with your whole attention centered on him." This is good advice. Distraction works with many things as well as weaning in raising your children.

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3. Feeding Children

This period of feeding children after breast-feeding is one of the biggest changes in infancy. It is the mother's responsibility to see to it that the child is properly nourished and develops good eating habits. Before this time, it was easy—all mother had to do was put her baby to the breast. Now she has to provide the proper foods at the right times so that baby can make best use of them and be healthy.

3.1 When Is Baby Ready to Eat Solid Foods?

As mentioned in the earlier parts of this lesson, when baby has all the physiological tools necessary to chew and digest foods properly, he is ready for food. He is also ready when he shows an interest in foods and a disinterest in breast milk. Baby, when gradually introduced to new foods, will eventually be completely off breast milk and have a regular diet just like the rest of the family.

Many books on the subject of infant feeding will tell you how to feed your infant solid foods and what foods to feed them and in what form, "infants," however, do not need anything other than breast milk.

When baby is ready, there will be no need to spoon-feed him/her. This is clumsy and messy because baby is not really ready for it. In fact, most of the conglomerations or purees, cereals, etc., end up spit out by the baby because his/her senses have rejected them.

In *The Complete Book of Breast-Feeding* it is said that "an easy way to provide a balanced diet is to take advantage of the many strained baby foods on your grocer's shelves. These are prepared under strict Hygienic conditions and are extremely convenient to use." This is pernicious advice.

First of all, I wonder if the author visited the factories at which these "foods" are prepared to prove they are prepared under "hygienic conditions." Secondly, these foods are generally unfit for the human diet. As well they are cooked with sugar, salt, and preservatives added to enhance flavor that was taken away by the cooking process. If baby has to be fed his food on a spoon by his mother, then he is not ready for solid foods. When he is ready, he will be able to hold a food in his hands and chew it. These foods are often called finger foods. Give your child a piece of banana or some other raw fruit and see if he can handle it or if he merely plays with it or throws it on the floor. This will determine readiness.

If baby is prematurely introduced to solid foods, overfeeding can be the result. He is only used to sucking. The mechanical motions of chewing food are much different and require a period of adjustment or changeover.

Food "allergies" are not so much the result of the food not being right for that particular baby's constitution as they are the result of introducing foods too early. Baby is not allergic to the food but instead does not have the digestive enzymes to sufficiently break down the foods being given. Therefore, he/she naturally rejects it. Wait—do not force food on your baby when you think he/she is ready. He/she will let you know.

3.2 Baby's First Food

What should baby's first food be? Experiment. Some babies love bananas, some watermelon, some peaches, etc. Try one fruit at a time but never more than one at a time. Once you find a fruit your baby enjoys, stick with it for a long enough period for your baby to get used to it. Also give only small amounts at first.

Never be in a hurry to try new foods. If he sees you eat something and seems interested, let him try it (provided it is wholesome). Fruits are naturally the best first food for baby as humans are natural frugivores. The baby is already used to the sweetness of mother's milk and will accept fruits before vegetables. In fact, it is a rare child indeed that even enjoys vegetables. Their taste for vegetables has to be "cultivated."

You need not worry about deficiencies if your child won't eat vegetables at first. Once he is used to a wide variety of fruits, serve him these, one at a time, and he will get a variety of nutrients.

You can add vegetables later. Many children like carrot juice as it is sweet—try this. But not too soon, as carrots are starchy vegetables and children before the age of about two do not have the physiological tools necessary to digest starches. Starch merely ferments inside them and causes indigestion and discomfort. Stick to foods that are easy for him/her to digest—namely fruits.

As the child gets older, about five or so, you can add nuts and seeds. Before this it is difficult for baby to properly masticate nuts and, therefore, they're difficult to digest. Wait on these. The article in this lesson, "Feeding Your Child From Two to Three Years," is very helpful in suggesting particular menus.

3.3 Developing Good Eating Habits

Good eating habits are the most important aspect of diet. If a child learns these when young, they will carry over into adulthood. Good eating habits begin with breastfeeding which is totally up to the mother. She needs to breast-feed him only when he is hungry and only in the proper amounts necessary to sustain him. A fat baby is a sign that poor eating habits are already being established.

Many parents try very hard to feed their children right at home but have a difficult time getting others to accept their rules of feeding their children. For example: some mothers might send their children to their grandparents' house for the weekend and grandma feels they're being deprived by not being allowed to have candy. She gives them candy, cookies, cakes, etc., to supply this "deprivation" and gets them hooked on these. She is not respecting her daughter's or son's wishes to raise a healthy, well-developed child. Perhaps it would be best to allow your children to be with their grandparents only when you are there. Of course, it is impossible to protect your children from all the evils ("foods") that are about (and screaming out at them through the media) in this society, but if you teach them good habits and why they need to eat right and if they respect you, they will follow your rules. (See Lesson Fifty-nine on "Teaching Your Children About Healthful Living.")

There are some rules to follow to assure your child is getting good nourishment:

1. Never add salt, sugar, honey, etc., to any of their foods.
2. Only feed natural, uncooked, unprocessed foods to your child.
3. Teach them not to drink with their meals. On a proper diet they will not want to anyway.
4. Teach them how to properly combine their meals for best digestion if more than a single food is served.
5. Feed only three meals a day, and don't allow them to eat between meals.
6. Show them how to chew their food well.
7. Have only natural foods in the house so they will not be tempted by others.
8. Keep meals simple—don't combine too many things at once.
9. Do not stuff your child—feed only moderate amounts of food.
   A child usually refuses natural foods when he/she has had enough.
10. Provide a calm, relaxing environment for him/her to eat meals in.
11. Teach him/her to sit and relax while eating.
12. And most importantly, show a good example. If you're eating all sorts of wrong foods, it will be very difficult to teach your child otherwise. That is cruelly hypocritical!

Dr. Tilden has said, "Fit children to the food and never attempt to fit the food to the children." This means that a child must learn good eating habits by your example and words. If a child does not like a certain food, do not force him/her to eat it. There are plenty of good foods available and missing one particular item of food in his/her diet will certainly not create any sort of deficiency. Never force your child to eat anything.

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4. Conclusion

Now you know that weaning your child from the breast should be a positive and gradual experience for you and your baby. He or she will be more well-adjusted and more likely to learn good eating habits. The best time to wean is when your child is ready. He/she will let you know when that time comes—you merely have to be observant. A full mouth of teeth is a good indication that whole foods are needed and that by now your milk supply is probably lessening. Experiment with fresh fruits and keep them simple—monotrophic. Follow the rules for good eating habits and you should have a happy, healthy child.

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5. Questions & Answers

My child is already two years of age and does not seem interested in food at all. He is very thin and his front teeth are brown and pitted and all he wants is breast milk. I feel he has a deficiency of some sort because of his teeth but he won't eat. What can I do?

> Try improving your diet. Watch what you eat. Eat fewer empty foods and more whole, fresh fruits, vegetables, nuts, and seeds—all raw. Try to remain relaxed and poised as much as possible as stress can deteriorate the quality of your milk.
>
> It is unusual for a child of your son's age to not be interested in food, but believe me, he will eventually be and when he is, you may not be able to turn off his appetite. Don't worry. Nature has it all worked out. Just do your part.

My child is 18 months old and I no longer enjoy nursing him. I feel like I should continue to do so but I don't want to. Would it be right to wean him so young?

> It is better to wean him at this time than to nurse him out of guilt. He can pick up on your feelings and this could affect him psychologically. It is best to nurse him longer, however, in your case to gradually—and gently—wean him would be acceptable and perhaps the best thing to do. Use the methods for weaning that I've described in this lesson and you should have no problems.

My child is one year old and I've recently introduced her to solid foods. I started with bananas and she loves these. She seems to have no difficulty digesting bananas but her stools are very sticky and harder than before. Does this mean she's not digesting the bananas thoroughly?

> No. Her body needs time to totally adjust to the eating of foods. All she ever had is mother's milk and bananas are new to her—anything that's new requires time to adjust to. Her stools are naturally going to be of a different consistency than when taking only breast milk. Her stools will probably never look like that again. However, they will be less sticky and softer when her body has accommodated to eating foods not as liquid as milk.

I have a six-year-old son who just won't stick to only natural foods. He's influenced by the other kids at his school and they all eat what's advertised on T.V. What can I do?

> The best you can do is to provide him with the best of foods at home and show him a good example by keeping good eating habits yourself. Try to expose him to other children that are being raised Hygienically and don't allow him to watch so much (if any) commercial television. Give him positive reasons why he should eat good nourishing foods.

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Article #1: Feeding Your Child From Two to Three Years by Paula Duvall

When your baby is two years old, you can start feeding it whole fresh fruits and vegetables, in addition to breast milk. This transition period can be a difficult time, and I would like to share with you my experiences that I have had with our two children.

First, let's review some very important rules to follow that are covered in Dr. Shelton's book, *The Hygienic Care of Children*. It is important for you to understand that you cannot decide what food you would like your children to have; you must feed them foods that agree with them and keep them healthy. Some important basic rules, including food combining rules which are covered in Dr. Shelton's book, are worth repeating:

1. Feed the child natural, that is uncooked, unprocessed, unsterilized, unadulterated, undrugged foods.
2. Do not stuff the child. Feed it three moderate meals a day.
3. Feed simple meals. Do not feed foods that are mixed in such a way as to cause fermentation.
4. Do not feed between meals, nor at night.
5. If the child is upset, or feels bad, or is excited or tired, or overheated or chilled, or in pain or distress, or is sick, don't feed it; if there is fever, give no food.
6. Do not feed the child cooked fruit.

And here are the food combining rules:

1. Do not feed acid fruits and starch foods together.
2. Do not feed acids with proteins.
3. Do not feed sweet fruits and acid (sour) fruits together.
4. Do not feed sugars or starches with protein foods.
5. Do not feed sweet foods with starch foods.
6. Feed only one protein at a time.
7. Feed fresh milk alone.
8. Feed plenty of green vegetables with both starches and proteins.
9. Do not feed butter, oil or other fats with protein foods.

Both my children were nursed; one until the age of two, and the other for only one year. Therefore, neither child was on breast milk during the transition feeding period at two to three years old.

The schedule that your child is on around the age of two, if fed Hygienically is milk, juice, milk, juice, milk. To start the transition to adult foods, the first juice feeding in the morning can be dropped, and the child can be given fresh, whole fruits combined well. At first, I gave my children only one kind of fruit. Now I give them only two kinds of fruit at one meal.

You may have started your child on this morning fruit feeding earlier than at two years of age. The fruits that my children digested well before two years of age were blueberries, any kind of melon, papaya, pears, oranges, grapefruit, mangoes, fresh figs, apricots, and plums. They also digested well any other berry fruit, like strawberries, raspberries, and any other wild berry. Here in Ogden Dunes, Indiana, we have a lot of wild berries growing, and our family has a fun outing looking for these and picking them. We always go berry picking around ten in the morning, so the children can eat their meal right from the bush or tree. You can't expect to take children berry picking without them eating the delicious fruit!

Fruits that my children did not digest at first were apples, bananas, cherries, grapes, and the sweet dried fruits. Both children had problems digesting bananas and apples in their early years. I did not feed them cherries because of the pit, and I did not feed them grapes because of the seeds. (The "peel" around grapes is not chewed well enough by a toddler and usually comes out whole in their stools.) Even if the grapes were seedless, for some reason the children did not digest them well in their early years. Now, of course, my five-year-old Jacquie digests all of these fruits very well. But I still stay away from the concentrated sweet dried fruits, such as raisins, dates, dried figs, and prunes. If there is fresh fruit at the market, which is usually true most of the year, I but it in preference to the dried fruit.

The best way to tell whether your child is digesting a food is to check its stools. If chunks of the food are coming out, then you know the child is not digesting that particular food, or is not chewing it well.

When your child is between the ages of one and two, I feel you can try it on the pulpy fruits. If the child does not do well with them, then put it back on the juice. When I first introduced fruit to my children, I introduced one fruit at a time. I found it was better if I gave them two oranges rather than two kinds of fruit at the same time. Papaya is quite a rich fruit, and one half of one is enough for any child. The overfeeding of fruit will cause digestive problems of protein foods. I also discovered that if I overfed my children fruit, they would break out in skin eruptions. I fed the fruit to my children between 10 a.m. and 11:00 a.m. It always depended on their waking hour. My son, Donny, awakes at 7:30 or 8:00 a.m. so I do not feed him the fruit meal until 11:00 a.m.

Now that Donny is over two, I give him a more substantial lunch at 11:00 or 11:30 a.m. and totally skip the noon milk feeding. When a more complete lunch is given the milk is not needed and, if fed after such a large lunch, can cause health problems. Here are some suggested larger lunch meals:

two oranges (small)
kale
celery
avocado

pears
peaches
celery
swiss chard

2 fresh figs
celery
romaine lettuce
apricots

blueberries (1 good-sized bowl)
celery
bibb lettuce

mangoes
celery
red-leaf lettuce

papayas
celery
brocccli leaves and stems

At 1:30 or 2:00 p.m. both children nap. My five-year-old daughter is the only among her friends, who still takes a nap. I have seen the other children in the afternoon, and they are tired too. But they cannot lie down and rest peacefully because of poor diet consisting of meats, starches, and sugared products. And those poor moms have a long day with their children, with no time to rest themselves. My children and I rest every day—the children nap for two hours. And it is a wonderful break in the day for me. These other mothers must be exhausted tending their children all day. I talked to one mother whose son is only three years old. He gets up at 6:00 a.m., does not nap, and goes to bed at 8:00 in the evening. Of course, when the child gets fussy, he is fed, and this makes it impossible for him to even rest because his digestive system is constantly overworking. By the way, this child has already had some serious health problems—such as constant cold and bronchial pneumonia last year.

When my children awake around 4 o'clock, I feed them a vegetable dinner. When you make the transition diet, use only raw foods. My children did better on raw foods. They eat less, chew better, and it lasts longer. They seem to overeat on the cooked foods and swallow without masticating properly. Cooked broccoli will slide down a lot easier than when it's raw. Also, the child may develop digestive problems from overeating cooked food. I found that cooked food came out undigested more often than the raw food.

It is good to try nuts. Pine nuts are very easily digested. They are the softest nut I have found, and the children do very well with them. Raw cashews were difficult for my children to digest. My children also do well with pecans and walnuts. Almonds are quite hard and not as easy for them to chew. Of course, my five-year-old now can digest almonds. Here are some suggested vegetable meals:

cucumber	cucumber
celery	celery
tomato	tomato
string beans	green pepper
red pepper	kale
nuts	avocado
cucumber	cucumber
celery	celery
carrot	green pepper
kale	romaine lettuce
coconut	baked squash
cucumber	
celery	
red pepper	
cauliflower	

A nice starch meal can be given in the evening, as you can see, with baked squash. We use yams, Irish potatoes, and squash.

If you find that the child is starting to get sick, put it back on the juice schedule or a fast until it's back to normal. If the child gets sick from overeating or from experimenting with the diet, then of course you will have to fast it. Short fasts should be sufficient for any child who has been reared Hygienically.

The dividends are high when you bring up your children this way. They are healthy, happy, alert, beautiful to look at, and certainly your home life is less stressful because your children are not fussy and constantly crying. Do not cheat from this diet. You and your child will pay the price. Stick to the schedule. You can do anything you want around a well-organized schedule.

Lesson 58 - Fasting Children During Disease

- 1. Introduction
- 2. Childhood Illness And Fasting
- 3. The Mechanics Of Fasting
- 4. Questions & Answers
- Article #1: Sick So Young, But Well At Last!
- Article #2: The Hardest Thing to Do Is "Nothing" By Dr. V. V. Vetrano

1. Introduction

"He won't eat a thing, and I always fix him his favorite foods." The mother looked anxious as she told the Hygienic practitioner about her young son's refusal to eat

"And what does your child like?" the Hygienic doctor asked the woman

"Oh, you know, the usual things like ice cream, chocolate chip cookies, and lots of peanut butter sandwiches. He won't touch a fresh piece of fruit or any vegetables. I'd do anything to get him to eat. I always have his special food favorites around, but he just doesn't have any appetite for good foods. What should I do? I don't want him to starve."

"Leave your son with me and my wife for one week. When you return for him, you will not believe he is the same boy."

Reluctantly the woman left her young son with the Hygienist for six days. When she returned for him on the seventh day, the doctor showed her the boy happily eating a large raw vegetable salad with keen appreciation

"What did you do? How did you get him to eat like that?" the mother asked.

"Well, when he refused to eat the foods we provided him, we let him go without. After three days of not eating, he discovered that an apple or banana tastes pretty good."

"You mean you let my son go without food for three days?" The woman looked shocked. "That's cruel. That's child abuse."

"No madam," the Hygienic doctor replied. "Stuffing your child with junk foods and fretting over him constantly is child abuse. We just let nature take its course, and I might add, your son seems all the better for it."

Fasting a child or withholding food from an infant does seem like a cruel practice to some people. After all, the primary responsibility of parents is to provide sufficient food for their offspring. Not feeding a child seems like a drastic neglect of parental duty. A careful abstention from food for a limited period of time, however, may not only be beneficial but absolutely necessary for a youngster's health and well-being.

There are many questions and misconceptions about children and fasting. The purpose of this lesson is to answer these questions and remove the fears that surround the fasting of children.

1.1 Why Children May Need to Fast

Children usually need to fast for the same reasons that adults do. A fast is sometimes needed to give the body a total physiological rest so that it may rebuilt its health quickly. A controlled withdrawal of food for a reasonable period of time can allow the body to revitalize itself and to carry out the healing processes.

It is true that children are in a stage of rapid growth and physical development. During such a time, the demands by the body for high-quality food are great and must be met. But this does not mean that food must be always present or that overfeeding should be practiced.

Fasting is a time-honored method for improving the health of any person, regardless of age. Simply because a child has very definite needs for sustained and optimum nutrition does not mean that a fast for a reasonable length of time cannot be employed. Indeed, many times the child's body is better able to assimilate and utilize the food given following a fast than it was before the fast.

So, why should a child fast? For basically the same reasons that an adult may wish to fast: to achieve and maintain superior health and development by allowing the body a period of complete physiological rest (which includes a "rest" from the digestion and assimilation of foods).

1.2 When Should Children Fast?

According to Dr. Herbert M. Shelton, the world's foremost authority on fasting, children should not receive food when:

1. They are upset or feel bad.
2. They are excited or tired.
3. They are overheated or chilled.
4. They are in pain or distress.
5. They are sick or have a fever.

In other words, if a child is uncomfortable or disturbed in body or mind, then a meal should be postponed or skipped. Usually the simple missing of a single meal will often be enough to correct any temporary problem or passing illness of a child. This could hardly be called fasting, yet missing a meal can give the child's sensitive and vital body a chance to reestablish its normal balance and well-being.

Unfortunately, many parents become worried, nervous, and distraught if their child refuses to eat a meal. The idea of actually forcing their child to forego a meal seems almost unthinkable. Yet if there are signs of physical discomfort or disease, then abstaining from food for at least one meal is only sensible.

Missing more than one meal or going without food for over a day is the beginning of a fast. A fasting period of a day or more is advisable for most children during the time of illness and disease. In fact, most periods of childhood fasting coincide with the periods of childhood disease and illness.

An illness or sickness is proper enough reason for a child to fast, and the results from such fasting are nothing short of spectacular in rectifying physiological problems. In his book *The Hygienic Care of Children*, Dr. Shelton devotes many pages to the discussion of various diseases and illnesses suffered by children. This is the proper way to discuss the fasting of children, as it is during sickness that a fast should be employed.

2. Childhood Illness And Fasting

"Wise parents," wrote Dr. John H. Tilden (an early Hygienist), "will never feed their sick children. Be not afraid to let them fast. For, every day that they fast lessens their illness and their danger. Feeding adds to their suffering and danger and prolongs their illness."

Dr. Shelton also echoed these sentiments when he said: "Whenever animals, both young and old, become sick they instinctively refrain from eating. Warmth, quiet, and fasting, with a little water, are all they want. Infants, too, when sick require only warmth, quiet, and fasting, plus some water."

2.1 Specific Illnesses and Fasting for Children

Hygienic literature, and especially those books by Dr. Shelton, contains much practical advice about the care of children during illness. During almost any disease or illness of a child or infant, the basic requirements are the same: rest, fresh air, pure water when needed, warmth, and quiet. Fasting plays an important role in the child's recovery from sickness.

What follows in this section is a list of some of the common childhood illnesses and the suggested course of action by the parent in caring for the sick child.

2.2 Anemia

Anemia is a lack of red blood cells. "The value of a fast in all forms of anemia is beyond doubt. Children that have been allowed to develop anemia should be given a short fast—three to five days; older children longer—or a few days on orange juice and fed properly thereafter."

2.3 Rickets

Rickets are bone changes brought about by impaired nutrition. "Fasting has a beneficial effect in cases of rickets. Fasting properly done promotes growth. After a fast, an increase of body mass is accomplished which may have required years of normal growth."

2.4 Colds

A cold is a process of vicarious elimination. "For the 'common cold,' the child should be put to bed, all food stopped, except perhaps some orange juice (if there is no fever), and kept warm. That is all there is to the treatment of any so-called acute disease—rest, fasting, warmth. No cold can last long when the child is cared for in this manner."

2.5 Colic

Colic is digestive impairment of an infant. "The remedy for colic is: stop all feeding until comfort has returned."

2.6 Fever

Fever indicates poisoning; usually through decomposition in the intestines. "Fever will last until the poisons have been eliminated and the decomposing food voided. When such cases are fasted and not fed, the troubles end. Feeding and drugging are the elements of danger. When animals, *young or old*, become sick, they refrain from all eating."

2.7 Vomiting

In infants, vomiting is usually the first sign of acute disease. "Vomiting is a means of emptying the stomach before beginning housecleaning of the body. No food should be given the sick child."

2.8 Measles

Measles begin with a "head cold" and are accompanied by fever and malaise. "No food should be allowed until 24 hours after all acute symptoms are gone. Feeding should begin with fresh fruit juice, and then followed by fresh fruit the next day."

2.9 Whooping Cough

Whooping cough is a paroxysm of coughing. "Unless such a case is fasted, the coughing becomes more severe. The child should be given as much fresh air as possible and as much water as thirst calls for, but no food of any kind should be given until complete relaxation is secured (usually within three or four days). After full relaxation occurs, fruit juices may be given for two or three days, after which fresh fruit may be given. If the coughs tend to increase after meals, stop the feeding at once."

2.10 Mumps

Mumps are an inflammation of the salivary glands, especially the parotids. "Rest in bed with warmth until the temperature is normal and the swelling has gone. No food and no drugs should be given. If the child refuses to fast, orange or grapefruit juice may be used. After the swelling is gone, fruit may be fed three times a day for the first three days. After that, a gradual return to a normal and healthy diet may be done."

2.11 Diphtheria

Diphtheria is an inflamed and feverish throat condition. "Food must not be given until the throat is healed. Then fruit juices may be given for two days and then a gradual return to the normal diet. It is the fat, soft, 'well-fed' children who generally develop this sort of disease. I have never known a case of diphtheria in strict vegetarians on a low-protein diet."

2.12 Typhoid Fever

Typhoid fever is an acute disease involving mostly the small intestine. "When such patients are fasted, the stools and urine are pure by the time convalescence begins."

2.13 Tonsilitis

Tonsilitis is an inflammation of the mucous membrane. "In acute cases, all food should be withheld until the symptoms are gone. After this, a fruit diet should be given for three to five days. If the case is chronic, then a fast or orange or grapefruit diet may be employed until the throat is clean and breathing is easy."

3. The Mechanics Of Fasting

3.1 How Long Should Children Fast?

The most common question about children and fasting is: how long should the child fast?

A specific number of days cannot be given for all cases. Generally, a fast is conducted until all the symptoms of an acute illness subside. Chronic problems are sometimes handled by a series of fasts of varying lengths.

Most Hygienic practitioners, however, generally agree that children should not fast as long as adults may. That is, lengthy and extended fasts for children should be properly planned, supervised, and wisely considered. Short-term fasts for children, however, may be safely undertaken by knowledgeable parents.

To be more precise, Dr. Shelton tells us that he has seen very few cases of children or infants requiring an extended fast. "Fortunately," Dr. Shelton writes, "few infants require more than two to three days of fasting." In general, when nature cuts off the appetite of a child, he or she should be permitted to fast until there is a demand for food.

Dr. Shelton tells us that "infants may be fasted for days without harm, although they seldom have to fast as long as an adult." Infants and children, according to several Hygienists, recover more rapidly while fasting than do adults and so do not require to fast as long.

As a general guideline, Dr. Shelton and other Hygienic practitioners, seem to suggest that fasts for children be for periods of one to five days, with the time limits of two or three days being the most common length mentioned.

Once again, there can be no exact length for a fast in all cases. However, there is general agreement that since a child is usually less toxic and more vital than an adult, short-term fasts of one to three days are usually sufficient for most acute problems. Of course there may be circumstances and conditions that require a child to be fasted for longer than a three- or four-day period. Parents who are considering fasting their children for longer than a five-day period should probably consult a professional Hygienic practitioner.

Long-term fasts for children must be approached with caution. Not because fasting itself is dangerous, but because misinformed family, friends, or authorities may try to prevent such actions. In these cases, the support of a professional Hygienist can help the parent through any difficult times.

If you have no access to a practicing Hygienist, you may still fast your child without worry for short-term periods of one to three days. The exact length for a fast by a child or infant cannot be specified and depends upon the illness and the vitality of the youngster.

3.2 How to Fast Children

The needs of a child when fasting are basically the same as an adult's: warmth, quiet, rest, fresh air, and pure water. Fasting for short periods of time may be supervised by the child's parent. If a serious illness is present or if a fast must be conducted for more than several days, then the advice of an experienced Hygienist should be sought.

3.3 Beginning the Fast

No elaborate preparations are needed before a child is fasted. In cases of acute conditions where the symptoms of disease appear quickly, a fast may be begun immediately. In fact, as soon as there is a sign of serious illness in a child, the fast should start.

There is no need to give an enema to a child before the fast starts. If time and conditions permit, the child may be placed on an all-fruit diet for a day or so before the fast begins.

3.4 During the Fast

The child should be kept warm, comfortable, and quiet. He should not be permitted to play or exercise vigorously while fasting. It is more important that the child be allowed to rest totally while not eating. This allows the body's energy to be directed toward cleansing and detoxification instead of being expended in play or excitement.

Whenever the child is thirsty, distilled water at room temperature should be given. Do not force the child to drink excessively, but be sure that plenty of water is available for the child to drink. If the child is an infant, it may be given as much water from a bottle as it desires.

Fruit juices, such as orange or grapefruit juice, may be used if it is desired not to fast the child completely, or if the child refuses to drink only water. Drinking juices, however, is not a good idea since pure water is really all that is required by the fasting child. Dr. Shelton and other Hygienic practitioners, however, have used fruit juices when "fasting" children.

Particularly when no fever is present or no crisis is evident, fruit juices may be given to the child. Juice drinking or the eating of only fruits, however, do not constitute a true fast. For some cases, however, a diet of fruit juices or fruit only may be used with great benefits when fasting is impractical or not desired.

Placing the child on a strict diet of fresh fruits and freshly-squeezed juices can be done for an extended period of time and does not require the supervision of an experienced Hygienist. The benefits of this diet are enormous.

3.5 What to Expect During the Fast

During the fast, the child's urine may become dark. He may experience brief periods of diarrhea or constipation. The breath will probably smell foul and the tongue may become heavily coated. None of these signs are cause for worry, but indicate that the fast is progressing normally—that detoxification is being effected.

Once the fast begins, there is no need to worry about constipation or bowel movements. If none occur during the fast, do not worry because the child's regularity will return when the fast is broken.

Show no worry or concern with the fasting child. Do not let other adults' remarks about the "safety" of the fast, or demonstration of fears about the child's health affect you in any way. It is best to fast your child in private and without discussion, especially in front of the child. If fasting is treated as a normal part of living and if the parents also practice fasting as a regular part of a healthy lifestyle, then the child is more likely to view his own fast as a positive experience.

3.6 Breaking the Fast

The fast should be broken after all the acute signs of illness are gone, or the child experiences true hunger, or after a reasonable period (two to four days for an unsupervised fast). Hunger may be present during the first day of the fast. This is not a sign that the fast should be broken early, however: If the child expresses a strong desire to eat after the first day or two of the fast, that is a better indication that true hunger has returned and the fast should be ended.

Breaking the fast should be done carefully. Either a piece of fresh fruit or a small glass of fresh fruit juice may be given as the first food after the fast. Have the child sip the juice very slowly. If fruit is used, let the youngster have a single bite at a time and have him chew each bite very well.

A few/hours later, more juice or fruit may be given. Do not be in a hurry to introduce heavy foods back into the diet. As long as the child is happy and satisfied eating fruit alone, then allow him to continue with this diet. Gradually, fresh salads, nuts, and seeds may be introduced.

If the child is an infant or is still nursing, then the fast should be broken with mother's milk.

3.7 After the Fast

Following a fast, the child should be placed on the optimum Life Science diet. This consists primarily of fresh; raw fruits with raw vegetables, nuts, and seeds eaten in appropriate combinations. Of course if the child is very young, then mother's milk, fruit juices, blended fruits, and so on are appropriate.

Do not be in a hurry to overfeed or stuff the child with high-calorie foods in order to replace the lost weight. By no means should the child's natural appetite and hunger not be satisfied, but food should not be pushed onto the unwilling youngster.

After a fast is an ideal time to improve the youngster's diet. The fast provides an easy transition into better eating habits and food selection. The first days after a fast will find the child keenly appreciating the simple and natural foods in their uncooked state. This is an excellent time to include more and more fresh fruits and vegetables into the child's diet, and eliminate any substandard foods that may have been eaten prior to the fast.

3.8 Handling the Fears About Fasting Children

The greatest obstacle to fasting children will not be from the child but from overly-concerned parents and relatives. In some people's minds, fasting is the same as starvation and they worry needlessly about the child's safety during a fast.

A good education about the absolute safety of fasting children is necessary so that these fears can be eliminated.

When asked about the possible complications and difficulties that might result from fasting children, Dr. Shelton replied: "Complications result almost wholly from feeding and drugging. They almost never develop in cases that are not fed and not drugged. I have fasted numerous children and babies and it is my observation that they bear fasting well."

Still, there is often the worry that fasting will cause the child to lose loo much weight or it will be harmful to growth. In fact, the most common fear is that if food is withheld from an infant or child, it will lose weight and never regain its full growth potential. Such fears are groundless.

Dr. Shelton tells us that "it has been fully demonstrated that repeated short fasts of one to three days in growing animals produce better growth and strength. Children are not harmed by fasting, but only by starvation." And, I might add, children are harmed by eating when food should be foregone.

Fasting, properly done, can stimulate growth. Professor Morgulis, a researcher on fasting and animals, states that as soon as any animal, including man, loses weight through fasting, it then begins to gain at a spectacular rate once proper nourishment is again provided. "There is a rapid gain in weight," writes Professor Morgulis, "which is a manifestation of a vigorous growth process in animals after a fast.

There is prolific cell multiplication. Frequently, there is an increase in body mass that normally requires years of growth."

Dr. Shelton also remarks that he has seen periods of increased growth in children following a fast. It is not underfeeding or fasting that is to be feared, but rather overfeeding the child with improper foods.

Any weight loss experienced by the child on a fast will be quickly reversed once a diet of optimum foods is given after the fast is broken. The parents should simply make sure that the child has all the wholesome foods he wants or desires. His appetite will be hearty after a fast, and normal growth patterns will be rapidly reestablished.

Perhaps the best reassurance a parent can have when fasting a child is to read about the thousands of youngsters who have been fasted by Hygienic practitioners. Dr. Herbert M. Shelton's book, *The Hygienic Care of Children*, provides many examples of the success obtained through fasting children. Parents may also contact other Hygienists who have fasted their children for their advice.

Unless the parents have a sympathetic listener, it would be best not to talk about the fasting of their children. Some people including medical doctors, have a mistrust of fasting and may actually take steps to prevent parents from fasting their children. These people often fill the parents with fear and guilt about fasting their offspring. In some cases, legal action has been taken against parents who were only trying to insure their children's health and well-being through fasting.

To avoid such complications, the wise parents will fast their child in private and without consulting various "authorities." Again, it is suggested that such parents try to contact other Hygienists for their support during the first fast for a child. Regardless, a short-term fast of one to three days can never do any harm and may be safely undertaken by any knowledgeable parent.

3.9 The Benefits of Fasting for Children

Children can quickly benefit from a fast, and it is encouraging to see the many positive results that occur so dramatically after a fast. Youngsters have vital and relatively clean bodies that respond well to a fast.

All the body's functions are normalized during a fast. Indigestion, constipation, headaches, colds, fevers, diarrhea, and a host of other childhood complaints often disappear quickly during a fast. The body can discharge its eliminative tasks much speedier during a fast.

Fasting also allows a child's weight to normalize. Overweight children will lose excessive pounds during a fast while underweight youngsters often quickly add pounds after a fast.

Fasting is an excellent way to introduce the child to a new diet, such as the optimum Life Science diet. In fact, many children can make dietary changes much easier than adults, and very often, they are easier to fast and, complain less.

Children, if old enough, should be carefully taught the benefits of fasting. They should be told or shown how animals fast naturally in the wild, and that fasting is a normal life process. Teaching your child how to fast properly is as important as teaching him to eat properly. Some parents find it easier to fast along with their children, and this is an excellent idea if conditions allow. Any fear of fasting that the child might have is quickly alleviated if the mother or father fasts as well.

Fasting is a time-tested method of insuring superior health for people of all ages, it should be employed by both young and old alike, and the fasting of children should be regarded as a safe and natural method of insuring superior health and vitality.

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4. Questions & Answers

My child doesn't understand fasting. He thinks he is being punished when I put him on a fast. Help!

> If the child is old enough (around four years or so), he or she can understand what fasting is all about if you explain it in a general way. If you have any animals or pets, by all means

make it a point to assure your child how these creatures fast naturally during time of discomfort. If you can, you or your spouse should practice fasting in front of the child before he is put on a fast. Tell the child that when you are sick, your body and stomach must rest, so no food is eaten.

If the child is very young or is an infant, then you have little choice but to let the child fast and listen to his complaints. Actually, many children after the first day of the fast adapt very readily to not eating—moreso than adults.

It may seem cruel to you to deny a crying child his food, but if you are intent on furnishing him with superior health, then you will have to make this sacrifice.

The easiest way to handle this problem for a child past two or three is to let him see that fasting is a natural thing to do, and is not a punishment or something to be afraid of. Our culture promotes eating and overfeeding. You must show your child the other side of the coin, and develop good health habits at an early age.

The parent should set the example for the child and abstain from food too. In this way the child will be a participant rather than an outcast.

I want to fast our child, but my wife says no. None of our other relatives are sympathetic either. What should do?

In these cases, a compromise is necessary. Placing the child on diluted fruit juices or fresh fruit only will certainly allow the body to its work more efficiently than a conventional diet. While not as effective as a' fast, such a modified diet is often quite effective in the healing process.

Meanwhile, try to cooperate with your spouse. You yourself should fast to remove any fears about the process. Provide your relatives with information about fasting, such as this lesson, and seek out other parents who have had experience in fasting their children. Often a spoken word from another person who has fasted his or her children successfully will do much to allay your spouse's fears.

I have trouble knowing when to break my child's fast. She always says she is hungry, so that's not a good indication. How can I tell?

One rule is to never feed during a fever. If hunger is present at that time, it is usually a sign that liquids are needed—specifically, distilled water. You can generally ignore complaints about being hungry for the entire first day. If the child is very young, it is possible that true hunger could return as soon as the second or third day of the fast. If no major symptoms appear and the child indicates hunger by this time, then break the fast with fruit juices or fresh raw fruit. Continue feeding at this level for as long as possible. As long as the tongue is coated and the breath strong, the child will not evince true physiological hunger.

Article #1: Sick So Young, But Well At Last!

The Juliet Groll Story by Paulette Groll

Juliet was born December 7, 1979. She came into this world drug free (but within her first year of life this would drastically change), a beautiful, 7 lbs. 1 oz., full-term baby girl. We were thrilled! After nine years of marriage we finally had our baby girl.

Three days after her birth we were told we would have to leave Juliet in the hospital nursery because of a high bilirubin count. Reluctantly, but obediently, we agreed. Mother and daughter were separated long enough so it look days to reestablish breast-feeding.

After this episode I believed we were off to a great healthy beginning. This was until Juliet's "well-baby" checkups came along. Each one was more disturbing than before. "Her weight is still down." "She's so far off the (weight) graph she isn't even in the running." For months her legs did not rotate properly in the hip sockets. (This later corrected itself.) Her skin was pale and looked transparent. She was losing some gross motor movement. At six months the test for cystic fibrosis was just around the corner. Fortunately, this never happened. Our temporary "solution" to our daughter's weight problem was the magical "formula." Yes, her weight increased, but at the same lime, another more serious problem was on the horizon.

Juliet had an ear infection. The usual treatment was given—antibiotics. We thought nothing of it at the time. But what was to follow brought much thought and change into our lives.

From this first ear infection our journey down the long road of one ear infection after another began. Constant probing, ear "floodings," lab tests, hearing tests, along with ear drops and more antibiotics. A few months later came the ear "specialist" with more "specialized" equipment which terrorized our little girl. On one visit it took her mother, two nurses and the doctor to hold her still so the doctor could get a better look. As Juliet worsened, the medical visits out of town increased. A week without antibiotics and she had a roaring infection. Constant pain, illness, and exhausting examinations filled Juliet's life. For months we dumped antibiotic after antibiotic into her precious body. We ran the antibiotic gamut, then repeated them over and over.

At this point I was just learning about Natural Hygiene. Having followed the diet, along with weekly 24-hour fasts for eight months, we were considering (very cautiously) Natural Hygiene for Juliet. A Christian counselor friend had introduced me to Natural Hygiene. After years of therapy for depression, counseling, along with the principles of Hygienic living, brought me tremendous freedom and health. So, when he suggested trying mashed banana instead of formula, we decided to give it a try. This was the beginning of Juliet's introduction to the world of Natural Hygiene.

Now we found ourselves torn between the world of medicine and Natural Hygiene. A natural diet of raw fruits and vegetables, with nut butters was being topped off with antibiotics for dessert! We were told this long road of ear infections hopefully would come to an end—after surgery. Self-dissolving plastic tubes were to be placed through both eardrums. I asked to read the medical textbooks about this procedure but was put off. By this time Juliet's ears were bad and her hearing was minimal. We had no encouragement to resist. So, out of ignorance and desperation we allowed our 13-month-old to be hospitalized in January of 1981, and surgery was performed.

The surgeon told me, "We really like to feel justified in doing surgery on such a small child. In her case it was justified. The liquid behind her eardrums was like glue. If this doesn't work, there's nothing more we can do."

We really were hopeful. We wanted an end to all this misery for our daughter. And we thought that end had come until another ear infection came along. Then another. We were on the same journey down that same long road again! Juliet was on "antibiotic row" until she developed a reaction to a common drug. Her body was covered in red blotches from her toes to her chin. She was given adrenalin. When still another antibiotic was prescribed, I declined. My only thought, "There just has to be another way."

Out With the Old, In With the New

My Christian counselor friend had recently told me about a place in Hollister, California, the California Health Sanctuary. He was going there to fast under the supervision of a Hygienic practitioner. I had been interested in going for myself. By now, my thoughts were on Juliet's immediate need. Could a one-year-old be fasted? We had many questions and concerns. With a feeling of nowhere else to turn, my husband and I made an appointment with the Hygienic practitioner at the California Health Sanctuary. Everything he said about the body's being able to heal itself, and that fasting provided the best environment to do so, made perfect sense. He explained that healing is a normal body process which goes on all the time in relation to the amount of energy available. During a fast, the body can save all the energy usually used in eating and other activities and use it to cleanse, repair, and restore itself. Juliet's body needed repair and restoration for sure. So, a week later, April 27, 1981, we arrived at the California Health Sanctuary to embark on a totally new experience.

I knew this would be a unique experience and began keeping a journal the first day. Mother and daughter would stay at the Sanctuary, while father and son returned home. We did not know how long this separation would be.

Juliet walked and played outside all afternoon. The Sanctuary is beautiful and perfect for a toddler to explore. We began getting to know the staff and other fasters. All around us was a spirit of love and sensitive caring. Juliet was given a bottle of distilled water. She always had her bottle close by whether for thirst or comfort. She quickly entered her fasting experience by vomiting a little on the second day. Her breath smelled of anesthesia, so did her body and diapers. As the fast progressed, her nose and ears drained and she had upper respiratory congestion. All this was her body's way of eliminating the poisons within.

While fasting, Juliet enjoyed being outside in her crib or going for long walks in her stroller. She would look up and give me her special smile as if to say, "I understand I'm getting well." It was a special time for both of us. We were totally together. I held her much and slept with her cuddled in my arms.

On day eleven of her fast I knew Juliet was on the road to recovery. Her symptoms were slowly lessening. Still, I was anxious. How much longer would she fast?

The most difficult part of Juliet's fast was not the fast itself, but others' reactions to us, as parents, fasting our child. Some of our dear friends (who knew us and trusted us) thought we had lost our minds. Many could not understand our new approach to health, and a few would not even respect our right to choose what we thought best for Juliet. But none had walked in our shoes. None of these people had been forced to seek a health alternative as we had been. How could they understand?

Yes, there were days I was tired and ready to go home, but the strength always came. God used all those at the Sanctuary in a beautiful way to give Juliet and me all that we needed to go on and see that her body was restored to health. My husband's support was invaluable. He didn't have the benefit of seeing firsthand Juliet's body healing itself. He had to rely on my secondhand information. Also, he did not have the fellowship of the Sanctuary people, those who already knew the healing that was and would continue to be taking place in our daughter. We were trusting the principles of Natural Hygiene through faith, not experience.

A Good Sign Appears!

Day twelve the drainage from Juliet's ears became "runny." This was a good sign! When It became like water and then stopped altogether the fast would be nearing a close. Day thirteen Juliet's ears drained liquid but she was congested. This would have to clear before she was ready to break her fast. Day fifteen the director gave his first and only prediction as to approximately when Juliet would be ready to break her fast—two or three more days! I was excited until the next day when Juliet showed a lot of mucus, ear drainage, and congestion. As the fast came to a close (day eighteen) her breath was sweet, her body and diapers had no odor, her chest was clear with no drainage from her nose or ears. Her ears were healthy for the first time in nearly a year! Her eyes were bright; her face alert. Day nineteen came and Juliet was breaking her fast. She really ENJOYED her first fluid ounces of diluted, fresh-squeezed orange juice. It was a JOY for me to give it to her.

We stayed on at the Sanctuary while Juliet was gradually placed on a diet of raw fruits, vegetables, and nut butters in proper combinations and in modest amounts. Now, seventeen months old, she was also given bottles with freshly-prepared juices (apple, green leafy vegetables, and orange).

It was time to bring our daughter home. This was just the beginning of health for Juliet. She is twenty-six months old now and doing fine.

Try Natural Hygiene for yourself and your children. It's a great way to live!

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Article #2: The Hardest Thing to Do Is "Nothing" by Dr. V. V. Vetrano

"Poor baby, she's so sick. And look at her, she can barely lift her head!"

"Yes, it is true, she *is* sick and has a high fever. But don't worry, she's fasting and the fever won't last too long."

The first day went by without the in-laws saying too much, so I felt relieved. My husband thought I knew what I was doing and he didn't bother me too much about how I fed our baby. So I didn't have too much concern that he would stop me from fasting her.

The second day went by. All the family came to visit the baby. They were a little concerned. But when the third and fourth days had passed and the baby still had a fever, I really had to calm their fears. It was an unheard of thing, to fast a two-year-old baby. Everybody knows when babies have fever they need penicillin to knock it out. To refuse to see a medical doctor when a baby is ill is a crime, they say, and to fast a baby is even worse. ... it is sheer craziness. I'm surprised the family put up with my ways as well as they did. Perhaps I acted like I knew what I was doing or my faith in Natural Hygiene was so strong that it calmed their fears for a while, but on the fifth day of the child's fast even my husband panicked. He stormed out of the house saying, "If she isn't better by tomorrow, I'm taking her to a doctor."

I was just as concerned for my baby as they were, but to let my concern or lack of faith show would have been the end of her Hygienic care. I waited it out patiently, knowing that nature heals. I took her temperature daily, kept her warm, permitted her to rest quietly, and prevented people from smoking in the room, or from waking her up to see if she was alive. I kept the place quiet so she could sleep and do nothing else.

It's hard to buck the whole world, but it is even harder to sit back and wait for the day when a fever will drop. Every day you watch, listen, and hope. Infants that are fasting and who have fever are very quiet. They sleep a lot and this is also disquieting when you are a neophyte Hygienist and not a doctor. All sorts of fears enter your head.

"Is she okay?" you keep wondering. "Is she breathing?" "Is she still alive?" You are scared to death. You want to shake the child, or awaken it, or do just anything to reassure yourself that everything is fine. But I didn't do anything rash. I had to have patience and wait upon nature to complete her wonderful healing process. I was very worried, but I had faith in the living organism. Finally, her fever broke about mid-day on the fifth day of her fast, and there were sighs of relief all around. Her father was no longer tense and worried. The baby's great aunt was no longer hovering over her, wringing her hands. In fact, we all relaxed. That was the only time the baby was sick in her life. Thank goodness! I had weathered the storm. But I know how hard it is to sit and wait, and do absolutely nothing intelligently.

I am pleased I held out. I waited patiently for nature to heal my little baby. But others don't. Just recently, the parents of a six-month-old baby became frightened by their baby's symptoms. They called me, but instead of doing what I suggested they took the baby to the physician. They didn't want to fast the baby. This is when the trouble started. He insisted on all sorts of harmful and painful tests for the baby, including X rays. It takes so long to establish a diagnosis that, had the baby been cared for Hygienically, it would have been well long before the medical diagnosis was complete.

Finally, the physician began the treatment. They went to the physician simply to get a diagnosis. They couldn't forget about diagnosis and just fast the baby. They had to have a label. They were under the impression that if they just got a diagnosis and knew exactly what was wrong with the baby they wouldn't be so fearful. They just couldn't wait and rely on the natural healing powers of the body for their infant's recovery. They forgot all about the treatment that comes after the diagnosis. When they balked at the treatment, the physician became suspicious. He then insisted on the parents carrying out his orders. He even brought the authorities on the case, and the baby was held in the hospital against the parent's wishes. They were forced to submit to treatment of the baby. When they finally got the baby back home, they had to put up with the child abuse bureau visiting them twice a week to see that they were carrying out the physician's instructions regarding the care and feeding of the infant, and they were forced to begin feeding the child meat and cereals against their wishes. It took the infant six months to recover from the medical abuse called "diagnosis and treatments." All this trouble came about because the parents: had no faith in the living body to heal itself, and because of their inability to sit back and do absolutely nothing. "Doing nothing" intelligently is the hardest of all things to do.

Just the other night I was jolted out of my sleep by a ringing phone. It was a lady with a three-year-old baby. Deep concern, bordering on real fear, was in her voice. "I'm worried," she said, "my baby is so listless. There's no life in him at all and he has a fever of 104.5°F. I fasted him seven days and the fever went down. But he was very weak so I didn't wait the 24 hours necessary after the fever subsided. Now his fever has come back, and I'm really worried. I fed him only two ounces of orange juice three times, but his fever returned. He's so weak, and he's still sick." Her voice cracked, and she was crying.

I began asking her questions to try to discover how the child got sick and what the problem was. The baby had hidden himself on a back porch and had gotten into a dried dog food when the parents were visiting friends. When he was found, he was happily stuffing himself on the dried dog food, and had probably been doing so for about 15 or 20 minutes.

He developed a fever, a cough after that, and so the child was fasted. The parents were naturally very concerned and when the fever didn't come down in about three days, they became even more concerned. Many things went through their minds. Would the child survive? He had done this once before, but he had been discovered quickly enough to stop him before he had eaten very much. Under the stress of fear, and impatience, for the fever was still high, the baby was weak and getting weaker, and there was no sign of improvement, the parents decided that since the baby had not had a bowel movement, it would be best to give the child an enema. They reasoned that the dog food was an irritant and still in the colon, causing the temperature to remain high. "We must get rid of the irritant." So an enema was given. The child, however, was still even more listless and it did not bring the fever down.

The parents couldn't wait until the body rectified all the wrongs.

As the child had not vomited we know that the dog food was at least digested enough to pass from the stomach to the small intestine. By the time it reached the colon, most of it had been digested. The preservatives, other poisonous chemicals, and decomposition products were absorbed from the small intestine. The time to have done something was when the child had first eaten the dog food. Vomiting could have been induced when the food was still in the child's stomach. But perhaps they did not realize just how much the child had eaten and the child was not yet sick. But, to give an enema after the food had already passed the absorbing area was useless and wasted the child's nerve energy. Had the material in the colon been a great enough irritant to cause fever, the body would have forced it out by a diarrhea.

The parent's reasoning was obfuscated because of the weakness and listlessness of the child. The tendency is to do something to make the child appear lively again. Parents forget that when nerve energy is being expended in one direction, it is withdrawn from another. It is normal when the body is fighting off poisons that all its energies, both nervous and physical, are directed to the area of the body that needs it most. The physical weakness comes because the blood and nerve supply has been withdrawn from the skeletal muscles of the body and directed inward to help rid the body of the poisonous substances. It is natural to be listless and weak under these conditions. However, seeing a listless child is frightening and there is that strong urge to do something, just anything, to see a manifestation of life to do nothing, I repeat, to do nothing, intelligently, at these times takes great courage and faith in the human organism.

Fevers may last for more than three days, when there is a need for it. Fasting, of course, is the quickest means to help the body rid itself of irritants that are occasioning the fever, but it sometimes takes more than three days. We must not panic if the fever does not subside more quickly. Children presently are developing fevers that last longer than in former decades. I have cared for several children recently and have noticed that the fevers seem never to quit. The children of this generation are not as strong as those of the previous generation, for many reasons. We will have to expect more acute illness and less robust, children until we clean up the environment and straighten out our method of growing and processing foods. The race is slowly but surely committing suicide.

Meanwhile, we must work in more harmony with nature than ever before. We must not needlessly cause the expenditure of any vital energy of any sick person, child or, adult. We must learn to conserve energy as we have never before conserved it, simply because there is less vitality and less functioning capacity than ever before.

If child or adult develops a fever, fasting is the best means for permitting the body to rid itself of the cause. The fever will never go as high when fasting as it does when feeding. "But," you ask, "what about brain damage if the fever should go up to 106°F?" Remember, first of all, that cells can function only at optimum temperatures. The minute the temperature goes up too high, the cells automatically cease functioning and the temperature spontaneously drops. Cellular metabolism contributes greatly to the rise in temperature, and when it is so hot that the cells can no longer function, metabolism slows down and automatically the temperature drops. Actually, it is the suppression of a fever by drugs and other measures causing retention of the poison, or the bacteria or whatever is the occasion for the fever, that damages the brain, never the fever per se. The fever is the necessary biological process to help the phagocytic cells eat up the bacteria or destroy and render nontoxic, the poisonous substance that may have been ingested. The drugs themselves are poisonous and only add to the load that the body has to eliminate. The drugs, plus the bacteria, and bacterial toxins and other poisons in the system are what damages the brain, not the fever which is only the body's best and speediest means of ridding itself of noxious agents.

No matter how hard it may be to sit and wait until the body heals itself, it is still the wisest thing to do.

Lesson 59 - Teaching Children About Healthful Living

- 1. Introduction
- 2. Teaching The Basics
- 3. The Tools For Teaching
- 4. Overcoming Obstacles In Teaching The Child
- 5. The Rewards Of Teaching Your Child
- 6. Questions & Answers
- Article #1: Does Your Child Have Eating Problems? By Joyce M. Kling

1. Introduction

The boy was at his father's funeral. He sat quiet, staring ahead, his eyes unfocused. No one at the funeral felt sorry for the orphaned boy. The boy himself felt no sorrow, no remorse, no guilt. But perhaps he should have. Because he was the cause of the funeral. He had shot his father in the chest with a shotgun that he carried in his truck.

Perhaps there should have been sorrow for the father, murdered by his own son. But there wasn't. It was town gossip that the father had started his sons on illegal drugs at the age of twelve. "They'll get drugs sooner or later," the father had said, "might as well come from me instead of some stranger."

The man had been a long-distance truck driver. He saw his sons rarely, and he shared the pills, the stimulants, and the depressants he took while driving with his teenage sons. One day the father and son were both "on pills" and a fight started. It ended with the father in a pool of blood, the son standing dazed over him, and the sheriff rushing to the scene.

This story is true, and it happened in a community of less than a hundred people. Drugs, vices, and a destructive lifestyle are no longer problems just for disadvantaged children and youth. Our children and teenagers everywhere are being poisoned, devitalized, and sickened by the unhealthy lifestyles being taught to them by schools, parents, and friends.

The current state of our children's physical, moral, and emotional health has never been lower. If we are to have a society worth living in, then we must launch a full-scale effort to educate every child about the virtues of healthful living and Hygienic practices. Healthful living is the only salvation for damaged youth and children, and we must learn how to teach them the most basic necessity of life: how to grow and prosper in health and happiness.

1.1 What Is a Healthy Child?

Few people have seen a healthy child. You may have seen children that are not currently sick, cranky, or irritable. You may have a child that is usually a source of great pleasure for you. But unless the child has been thoroughly taught and raised according to the principles of healthful living and Hygiene, then it is doubtful that he or she is truly or completely healthy.

In fact, there are few totally healthy people, adults or children, in today's world. Dr. Herbert M. Shelton is the world's foremost teacher of healthful living for both children and adults. He has raised children, grandchildren, and great-grandchildren according to the teachings of Natural Hygiene and Life Science. His book, *The Hygienic Care of Children*, is still the standard work on healthy child rearing. He has this to say about what constitutes the healthy child:

"There are certain leading characteristics of a normal, healthy, well-nourished child which every parent should become familiar with. Here are the following evidences of health in a child:

1. Mental alertness, brightness.
2. Cheerfulness and a contented disposition.
3. Bright, sparkling, wide-open eyes.
4. A good appetite.
5. Absence of vomiting and regurgitation of food.
6. Normal bowel movements.
7. Very little crying.
8. A steady gain of healthy weight, not fat.
9. Firm elastic flesh with springy muscles.
10. Perfect, sound, continuous sleep all night.
11. Constant growth in health and intelligence.
12. Symmetrical development of muscular tissue.
13. A clear skin complexion.
14. No evidences of pain and discomfort.
15. Freedom from *all* sickness, disease, illness.

A healthy child is a happy child. A healthy son or daughter respects parents and returns the love given. For a child, health is much more than simply freedom from common childhood illnesses. Radiant health in a child indicates vitality, cheer, cooperation, and a pleasant disposition.

Health is the natural gift of childhood. Unfortunately, this gift is often taken from the child by misinformed parents and educators who do not understand the basics of healthful living. A child must be taught how to live in a healthy manner—not because health is an unnatural state that must be learned, but because the child is led astray, miseducated, and seduced by the perversions, shortcomings, and misunderstandings of the modern world.

You who have the knowledge of healthful living must share it with the children of the world—whether they be in your family or in your community. You must become a teacher of healthful living practices to those who are young and look for your guidance. You must teach your children how to live a life that will always be full of health, well-being, and cheer. This lesson teaches you how to instruct the children in your life about the enormous benefits to be obtained from a life of healthy habits and practices.

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2. Teaching The Basics

Fortunately, knowing *what* to teach a child is relatively easy. The requirements for health are always the same—whether the person is an infant or great-great grandparent. The eternal and ever-present needs of life, health, and activity are: sunlight, pure water, fresh air, natural food, poise, rest, sleep, exercise, cleanliness, cheer, hope, poise, and freedom from devitalizing habits.

These are the basics of healthful living, and the proper subjects to teach the developing child. Let's look at each of these requirements for health in more detail and see how they may be effectively explained, taught, arid demonstrated to a child.

2.1 Sunshine, Fresh Air, and Exercise

Fortunately, three of the vital requirements for healthful living—sunshine, fresh air, and exercise—are easy to teach children. Every child, from the newborn to the teenager, should receive copious amounts of fresh air and sunshine, coupled with outdoor exercise.

Children have a natural desire for exercise. They call it "play" and they run, jump, tumble, and climb without any encouragement. Instead of scolding children for "wasting" their time in play, they should be encouraged to play or exercise outdoors and almost year-round.

If the child is withdrawn or spends all of his time reading or watching television, the parent should take the child outside for play or walks or day-trips. It is important that the child be taught at an early age that playing outside in the sun and open air is as essential to growing up as is sitting passively in a school classroom.

In fact, most children spend six hours a day sitting behind a classroom desk. While this may be excellent training for desk-bound adults, it is a poor substitute for childhood. If your child is in a conventional school, then make sure that playtime is scheduled after school and before supper.

As long as the child receives encouragement and support from you in natural outside play, then additional teaching about sunshine, air, and exercise is not needed. The child should be taught the value of fresh air in the home, and should have the windows open as much as possible.

2.2 Pure Food and Water

The hardest area of healthful living to teach to children is that of a pure diet. Actually, there would be no difficulty at all in teaching a child about a good diet if it were not for television, public schools, misinformed parents, or ignorant relatives.

A child will eat the same diet as his parents without question if he is not exposed to the negative influences of junk food advertising and peer junk food eating. It is indeed hard to explain to a child why the sugary cereals he sees advertised during his favorite T.V. shows are actually poisonous substitutes for real food. It is difficult to tell a child that the foods his grandparents or aunts or uncles or cousins or friends are eating will make him sick.

When a child is old enough to begin questioning why he cannot eat the same poor foods most of the people in this country eat, then it is time to begin a program of education about proper diet.

Most children cannot understand that if you eat an ice cream cone that you will eventually feel bad and suffer for it. A child's concept of the "future" is poorly formed. A child lives mostly in the present. Not eating a particular food because it may have future harmful effects is a concept many children will have difficulty understanding. In other words, understanding diet and health as a "cause-effect" relationship will be a new concept for a child (and for many adults as well!).

In this case, it is usually best to wait for the "effect" in order to explain the "cause." If your child indulges in junk ' food or other poor food choices, then simply wait until he becomes sick and then very pointedly explain that the reason he is now feeling sick is because of the foods he ate yesterday or last week or last month or whenever.

Every chance you have, use "sickness" as the stick to keep the child on a good diet. Any time someone is sick at his school or in the family, try to show how a poor diet and other unhealthy practices led to the sickness. On the other hand, use happiness as the "carrot" for keeping the child on a good diet.

After a wholesome meal of foods, emphasize how good you feel and how happy you are that you ate such delicious foods. You don't need to overact, but make sure that you are very vocal about how eating good food makes you, the parent, feel good.

After awhile, the child will begin to imitate you. He will express delight at wholesome meals (if you do the same) and will eventually associate illness with a poor diet.

Parents may also use animals as teachers for their children about proper diet and drink. Show the child that wild animals have their natural diet. They don't buy junk food at the store, but eat things that grow out of the ground. Animals don't drink soda pop; they sip clear cool water.

If a child can be strongly taught that there is a direct relationship between what he eats and how he feels, then he will be better able to follow the optimum Life Science diet. This teaching will take some time and effort by the parent. Without sounding obsessive, the parent should try to get the child to understand that any illnesses or discomfort the child may feel is linked with the foods eaten. After all, even a child can understand what it means to feel "good" or feel "bad."

2.3 Rest and Relaxation

Teaching children the need for rest and relaxation is usually not too hard. Children will play hard and sleep well during their early years. Adults, however, often have a hard time relaxing and resting because of the stress and demands made upon them.

Children too can suffer from stress. School problems, fights with playmates and friends, trying to live up to the parents' expectations—these are all sources of stress for a child and such stress can make a child irritable and unable to relax.

The parent can best help the child by removing all unnecessary stressful situations from the child's life. Parents with unreasonable expectations can cause their child to suffer as much as the ulcer-ridden businessman.

A good way for the parent to teach the child the value of rest and relaxation is to practice these virtues himself. If the parents make a regular habit of having a rest and relaxation time or activity each day, then the child will see that resting and relaxing are as normal to a healthy life as is work and productivity. Many parents are anxious that their children do not grow up lazy or nonproductive. Sometimes this concern makes the parents push the children to succeed in school, sports, or social activities.

For your child's health, adopt a less anxious attitude and encourage the child to develop habits of regular rest and relaxation during the day.

2.4 Fasting and Drugs

Two essential health-promoting practices that children should be taught are fasting and the avoidance of all drugs. In many cases, prescription and over-the-counter drugs are used in childhood illnesses. Without exception, the child's health would improve by employing fasting as one of the methods to overcome disease. Drugs, vaccinations, remedies, herbal treatments, and other so-called cures and preventatives should be exposed as false and dangerous modalities. They interfere with the body's efforts to restore normalcy.

Fortunately, you don't need to do much educating to get a child to avoid pills, bitter medicines, and painful injections. Given a choice, any intelligent person—child or adult—would not swallow the foul drugs or be shot full of "medicine." Our instincts usually try to protect us, but our intellects override our gut feelings. Unfortunately, most people don't realize that they do have a choice or an alternative way of dealing with illness.

The purpose of educating a child in this area is to disillusion him or her about "medicines." If the child never sees his parent swallowing aspirins, antacid tablets, or any other drug, then there is no role model for the child to imitate. If these drugs are never brought into the home or used by other family members, then the child will not enter into the remedy mentality. A child instinctively rejects drugs, pills, and nonfood substances.

The parent should not tell a child that if he "takes his medicine" that he will feel better. Most people use drugs and medicines because they have an expectation of relief and cure. If the child is never given this expectation nor is taught that an aspirin can remove a headache, for example, then there will be no attraction for the drug. The child usually comes to be an image of parental beliefs and practices.

This approach toward prescription and over-the-counter drugs also applies to illegal drugs. Many adolescents and adults use illegal or "recreational" drugs because they have been raised in a culture that praises and promotes drug use. If the child has been taught, for example, that a particular drug can relieve indigestion and pain, then he will be equally likely to believe that another drug like cocaine, for example, can relieve emotional pain or mental distress.

The most valuable lesson a parent can teach the child is that all drugs, regardless of origin, have absolutely no beneficial powers on the body at all.

Fasting is the healthful approach to dealing with problems that people use drugs for. If you will set the example by fasting when you feel "out of sorts," then the child will accept such activity as normal.

If you have a pet or any animals nearby, take the opportunity to show the child how an animal will refuse food when it feels sick. Whenever your child is sick, he or she normally loses the appetite. During this time, you can explain to the child that his body doesn't want to have food because it is too busy trying to get him well again. Show no concern at all about the child's lack of appetite. Force no food on the child, and demonstrate no worry.

If the child sees that you are relaxed and unconcerned about his lack of appetite while sick, then he will be more likely to want to continue the fast on his own accord. Most difficulties about teaching fasting to children come from anxious relatives and neighbors who can sabotage your efforts. In this case, it is always best to make no mention that you are fasting your child during sickness. Otherwise, if the child hears any adults arguing over fasting, then it may make him feel uncertain.

If your child is fasting, then you should fast as well if at all possible. If fasting is a normal family affair, then the child will have no fears about short fasts. When the child's body has detoxified and an appetite returns, then do not make the mistake of denying the child food when he is truly hungry. Otherwise, he may see fasting as a form of punishment, like being sent to bed without supper.

Among these lines, it is *never* a good idea to either reward *or* punish a child with giving or withholding food. Such use of food as a reward or punishment can cause serious problems in the development of the child and foster destructive eating patterns in his later years.

For example, one young man had been force-fed strawberries as a punishment for not cleaning his plate. This action resulted in the man never wanting to eat another strawberry or almost any fruit at all during his adult years. On the other hand, some adults give or promise their children "treats" or candy or desserts as a reward for some behavior. This is dangerous because the child then associates eating certain types of foods (usually a junk food) with parental approval. Many adult "ice cream addicts" got their start at the hands of well-meaning but misinformed grandparents. Ice-cream eating thus becomes an emotional substitute for approval and security, and a destructive eating pattern is set in motion in early childhood.

There are many other areas of healthful living that you will want to teach your child. Emotional poise, freedom from devitalizing habits, industriousness, happiness, and other qualities may be demonstrated by the parent throughout the day. The young child is like a sponge; he is ready to receive and remember whatever teachings you have to offer, so make sure that you are giving him the best example possible to follow in his life.

3. The Tools For Teaching

Although some hints were given about how to teach a child the basics of healthful living, additional mention about the ways you can use to instruct young people should be helpful. Many of the ways used to teach children are counterproductive. For example, if you punish and scold a child every time that he or she does not live up to your teachings, then the child may become increasingly rebellious and never learn the methods for a happy and long life. You are a partner in the child's preparation for life, not his taskmaster.

How we teach a child is as important as what we teach him or her. There are four general, effective, and harmless ways that you can use to teach children about healthful living.

3.1 Teaching by Example

"Don't do as I do; do as I say," is a remark often used by parents when instructing their children. The truth, however, is this: if a parent wants the child to act positively and develop lifelong healthful habits, then the parent must be a strong example of this as well.

Children learn by imitation. Reasoning and logic are not yet fully developed in a young child. They learn to do things by imitating those around them. If you want your child to have healthy habits, then you must demonstrate these habits in your own life so that the child can imitate them.

You cannot tell your child to behave in a certain manner if you will not following your own strictures. The health and well-being of a child is intimately and irrevocably linked to the health practices of the parents. Your children will only turn out as "good" as you yourself are good. You should not expect more from your children than you yourself are willing to do.

You must be an unquestionable, strong, unfailing, and dedicated exponent of healthful living practices if you want your child to adopt the same. You cannot give your children health; you must show them how to live it.

Here is what Dr. Shelton has to say about the parent as example: "Children pattern themselves after their parents as naturally and spontaneously as they eat or sleep. This is the reason that the right kind of home influences are so important. The child does what he sees his parents do and says what his parents say. See that you are a real parent and a good example for your child, and not merely an occupant at the same house with him."

3.2 Teaching by Association

Children learn not only from their parents, but from other adults and children as well. Whenever possible, you should have your child in the company of similar health-minded people.

If a child is shown that other people besides those in his immediate family also practice healthful habits, then he will be more likely to imitate these positive actions. Finding similar-minded people, however, may be difficult for those that live in rural areas or small towns.

Your best bet is to try to visit other families that have expressed health interests similar to your own. This can be done by contacting other Life Science students who life in your area, or by getting in touch with several of the Hygienic communities or networks that exist throughout the country.

Some families who are intently serious about their well-being often find it advantageous to live in a community situation with other Hygienic families. If nothing else, it is always beneficial to live within the same locale as one or two other Hygienic families so that information can be exchanged and support given during the child-rearing years.

If these suggestions are impractical, then at least try to take a health-minded or Hygienic vacation or trip where your child may meet other children that come from similar backgrounds.

However you approach the problem, it is vital that the child does not feel totally isolated from other people. Any type of social activity, gathering, or family events where health-minded people get together is an excellent opportunity for your child to see others practicing what you have been teaching.

Community and companionship is one of integral requirements for a healthy and productive life. You must not insulate your child from the world, but instead find some type of social situation that will promote the healthy habits that you are trying to instill.

A man may be judged by the company he keeps, but a child's character and habits are molded by the company he is exposed to. Try to choose your friends and associates carefully so that any teachings you may give to the child are also reinforced by those around him.

3.3 Teaching by Instruction

As your child grows older, he or she may be taught the precepts of healthful living through the conventional methods of books, stories, and field trips. Although there are very few Hygienic materials written for children, there are now other children's books that teach healthful living habits.

For example, there are now several books published on vegetarianism for children of all ages, as well as for preteens and early adolescents. There are storybooks that reinforce such teachings as kindness, consideration, fair play, and other positive values. By carefully selecting your child's reading, you can expose him or her to some character-building ideas.

Movies and television can also be used to instruct. Much care and caution should be exercised because most commercially-produced movies and T.V. shows are simply reflections of a culture obsessed with material goods, stimulation, fast foods, money, and exploitation. There are some good children's programs and instructional video tapes, however. Be alert for any of these in educating your child about healthful living.

Perhaps the easiest and most inexpensive way to teach by instruction is a carefully planned field trip. If you want a child to reject meat eating overnight, take them on a tour of an animal stockyard or slaughterhouse. Show them how poorly the animals are treated, and emphasize that if you don't eat animals, such things would not occur. All children can understand and deeply sympathize with cruelty to animals. This is an extreme example, and should be used with caution so as not to shock or traumatize the child.

More positive and enjoyable field trips can be made to parks and wilderness areas. Use the opportunity to show the child how animals live in the wild, and how they take care of all their needs naturally. Encourage the child to identify with such natural living, and to enjoy the outdoors.

Another excellent field trip can be made to orchards and home gardens. Many gardens and orchards in the summer offer outsiders a chance to pick their own fresh produce. Taking your child to a fruit orchard where he can pick his own lunch from a tree will greatly excite him and educate him about man's natural food.

Children love adventures and trips, and they needn't be expensive or far away. By using your imagination, you can take your child to see various sights that will deeply affect and shape his mind toward healthful living habits.

Give the child beneficial, direct experiences in healthful living, and these will make a far greater impression than simply words and advice.

3.4 Your Child As Teacher

You've heard it said that the best way to master a subject is to teach it. So it is with kids and healthful living. After your child has learned some of the facts about healthful living habits, you should encourage him or her to share these truths with a younger brother or sister or with their friends.

You don't want to make your child into an obnoxious brat who continually badgers people about their unhealthful habits, but you can let your child share his new knowledge with those around him.

If the child has a younger sibling, then give the older child the responsibility for teaching the younger one about healthful habits. Encourage your child to explain to his friends, and, playmates why he doesn't eat meat or take, shots. If this can be done in a nonargumentative way, then the child will feel as if he is sharing privileged knowledge and will be eager to learn more from you.

Do be careful, though. One beautiful Hygienic girl of nine had soon convinced her entire class at school to become vegetarians and no longer eat their friends, the animals. The meat-eating parents of the other children were enraged and threatened by the young girl's behavior, and soon forbade their children to play with her. Your child can learn by teaching, but let such experiences come naturally from the child's desires instead of from your urgings.

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4. Overcoming Obstacles In Teaching The Child

Teaching a child about healthful living would be easy if it were not for various obstacles that society, friends, and families sometimes present. Your efforts at educating your child can be undermined and undone by misinformed teachers, spouses, and playmates of the child.

If you want to make your teachings "stick," you need to know how to handle the most common obstacles that will arise during the education of your child in the ways of healthful living.

4.1 Public Schools and Indoctrination

The public education system can often undo in a matter of weeks what you have spent years teaching your child. One mother who practices Natural Hygiene and follows the teachings of Life Science enrolled her son in kindergarten. She stressed to the teacher that the child was raised as a vegetarian, and she wanted her son to eat the lunch she packed for him each day instead of the usual school lunch.

All went well for a few weeks, or so the mother thought. One day she came to school unexpectedly early to take her son on a trip. She arrived at lunchtime, and saw her vegetarian child with a hot dog. The nervous teacher explained that she didn't want the boy to feel different from his classmates, so she gave him what the other kids were eating. The young boy did not know that a hot dog came from a cow or that he was eating an animal. He thought he was getting an acceptable meal, like his friends.

The trouble with most public schools is that they perpetuate the same mistakes, false beliefs, and lies that you have tried to dispel in your child. Public education is not intentionally evil or destructive—it's simply ignorant, and exposing your child to that type of ignorance can destroy years of careful teaching and explaining.

Dr. Shelton wrote that what now passes for education is "a miserable distortion of what it should be. The most vital facts of life are concealed and distorted. Each generation is thus forced to repeat the mistakes of the past, because it is left in ignorance of the vital forces and facts of life. When are we going to really begin educating our children?"

If you must place your child in public school, then you must also institute a home education program to combat some of the lies and half-truths that they will be taught. A child may grow very confused when he is told one thing by his teacher and another thing by his parents. In such cases, it is best to explain to the child how different people think in different ways. Then you must guide your child toward developing his own way of thinking and reasoning.

In fact, your best defense against the indoctrination of public education is to teach your child at a very early age *to reason for himself*.

Dr. Shelton writes: "Always give the child a reason why he shouldn't pursue a line of conduct. If he is too young to understand the reason, tell him that he will be able to understand the reason later. Your child should be told why one way of living is superior to another way. Children should be allowed to use their own brains. The highest aim of education, whether it is at home or in the school, should be to help the child to attain rational self-control and righteous self-determination."

4.2 Trouble at Home

Sometimes your greatest obstacle to teaching your child about healthful living practices may come from a spouse, grandparent, or other relative. For some reason or the other, one member of the family may feel negative or antagonistic to the teachings of Life Science or Natural Hygiene. Perhaps your wife or husband or mother or father is not in sympathy with your own healthy lifestyle. Such a split can make it difficult for the child to learn correct habits.

A classic example is the case of the father who was very much against the vaccination of his child before being admitted to a public school. The mother, however, could not understand why her husband was so upset. After all, she had been vaccinated, with no apparent harm, so she could not support her husband in this decision.

The child was caught in the middle. His father told him that all shots were harmful and needless; his mother told him that the doctor would have to give him a shot before ho could go to school. No matter what happened after that, the child would lose respect for one or the other parent.

If your spouse or a close family relative is absolutely dead set against your new healthful living practices and teachings, then you will have to reach some sort of arrangement. Parents who argue and fight continually do as much emotional harm to the child as any unhealthful habit.

The parents and relatives of the child must *agree among themselves* as to the approach to take in teaching the child. It is far better for both parents to strongly support some type of compromise approach than for them to be at odds. If a child sees the parents are not in agreement, then he may use one or the other to get his own way.

In this case, it is best that the parent who strongly advocates a healthful lifestyle to be a shining example to the child. By presenting a positive, happy, and enthusiastic example of health to the child, the parent will have a greater effect than the negative influences of the other spouse.

4.3 Trouble at Play

Another obstacle to teaching the child about healthful living may be playmates and friends of the child. Children who were not raised Hygienically may expose your child to negative habits. Realize that such exposure is inevitable, sooner or later, and that you must devise a way of dealing with these influences.

A child does not like to feel "different" or be called "strange" by his friends and playmates. He doesn't want to feel out of the ordinary or be an object for ridicule. The child should not be isolated from other children simply because they have negative or unhealthful habits. It is necessary for the child to learn at an early age that certain actions bring about certain results.

For example, any time that one of your child's friends or playmates is sick, ask your child why he thought that his friend was sick. Then show him how he rarely becomes sick because of the habits he has formed. Don't make your child feel superior to his playmates; simply show him how negative actions and habits on their part produce negative results. In other words, try to help him learn from the mistakes of his friends.

Instead of having your child change his positive behavior to match the negative habits of his playmates, see if he can influence his friends to become healthier and happier. One way of doing this is to invite your child's friends over to share a meal with your family. If your child can share his health-building habits with his friends, then it becomes fun or like a game of discovery.

One excellent way to avoid strange feelings between your child and his playmates is to arrange a "Hygienic" style party for your child's friends. Serve them natural treats, and plan wholesome group activities for them. You may win a few converts, and you'll certainly be helping the other children in a small way.

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5. The Rewards Of Teaching Your Child

You will be continually well-rewarded for your efforts in teaching your child. A child who has learned the ways of healthful living will be cheerful, free from disease or distress, and a source of enjoyment to the parent.

Dr. Russell T. Trall, a pioneer in the Natural Hygiene movement, wrote this about the outcome of teaching your children how to live healthfully:

"In youth, children are the dependencies of their parents, and subject to their government which may either be wise or foolish. When they enter the world, they will go forth either as useful members of society or constant annoyances and curses. Their eventual actions and character were predetermined long before their assuming personal responsibility. They are the products of their parents' teachings, and show the result of the care or lack thereof that was bestowed upon them from the time of conception to the day that they step into the world."

Finally, the words of Dr. Herbert M. Shelton should serve as inspiration for those of us who must teach the young how to live in this world: "We can build a nation of super-Venuses and Apollos, with minds as well-developed as their bodies and with splendid morals and lovely characters. As parents, your greatest charge is to acquire and make use of the available knowledge in teaching children how to live a healthy, happy, and long life."

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6. Questions & Answers

What should you do when you discover your child going against the teachings you gave him? My youngest son who is twelve has been chewing tobacco with his friends.

> The best reaction is to be unemotional and logical when you talk to your child about such a problem. By the age of ten or so, you can start treating your child as an adult. You tell him that he alone will have to take full responsibility for his actions, and that if he suffers or becomes sick because of his habits, then it is his fault. Many people, both adults and

children, indulge in destructive habits because they do not understand the eventual outcome, or they believe that the evil they do may be undone by medicines, doctors, or other treatments. If your child fully understands that he alone is responsible for his health and happiness or sickness and misery, then he may act more responsibly

All children experiment with "bad" habits that they may pick up from their peers. If you do not overreact (which is what the child is sometimes seeking), then the habit may be dropped. Incidentally, children often do just the opposite that is told them in order to get some sort of attention. Show no outward concern and worry, but make sure that you increase the amount of love and attention you give a child that is indulging in bad habits. This positive reinforcement, instead of a negative and emotional outburst, will impress the child and lead him back to the healthful habits that you have taught.

I became interested in health after my children were in school. It's hard to get them to change to my new life.

Why should you expect your children to make a change that took you twenty years longer to do? The people who first realize the truth about health may be the blindest when it comes to accepting the shortcomings of others

The approach to take when this occurs is to make all of your new healthful habits part of your old lifestyle. Children distrust and fear radical changes in their parents, and it may confuse or repel them. They may react so negatively to these changes in a parent that they will overindulge in destructive habits, as a way of asserting their own independence from the parent

The best way to handle this is to try to get the entire family involved in your new healthful lifestyle. Let them discover the advantages of healthful living along with you, instead of you presenting it to them. Involve them with your hew lifestyle, diet, and exercise program. Let them help plan the meals, exercise along with you, and just be generally a part of an exciting new adventure in health

At this stage, it is important to emphasize the positive sides of this lifestyle, and not dwell upon the old negative habits. For example, instead of telling your children that there will be no more candy in the house, tell them that you will be getting delicious dried fruit, dates, raisins, and nuts for them as a snack. In other words, always make the child believe that healthful habits mean more fun, more life, and more things to do. Don't make health a "negative" experience by telling the child he can't eat that or he mustn't do this or he shouldn't act this or that way

Children react strongly to positive, new changes. If you present your new lifestyle as a way of having more fun instead of denying old pleasures, then the children will follow you gladly.

The only problem I've had in teaching my child is that he doesn't want to be different from his playmates. He can't understand why he can't have a "Kool-Aid" sales stand or eat candy bars, and he doesn't like the kids making fun of his lunches.

You will have to be more creative. You can make your child "candy" from various dried fruits, or suggest that he sell fresh fruit juices instead of junk beverages with the kids. Invite his friends over to lunch some day and go all out for a great Hygienic meal

Don't let your child become isolated because of his healthful habits. Encourage him to play with his friends, regardless of their differences, and make sure you give him enough support when he needs it. Also, try to anticipate any situations that may make your child feel uncomfortable, and do your best to smooth the way

Every child, at some time or the other, will be teased for being different in some way. If you remain supportive and demonstrate unreserved love for the child, then such situations will not be harmful.

Home > Children And Healthful Living > Article #1: Does Your Child Have Eating Problems? by Joyce M. Kling

Article #1: Does Your Child Have Eating Problems? by Joyce M. Kling

Overeating, undereating, eating poor foods, playing with food and fussing during mealtimes—does your child display any of these problems. If so, the first step is to find what causes them.

Finding Causes

Perhaps you have too many mealtime rules such as don't talk, sit still, eat everything on your plate, don't make a mess, etc. All these rules may make your child uncomfortable and cause him to fidget when he should be relaxed.

Do you condemn him for his eating habits? This may make him insecure and the problem may grow rather than dissipate.

If your child is angry at you for something and knows that certain eating patterns are likely to "get" you, he may just try them. If your child feels unloved, either because of jealousy of a sibling or because you've been less attentive than he feels you ought to be, he may undereat, overeat, or fuss to get your attention.

If you're fanatical about his diet, you may be causing him to desire exactly those foods that you don't want him to have. Idling a child that a certain thing is "bad" may make him more curious about it, especially since he sees so many other children eating it.

Finding a Solution

First, create a pleasant and relaxing atmosphere for your child's meals. Make sure that the chair he sits in enables him to reach the table and is comfortable. The area he eats in should be well-lit so he can see his food. Eliminate such distractions as TV, radio, frequent dinner guests, etc.

Don't make a big deal out of mealtime. It shouldn't be considered a special time of the day but an ordinary routine. "Special" times often mean that the child is supposed to behave extra good and may cause him to do the opposite.

Instead of condemning your child for his habits, try to understand his actions and explain to him why it's best to relax while eating, eat certain foods that are nutritious or to eat certain amounts for best health. Praise him when he behaves rather than punishing him when he doesn't.

Never force your child to eat if not hungry. It's best to let him skip a meal if he's not feeling well or is tired.

Liquids are best not served with meals. They dilute the digestive fluids in the stomach and also give a child a "toy" to play with. Children often pour their beverage into their foods.

Make sure there's variety in your meals. If you serve the same things day after day, he may get bored and not eat.

If you want your child to eat nutritious foods, teach him about them because he won't get this information from other sources. The influence of T.V. junk food commercials on children is amazing. T.V. commercials proclaim, "Aren't you hungry for...?" and then flash a big juicy hamburger across the T.V. screen thus enticing young viewers. Try to balance out the input he gets from peers, the media, etc., regarding foods and eating habits by setting a good example.

One mother who is raising her child on raw fruits and vegetables once let him eat his share of junk foods. He got very sick and she explained to him that that's what happens when you eat wrong things. He no longer desires what the other kids eat.

However, it's not always that easy. My son is always desiring junk foods and when he tried a hot dog, he didn't immediately get sick despite the fact that I had told him he would. He then thought I was lying to him. In this case, I still try to provide him with a nutritious diet and eliminate his exposure to junk foods as much as possible. He'll probably get some "bad" foods at times but it won't be as had as most children who get it all the time.

Get Your Child Involved

Get your child involved with the selection and purchase of foods, their preparation, as well as the after-meal cleanup, and he'll take a greater interest and may eat better. Ask him what he wants for dinner and you may be surprised how reasonable his choices can be. Then let him help to prepare the meal in as simple a way as possible. He'll show great enthusiasm and want to get involved more often.

My five-year-old son enjoys making his own "smoothies" and feels very independent when doing so. He usually sits still and eats it to completion afterwards.

Results of Good Eating Habits

Knowing that you don't have to "live with" your child's eating problems should be a relief to you. The effort you take to modify your child's behavior creates harmonious meals that digest fully. You'll all enjoy your meals more.

Lesson 60 - Self-Sufficiency And Natural Hygiene

- 1. Similarities Among The Primates
- 2. Man's Fruit And Vegetable Culture
- 3. Food Self-Sufficiency
- 4. Fruit
- 5. Nuts And Seeds
- 6. Food Preparation
- 7. Sunshine, Fresh Air, Exercise
- 8. Rest, Relaxation And Emotional Well-Being
- 9. Our Body Is Self-Sufficient
- 11. Freedom From Reliance Upon The Medical Community
- 12. Questions & Answers
- Article #1: The Natural Food of Man By Emmett Densmore, M.D.

The Hygienic lifestyle and the basic Hygienic philosophy lends itself easily to a self-sufficient lifestyle. As we have stated before, man is a frugivore, as are the other primates. A brief study of these primates will give us a clearer picture of man's dietetic nature.

1. Similarities Among The Primates

In 1680, Edward Tyson was the first to use comparative anatomy extensively and demonstrated the similarities between the orangutan and man. His best known work was published in 1699 which compared the anatomy of a Pygmie with that of a monkey, an ape, and a man. Tyson was himself surprised at how closely the orangutan resembled man.

In 1758, Carl Linnaceus recognized the close relationship between humans, monkeys, and apes. He was the one who officially devised the group name or order, primates, to encompass them all and to denote their high ranking in the organization of the animal kingdom. At the time it was generally held that species were fixed. The arrangement of the animal kingdom was seen as a precise hierarchy of increasingly complex forms, each created independently of ones to either side of it—beginning with the humblest creature and culminating with the primary of man. Linnaceous's work did not threaten this theory. He believed that all animals had been created by the hand of God and that man had been set apart from them in a special way.

By the end of the 18th and well into the 19th century, two distinct lines of approach had appeared. There were still those who saw all forms of life as having been created by the hand of God, and there was a now hardening core of evolutionists who thought in terms of gradual processes of complexity. The conclusion that man was in effect a highly-developed ape was a bombshell to Victorian Britain and to the world at large. It was in direct contradiction to the Biblical doctrine that man was made in God's image.

The debate on man's origins continues to rage, though among scientists rather than theologians. A mass of fossil remains have been found to justify Darwin. The evidence does not suggest, and never has, that we evolved from any ape that we know today. It suggests that both we and these apes had a common ancestor which developed along different paths, going their different evolutionary ways, something like 20 million years ago, during the Miocene Period.

So far as the anthropoids are concerned, it is apparent that they began as arboreal creatures, living on the fruits that trees yield especially for consumption. Wild fruits constitute nearly the whole diet of the orangutan and the chimpanzee. The gorilla, whose weight brought him along with man, to the ground, has expanded his menu to include wild cherry, berries, and bamboo shoots, and some roots.

A key factor to the behavior of the orangutans is the distribution and seasonal ripening of the fruits of the forests. Orangs show a strong liking for such fruits as figs, lichees, plum, mangosteen, durian, and rambutan, all lone trees scattered somewhat thinly through the forest. To survive, they must know exactly where these delicacies are located, and when they will be available. When they find one of them ready for eating, they will immediately strip it bare and then set off for the remaining trees of the same species growing within their range. This mono diet of fruits proves most condusive to the health of the orangutan and the perpetuation of their species.

The full-grown gorilla male may weigh as much as 600 pounds. Yet despite their great size and fierce aspect, gorillas have remarkably peaceful dispositions and lead generally tranquil lives. Found only in tropical forests and mountains of central Africa, they feed on the fruits and the vegetation that they find there.

Charles Darwin predicted more than 100 years ago that Homo Sapiens would be found to have evolved in Africa. It is now accepted that he was right. Fossil bones and stone artifacts found over the last decade in Tanzania, Kenya, and Ethiopia have extended human history back over five million years. It now seems certain that our prehuman ancestors shared their African homeland with creatures— the Australopithecines—to whom they were closely related, but yet who vanished into evolutionary oblivion.

Analysis of the protein molecules of blood among living primates suggests, on the basis that the more similar they are from different animals, the more closely related those animals are. A significant result of these blood tests was that in the chimpanzee and man some 99% of proteins are identical, confirmation of their closeness to man.

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2. Man's Fruit And Vegetable Culture

Like the apes, humans have always been gatherers of fruits. The tropical fruits we know today are the result of cultivation. Similarly, the fruits of the temperate zone—the apple, lemon, orange, pear, fig, apricot, plum, filbert, walnut, etc.—could only have reached their present position through their improvement by man over many millennia. Most of these food plants are of Asiatic origin: they are the products of an age-old fruit culture.

The more important annuals appeared first in association with man and the simultaneous appearance on the historical record indicates a greater age of agriculture than the archaeologists and anthropologists have allowed. This is a logical conclusion because, as cultivated species, fruits and nuts could only have been developed from time to time under the artificial conditions imposed by humankind. If they should be abandoned to nature, they would disappear. The wild fruits eaten by anthropoid creatures were the prime factor in human development and not a product of that development.

According to Henry Bailey Stevens (*The Recovery of Culture*, New York: Harper & Brothers Publishers, 1953), it was after the second glaciation that human tools made their appearance. It appears that there are two main types of tools which were used during that early period. They are the hand axes that originated in the South and the flakes that were used as spears and harpoons in the North.

The hand ax is particularly well fitted for dealing with trees and wood, digging up roots, and cultivating the ground. Also, from this point of view, it seems rather obvious that the hand ax must have originated in a southern, tropical, or subtropical country, where forest and tuberous plants abound. The presence of stone tools at this time suggests that man was actually planting seeds.-The great body of mankind living in the warmer portions of the earth need have been no more concerned with hunting and fishing than were the apes. Their main interest lay in obtaining food from plants, and they became horticulturists.

When the ice age came and most men went south, scattering tribes were caught in the peninsulas or between mountain ranges and the ocean. These tribes had to face living in a world where green life either vanished or became very meager. If they were to survive, they had to readjust themselves drastically. They came to eat great quantities of shellfish. They learned the use of fire and they became beasts of prey. It was they who developed the spear and the harpoon and became accustomed to eating meat.

As the ice receded and plant food became again abundant, the capacity of the middle lands increased and the growers of crops moved into a region accustomed to the hunting economy. Thus the ultimate population of these lands was exposed in the Stone age to two distinct types of culture—one of the handax culture of the South, the other, the spear culture of the North.

The evidence appears overwhelming that the intimate relationship between anthropoids and fruit trees did not end a million years ago when man descended to a terrestrial existence. Rather, the association continued in the southern lands and was the actual impetus in our whole cultural development. It was when man found that he could affect his food supply through the selection and planting of seeds and cuttings and the improvement of soil conditions, that he started the great upward spiral that set him above the apes. Culture developed when we evolved from the simpler primate into the complex human.

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3. Food Self-Sufficiency

Like our food-gathering predecessors, we can also be self-sufficient in obtaining our daily food. (Editor's note: Of course, this is not possible now for most people but, most people can be largely or wholly food self-sufficient as many people in this country and the world over are.)We do not have to rely on supermarkets for tasteless, overfertilized, and oversprayed fruits and vegetables. Since all of the food that we require is easily cultivated, and since we do not have to rely on animal products, we can easily grow our own foods.

Even the city dweller can grow fruits and vegetables in containers and be able to at least significantly contribute to their food needs. Many cities now have started community gardens where you can rent a plot for the season and grow all of your own vegetables. In the warmer sections of the country, this can be a year-round project. There will never be any need to purchase any supermarket produce. Even in the cold regions, the use of cloches, cold frames, and hotbeds can greatly extend the growing season. With a root cellar to preserve many of the vegetables and fruits, you can be self-sufficient even in the North. Lets take a look at some of those aids to food self-sufficiency.

3.1 Cloche

A chloche is a glass or plastic tunnel not more than 24 inches wide and of any length. It is designed to cover crops that are in the field or garden and thus offer them protection from extremes in temperature.

Thus, with a cloche, you can get a jump on the season and set out plants weeks earlier than you normally could. You will be harvesting fresh lettuce before most people think of putting the plants in the ground and other more tender crops such as tomatoes can be gotten off to super early starts with earlier harvests.

At the end of the season, plants can once again be protected by these handy devices and you will be still harvesting weeks after the first frost.

3.2 Cold Frames and Hotbeds

Using cold frames and hotbeds will bring us one step closer to food self-sufficiency. One main advantage of these devices is that you can start your own vegetable plants and not rely on the few select varieties that are offered by the local nurseries. You can select those particular varieties that do especially well in your particular growing area and suit your needs and tastes. You will also be assured that your seedlings are not given chemical fertilizers and pesticides that result in weaker and less desirable plants.

Cold frames and hotbeds are of similar construction. They both have a wooden frame with glass windows on top that allows sunshine to reach the plants. These windows can be opened and closed to regulate temperature and for ventilation.

What is the difference between a hotbed and a cold frame? A cold frame has the same construction as a hotbed, except that there is no extra heat introduced into the cold frame. In a cold frame you can propagate such cold-loving plants as cabbage, broccoli, and cauliflower. Or you can use cold frames to acclimate to outdoor temperatures plants that have been started in hotbeds. Start heat-loving plants—peppers, tomatoes, eggplants, and others—in a hotbed.

There are two types of hotbeds. One is heated by a great deal of fermenting straw or fresh manure, which has been placed in a pit 2 1/2 feet deep. Another type is made by arranging electric heating cables five inches below the surface of the topsoil seedbed. The coils produce a steady heat day and night while the fermenting straw method is only effective for a few weeks.

3.3 Greenhouses

There are several advantages that all-year gardening greenhouses afford. Summer and fall crop yields can be stretched one season longer, often through the otherwise deadly winter season. Gardeners also use their greenhouses to gain a head start on springtime planting.

Another important plus to greenhouse gardening comes with the opportunity to control the growing environment. Frosts, blizzards, rainstorms, and other weather threats can be virtually ignored behind the protection of greenhouse windows and walls.

Further, there is a health-promoting aspect of home gardening. Tending fresh fruits, vegetables, and ornamental flowers throughout the year is considered by many doctors to be of value to help overcome daily stress and work tension.

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4. Fruit

Basic to the Hygienic diet is fruit. This ideal food can be easily grown by a Hygienist and bring him one step closer to food self-sufficiency. There are many things that you can grow on a long-term and short-term basis. First of all, to get a quick crop of fruit during your first year, melons and tomatoes are the answer. They are easy to grow and will produce in virtually any part of the country. For those living in the northern sections, look for varieties with short maturity dates. In the warmer sections of the country, the season can extend over a long period of time.

For the second season, you can additionally enjoy many varieties of berries. They will begin to bear the second year after they are planted and will produce in abundance every year thereafter.

Grapes are also a fairly fast crop to mature and an excellent addition to the Hygienic diet. Some fruit trees are suited to every part of the country and the possibilities are broad. If space is a limiting factor, try the dwarf varieties. 'They will begin to bear fruit early and the quality of fruit will be excellent.

4.1 The Orchard

It is natural for man to desire to plant and live in an orchard as his ancestors did. Given a choice, almost anyone would choose to surround himself with trees and follow our primal instincts. Here, we are surrounded with our basic food of fruit and nuts and a serene environment that will produce mental and physical health. The orchard provides the most natural and healthful habitat for man.

The Hygienist lives symbiotically with other creatures in his orchard and lets these creatures maintain harmony within the orchard. Thus, predatory insects keep pests down to reasonable numbers, as do birds. Since the homesteader does not see the orchard with dollar signs in front of his eyes, he accepts a few mishapen fruits and shares some of his bounty with the insects and birds. There is plenty to go around. Some of the culls can always be made into juice or put on the compost pile to enrich the soil. The beautiful blossoms in the springtime are not only an esthetic delight but benefit both man and bees. Bees collect pollen to manufacture their honey and at the same time pollinate the blossoms assuring perfect and bountiful fruit for man.

4.2 Dwarf Fruit Trees

Dwarf fruit trees, usually from six to ten feet tall, are easier to plant, fertilize, mulch, and harvest than are standard-sized fruit trees. They usually begin fruiting far sooner, often by their second year and sometimes the same year they are planted. Standard trees usually take five years to begin bearing and sometimes as long as ten.

A mature dwarf apple or pear can produce two or three bushels of quality fruit per season. Semidwarf varieties, growing from 12 to 15 feet tall, are also available. These produce more than twice as much fruit per season in a quarter of the space necessary for the standard tree. The fruit from dwarf trees is equal in size and quality to that of the standards, and is often larger and of better quality because of the individual care the growers lavish on their type trees.

Dwarf trees allow the homesteader with a small plot of land to have a variety of fruits in a succession of harvests. For example, the 40 by 40-foot space usually deemed necessary for the standard 25-foot apple tree could accommodate 16 dwarfs, each of which requires a 10 x 10-foot space.

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5. Nuts And Seeds

The third most important item in the Hygienic diet is nuts and seeds. Although it takes several years for nut trees to reach maturity, it is well worth the wait. Just about all parts of the country can grow hickory nuts, English and black walnuts, pecans, or filberts. A couple of these trees in your back yard will satisfy all desire for nut protein for your family for the entire year.

While you are waiting for your nut trees to mature, you might want to try growing sunflower seeds. These plants are very quick to mature and will yield an abundance of nutritious seeds. Pumpkin seeds are another item that you might want to consider. There are now hulless varieties that you should consider planting in your garden.

5.1 Sunflowers

Growing sunflowers is an enjoyable experience. When plants are young, their heads will turn to face the sun each morning. Sunflowers grow very well with mild, organic fertilizers, and they have few insect pests, so spraying is unnecessary. They will grow on just about any soil although they may need some kind of support. A gently looping of two or three stalks together will help the plants withstand damaging winds. In a small garden, sunflowers should be planted in the back or along the perimeter of the property.

Sunflowers can be harvested as soon as the backs of the seed heads are brown and dry. At this time, the inner rows are ripe, but need drying. To harvest, cut off the heads with about a foot of the stalk attached. The stalks are tied together, and the heads hung in a airy room to dry. When thoroughly dry, remove the seeds by rubbing the heads lightly. If stored in airtight containers, their food content and vitamins will remain in good condition for a long time.

While sunflowers come in dwarf, semidwarf and tall varieties, the best kinds for the average gardener or homesteader are the common garden sunflower (H. annuus) and the giant sunflower (H. giganteus), also called the Indian potato. The common garden sunflower sometimes reaches heights of 10 to 12 feet, with blossoms one foot or more in diameter. The plants are widely cultivated in the United States, the Soviet Union, India, South America, Canada, and Egypt. It is the state flower of Kansas.

The giant sunflower is a strong-growing perennial that climbs to 12 feet or more and bears a huge flower packed with big seeds suited for harvesting and eating. Most popular and widely grown of the giant varieties is the Mammoth Russian, which matures in about 80 days. Besides being the largest and tallest of all sunflowers, it bears big, striped seeds that are thin-shelled, meaty, and rich in both flavor and food value. The plants' towering, husky stalks make excellent screens or field backgrounds. When grown, close together, their broad leaves block the sun from weeds.

Sunflower seeds are concentrated source of protein, calcium, phophorus, iron, vitamin A, nitrogen, thiamin, riboflavin, niacin, and vitamin E.

5.2 Pumpkin Seeds

Pumpkins, a member of the squash family, will flourish in every part of the United States where enough moisture is available. They prefer a reasonably rich soil and sandy loam is ideal. A well-drained bed containing a supply of humus and rotted manure will produce healthy plants. Regardless of the condition of the garden, greater success will be assured if you add compost to each hill.

Pumpkin seeds should not be planted until all danger of frost has passed. They need to be spaced about 10 to 12 feet apart as they need plenty of room to grow. Six seeds to a hill covered with an inch of soil will be sufficient. Thin each hill to the two best plants. Where the growing season is short, plants may be started indoors about a month before they can be planted outdoors. Outdoors, set two seedlings to each hill.

Pumpkins may be harvested when they achieve their characteristic orange color and the rind is hard. Then cut the fruit in half and scoop out the seeds. It is best to purchase the hull-less varieties that are now available. (Most seed companies carry them.) After you have removed the seeds, separate them from the stringy pulp and spread them out on screens or newspapers to dry. After thoroughly dry, place them in jars for storage.

Pumpkin seeds make an interesting addition to our diet and contain high-quality proteins, vitamins, and minerals. You do not have to pay high prices for these nutritious seeds when you can so easily grow them yourself on your way to self-sufficiency.

As you can plainly see, all of the food components of the Natural Hygiene diet can easily be grown and propagated. This type of diet lends itself easily to a self-sufficient lifestyle.

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6. Food Preparation

Since all foods are eaten in their raw state by Hygienists, we do not have to worry about cookstoves and the gas or electricity that is unnecessary to operate them. In fact, the Hygienic diet is so easy to prepare, there is practically no preparation at all. All that is required is a quick rinse to wash the dirt off of the fruits and vegetables and that's about all.

Shelling nuts is really more fun than work. Shelling also makes you eat slower and masticate the nuts well. This ensures better digestion and assimilation.

Since little time is spent in food preparation, more time is available for enjoying the other benefits of the Hygienic lifestyle.

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7. Sunshine, Fresh Air, Exercise

Other aspects of the Hygienic lifestyle consist of sunshine, fresh air, and exercise. These fit easily into a lifestyle of self-sufficiency. While we are gardening and planting our fruits and vegetables, we are receiving the sufficient benefits of all three life essentials. We do not have to think about doing morning calisthenics when we are getting so much natural exercise tending to everyday chores.

Country hying and homesteading bring the benefits of, fresh air that is so scarce in the cities. All of these factors come naturally and easily when a Hygienic lifestyle is followed.

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8. Rest, Relaxation And Emotional Well-Being

After working in the fresh air of your homestead, rest and relaxation will also come naturally in your tranquil environment. There is nothing like fresh air and exercise to promote sound and restful sleep and you will wake up refreshed and ready to meet all of the challenges of the day.

When you are healthy physically, you will be likewise healthy mentally and emotionally. Nothing is more restful emotionally than tending your flower bed around your house, planting the seedlings and watching them slowly bloom during the season. It is really a satisfying feeling of accomplishment to know that you had a part in such a beautiful display of nature.

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9. Our Body Is Self-Sufficient

While striving at self-sufficiency on a homestead, our body is already an "old hand" at such matters. From the moment of birth, the body is self-healing or self-repairing, self-directing and self-regulating on a continual basis. Let's take a lock at how it has been accomplishing this task.

9.1 Cells of Repair

Our body has certain cells with very specialized jobs to perform. These cells work for us to maintain health and thwart any outside influence that may interfere with our well being.

9.2 Neutrophil

The neutrophil is a white blood cell that is one of the most common and most important of the cells active in the healing and repair process. These cells contain large quantities of a characteristic protein that has a marked ability to dispose of decayed or spent bacteria and other debris.

During the inflammatory reaction, neutrophils migrate into the tissues where they are very active phagocytes. In this situation, neutrophils are mainly responsible for ingesting the unwanted debris that accumulates. During phagocytosis, the granules or lysosomes of the cells are discharged and many of the cells die; the aggregate of dead neutrophils forms the material known as pus. Bacteria then proliferate to feast on this pus, thus making it easier to expell.

9.3 Eosinophil

Eosinophils are white blood cells that occur in the bloodstream in much smaller numbers than do neutrophils. They are also somewhat phagocytic and are found in greatly increased numbers in both blood and tissues during inflammatory conditions.

9.4 Basophils

Basophils constitute only 0.5 percent of the white cells of the blood. They are said to contain histamine and a heparin-like substance. Histamine dilates capillaries and often permits fluid to move through the capillaries and into the tissues. Heparin is an anticoagulant of the bipod. Apparently tissue basophils become the mast cells of the tissues. The large granules of mast cells are thought to store enzymes.

Mast cells are important in cellular mechanisms needed during injury.

9.5 Monocytes

There are comparatively few monocytes in the blood-about 5 percent of the total white cell count. Monocytes are actively motile and phagocytic. It is thought that they function in contributing to the repair and reorganization of tissues.

Monocytes and macrophages are capable of engulfing old, worn out neutrophils, mast cells, and particles of tissue in the process of cleaning up an area of inflammation after the initial stages have been passed and recovery is in progress.

9.6 Fibroblasts

The function of fibroblasts in tissue repair is to lay down dense collagen fibers to form a firm, mechanically-strong replacement for dead tissue. The simplest such situation is after an incised wound has been made in the skin. There the collagen fibers are oriented transversely across the incision, restoring mechanical strength.

9.7 Lymphocytes

Lymphocytes are also strongly phagocytic and carry out their duty of healing and repair by assisting the neutrophils during inflammation conditions and injury

The Organs of Repair

9.8 Lymph Nodes

The lymph nodes contain small lymphocytes and large dendritic macrophages. The dendrites of the macrophages carry important impulses or messages to the cell body.

The lymph stream widens very greatly as it passes through the node; therefore the rate of flow is greatly reduced. The lymph filters through a maze of passageways lined with phagocytic cells. Such cells engulf bacteria and other foreign materials from the lymph stream. Thus the body is kept in a healthy and stable condition.

9.9 The Spleen

The spleen has four major functions:

1. Blood destruction - Old red blood cells are destroyed in all parts of the reticuloendothelial system, including those of the lymph nodes and spleen. (Reticuloendothelial system applies to those cells scattered throughout the body that have the power to ingest bacteria and solid particles.)
2. Cellular production - The spleen manufactures lymphocytes and monocytes.
3. Blood storage - The spleen serves as a reservoir for blood, or, more specifically, for red blood cells, as most of the plasma is returned to the circulation whereas red blood cells are enmeshed in the splenic pulb. Marked contraction of the spleen occurs during muscular exercise, thereby releasing red blood cells and increasing oxygen capacity. The spleen undergoes rhythmic variations in size in response to physiologic demands, such as exercise and hemorrhage, and thus influences the volume of circulating blood. The volume of stored blood may vary from a liter to as little as 50 ml.
4. Blood filtration - The spleen, serving as a part of the body's reticuloendothelial mechanism, filters spent cells and their debris from the blood.

9.10 The Liver

Organisms are filtered from the blood by macrophages in the wall of the sinusoids (minute blood vessels), and various toxic chemicals are removed from the blood by liver cells.

The sinusoids are lined partly by flat nonphagocytic endothelial cells and partly by more rounded and irregular shaped macrophages (or Kupffer cells) that project into the lumen of the sinusoid. These cell?

are similar in structure to macrophages elsewhere and are avidly phagocytic.

The protective function of the liver is associated with its ability to detoxify products of catabolism, that might accumulate in dangerous proportions. These products are changed chemically into substances that can be excreted by the kidneys or through the intestinal tract. Macrophages present in the liver sinusoids aid in filtering foreign matter from the blood.

9.11 The Bone Marrow

Bone marrow is highly important as the source of the cells of the blood and other cells in the body's system. Development of blood cells within the bones commences during the fifth month of fetal life.

Blood-forming elements appear initially in the centers of the bone marrow cavities; the blood-forming centers later expand to occupy the entire marrow space. This widely-dispensed blood cell formation continues until puberty, when the marrow in all the ends of the long bones becomes less cellular and more fatty, giving rise to yellow bone marrow, in which most of the hematopoietic tissue has been replaced by fat. In the adult, only the red bone marrow, located principally in the skull, vertebrae, ribs, sternum, and pelvis, retains hematopoietic activity. The total productive bone marrow in the adult is about 1,400 gm.

It is apparent that a most important part of the bodily repair mechanism is the production of cells—polymorphs, lymphocytes, macrophages, and plasma cells. When bodily mechanisms break down, one of the commonest causes of impairment is failure to produce these cells. The failure may be due to drugs or poisons, to gross errors in diet, to destruction of the bone marrow by neoplasm, or to irradiation of the marrow. The way that the mechanism fails depends on what group of cells is most severely affected. If the precursors of neutrophil polymorphs are affected, then there is an acute shortage of cells able to phagocytose dead or decaying bacteria. Alternatively, the megakaryocytes may be damaged. These are the precursors of the blood platelets, the cells that play a vital part in blood clotting. In their absence, the blood will not clot and the individual may bleed to death. Such abnormalities only occur in an enervated and toxic body. When you are living correctly, cells that are active in healing and repair will be present in correct numbers to maintain a state of health.

From the above study of the roles of the cells and organs of repair, you can clearly see that the body is constantly at work to maintain homeostasis or ideal operating conditions. Even under some adverse conditions (when we disobey some physiological law of nature), these forces remain active. It is only after repeated abuse that the healing forces fail because they become overwhelmed and exhausted. It is the duty of the teacher, then, to instruct his client to restore the conditions of health. The body's healing forces will then reachieve normalcy.

10. Inflammation

Inflammation is a healing response. Whenever there is tissue damage as a result of injury, the damaged tissue cells produce histamines. These histamines cause changes in tiny blood vessels, which in turn release fluids into the injured area. Local blood flow increases, bringing special blood cells (whose specialty is collecting alien substances for elimination) to the area. Along with these cells comes fibrinogen, which causes clotting. The clotting results in what is called "walling off," that is, nature literally builds a partition between the infected area and the rest of your body. The partition, or wall, stops body fluids from moving outside the infected area, and these fluids build up in the area, causing the characteristic swelling of inflammation.

Before inflammation can arise, there must exist an exciting cause in the form of some obstruction or of some agent inimical to health and life. In this light, we see inflammation as a healing process.

Dr. H. Lindlahr explains that the body does not suppress the growth and multiplication of bacteria until the morbid matter on which they subsist has been decomposed and consumed, and until the inflammatory processes have run their course through the five stages of inflammation. He says serums and antitoxins given in powerful doses at the different stages of any disease may check and suppress microbial activity and the processes of inflammation before the latter have performed their natural roles and before the morbid matter has been eliminated.

The five stages of inflammation as described by Lindlahr are as follows:

1. Incubation - During this stage, morbid matter, poisons, and other excitants of inflammation collect and concentrate in certain parts and organs of the body. When they have accumulated to such an extent as to interfere with the normal function or to endanger the health and life of the organism, the life forces begin to react as an emergency basis to the obstruction or threatening danger by means of inflammatory processes to accelerate healing.
2. Aggravation - During the period of aggravation, the phagocytes engulf toxins within the body. This is accompanied by a corresponding increase in fever and inflammation, until it reaches its climax, marked by the greatest intensity of feverish symptoms.
3. Destruction - There is disintegration of tissues due to the accumulation of exudates due to pus formation and body development of abscesses, boils, fistulas, open sores, etc., as exits for the toxic suppuration.
4. Abatement - The absorption and elimination of exudates, pus, etc., takes place during the period of abatement. It is accompanied by a gradual lowering of temperature, pulse rate, and the other symptoms of fever and inflammation.
5. Resolution or Reconstruction - When the period of abatement has run its course and the affected areas have been cleared of the morbid accumulations and obstructions, then, during the fifth stage of inflammation, the work of rebuilding the injured parts and organs begins.

It is extremely important not to interfere with any of these stages. The best action to take is to put the body to rest so that all of the energy can be utilized for healing. Lindlahr explains what may happen if healing is suppressed during any of these stages of inflammation.

10.1 Suppression During the First Two Stages of Inflammation

Lindlahr says that this practice always involves the danger of causing uneliminated poisons to overwhelm vital parts and organs, thus laying the foundation for chronic destructive disease.

10.2 Suppressing During the Third Stage of Inflammation

If suppression takes place during this stage, the affected areas may be left permanently in a condition of destruction and this also leaves the affected organs permanently in an abnormal condition.

10.3 Suppression During the Fourth and Fifth Stages of Inflammation

If these processes of elimination and reconstruction are interfered with or interrupted before they are completed, the affected parts and organs will not have a chance to become entirely well or strong. They will remain in an abnormal, crippled condition, and their functional activity will be seriously handicapped. Rebuilding has not been completed. The body will effect a thorough and efficient repair if allowed to do its work unhampered.

Often, people regard inflammation as a "disease" entity to be suppressed, but in reality it is a healing process where nature makes massive attempts to reestablish health.

10.4 Healing in the Skin

An excellent example of the healing powers of the body is seen in wound healing. When the skin is broken due to a wound, the tissue is first sealed by plasma that leaks from the severed ends of small capillary blood vessels. It clots forming a glue-like substance that binds the sides of the wound together. This substance is proteinaceous in nature.

Small buds of cytoplasm from the capillary lining cells move into the clot where they fuse in the middle. The neutrophils and macrophages now move to the site and remove debris by phagocytosis.

Fibroblasts begin to synthesize collagen fibers that are laid down in amounts greater than normally found in the skin. This forms the scar tissue that is normally seen after healing of any cut. The epithelial cells move and divide and eventually restore the skin to normal proportions.

10.5 Enkephalins

Another example of the ability of the body's own intrinsic forces to take care of every need is demonstrated in the newly-discovered enkephalins.

It was suspected that the brain and spinal cord contained narcotic receptors. These are sites on cell surfaces where a narcotic would have to bind in order to produce narcosis. It was reasoned that if the body has receptors for narcotics, then it must produce some narcotic-like substances.

On December 19, 1975, Hughes, Kosterlitz, and their coworkers discovered a new material from pig brain and reported its chemical structure. It turned out to be two substances, both peptides that were called enkephalins. It is thought that the enkephalins cause a reaction that inhibits the release of the sensory nerve's neurotransmitter when they bind themselves to the receptors. This partially blocks the impulse to the brain and as more enkaphalins are available on the portion of the end of the sensory nerve, neuro-transmitter production is blocked and still less pain is perceived. If still more enkephalins are produced, pain may be greatly eased or eliminated completely.

It is suspected that enkephalins exist to a certain extent at all times but the levels greatly increase during times of need. A signal of pain would initiate further production of this chemical.

It is theorized that enkephalins may also play a role in mental illness. A normal amount in the amygdala (a mass of gray matter in the anterior portion of the temporal lobe of the brain) may act as the body's own defense against disappointments and losses. A deficiency of enkaphalins in those brain regions that are involved in emotions may result in increased mental pain and depression.

It has been discovered that certain brain receptors still bind morphine more effectively than it binds enkaphalin. Now scientists have discovered small amounts of morphine in both human and cow's milk. Plants in the diet are likely sources for this morphine. Lettuce, for example, has been found to have measureable amounts.

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11. Freedom From Reliance Upon The Medical Community

Since the body is a self-healing and self-repairing organism, the Hygienist does not rely on physicians, psychiatrists, drug companies, or hospitals. You can be self-sufficient with the knowledge that the body will heal itself when the need arises and the latest "cures" that are offered by physicians need not be considered. Their nostrums interfere with healing.

When you are choosing a site for your homestead, you do not have to consider the availability of drugstores to supply you with any of their poisons. You know that such substances are neither needed nor desirable. Your lifestyle will be so satisfying and fulfilling that emotional well-being is ensured. No visits to the psychiatrist will ever be required. You will truly feel free and self-sufficient.

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12. Questions & Answers

If we choose to purchase our food from the supermarket, is there much of a problem regarding food contamination with pesticides, etc.?

> The environmental contamination of food is a nationwide problem. In a government survey of the 50 states, 243 food contamination sources were identified. These include only the most poisonous substances that have resulted in immediate sickness or death. The government attempts to regulate the use of these poisonous sprays so their use is not so heavy to occasion immediate death but this does not mean that they are safe in small amounts. Any amount is deadly because it will accumulate in the tissues of the person eating these sprays on their fruits and vegetables. The only way to safeguard yourself against these poisons is to grow your own or purchase organically-grown foods.

If our supply is limited in organic produce, what can we grow to supplement our needs?

> Sprouts is probably your best bet for ease of growing in a limited space during the off season for gardening. The sprout is very high in all vitamins and minerals and is most easy to digest. The proteins are split into amino acids, fats into fatty acids, and starch into sugars. They are therefore, an excellent addition to our diet.

While we are waiting for our nuts and seeds to ripen on our homestead, can our protein needs be met with the fruits and vegetables we grow without the concentrated proteins?

> Yes, your protein needs can be met most adequately on a diet of fruits and vegetables. Following is a list of the protein content for some fruits and vegetables: (From *Composition and Facts About Foods* by Ford Heritage.)
>
> Grams per 100 grams edible portion
>
> Fresh peas 6.3
> Kale leaves 6.0
> Pawpaw 5.2
> Dried apricot 5.0
> Brussels sprouts 4.9
> Collard leaves 4.8
> Dried fig 4.3
> Broccoli 3.6
> Cauliflower 2.7
> Raisin 2.5
> Savoy cabbage 2.4
> Date 2.2
> Kohlrabi 2.0
> Snapbeans 1.9
> Sapote 1.8
> Celeriac 1.8

Black raspberry 1.5
Banana 1.2
Fresh fig 1.2
Casaba melon 1.2
Red raspberry 1.2
Chinese cabbage 1.2
Eggplant 1.2
Carrot 1.1
Tomato 1.1
Apple 1.0
Apricot, fresh 1.0
Orange 1.0
Soursop 1.0
Celery 0.9
Cucumber 0.9
Honey dew 0.8
Tangerine 0.8
Blueberry 0.7
Sweet red pepper 1.4
Lettuce (Romaine) 1.3
Pear 0.7
Japanese persimmon 0.7
Strawberry 0.7
Grapes 0.6
Guava 0.6
Nectarine 0.6
Papaya 0.6
Mango 0.7
Cantaloupe 0.7
Grapefruit 0.5
Mamey 0.5
Plum 0.5
Pomegranate 0.5
Watermelon 0.5
Pineapple 0.4
Apple 0.2

Our protein needs are not large—certainly much less than the Daily Recommended Allowances. A daily average of 20 to 25 grams of protein is a generous one. There are many people who can get along fine on as little as 16 grams a day. From the above list, it should be obvious that the Hygienic diet generously fulfills this need even without the addition of concentrated proteins in the form of nuts and seeds.

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Article #1: The Natural Food of Man by Emmett Densmore, M.D.

In studying the writings of Trall, Nichols, Shew, and other writers and Hygienic physicians, I became convinced that what is sound reasoning and good practice in the case of the illness of horses and cattle is equally wise and good in the treatment of human beings; and since in the case of the sick horse the chief remedial measure for his recovery is a restriction of his diet, so I became convinced it ought to be in the event of a human being taken ill. Moreover, since, as before remarked, animals in a state of nature are quite generally in vigorous health and strength, just so, I argued, will man become and be if the causes underlying his illness are discovered; and I became convinced that when these causes are discovered they will be seen to relate chiefly to the matter of diet.

In pursuance of this inquiry, and meditating upon the data which this theory furnishes, I noted that animals in their natural state live upon foods which are spontaneously produced by nature, while man not only does not live upon foods so produced, but is almost universally living upon artificial foods artificially produced.

The thought occurred to me that since nature has provided a natural food for all animals below man, it is not unreasonable to suppose that no exception was made in his case, and that nature has provided a food that is as natural to man as grasses to the herbivora, or flesh to the carnivora. If so, what is this natural food of man?

Scientists are in agreement that man made his advent upon the planet in a warm climate; also that primitive man was without tools and without fire. If this position be contested, it is not difficult to substantiate it. If it be allowed without challenge, the inquiry as to what must have been the natural diet of man becomes simple and easily solved. If man first lived in a warm climate, and if, like other animals, he subsisted on foods spontaneously produced by nature, these foods must have been those which grow wild in such a climate, quite probably such foods as are still spontaneously produced in such localities. The woods of the south, as is well-known, abound in sweet fruits and nuts. It is taught by botanists that wheat is an artificial product developed from some grass plant not now known.

Moreover, cereals are the product of the temperate zone, not of those regions where there is no winter; and it was therefore a necessity of man's sustenance when he was without agriculture, without tools, and without fire, and had to depend upon foods spontaneously produced by nature, that he live in a region where these foods were produced at all seasons of the year. This narrows or confines the inquiry to two articles of diet—fruits and nuts.

When this thought was fully borne into my mind, I first asked myself: how adequate is such a diet for man? It is well-known that there are three principal classes of food which are required in every healthy dietary, namely, the carbonaceous, the nitrogeneous, and the phosphatic or mineral. The function of the carbonaceous food is to support the heat of the body and the vital power; the office of the nitrogeneous is to support muscular growth; and that of the phosphatic is more especially to support the brain and nerve tissues. The proportionate amounts of these various foodstuffs daily required are said by physiologists to be about 22 ounces in the dry state, and of these about 20 ounces are needed of the carbonaceous, about one ounce of the nitrogeneous, and less than an ounce of the phosphatic. How, I asked myself, does this natural food—fruit and nuts—answer these requirements? I saw at a glance that, according to eminent chemists and authorities on the constituent elements of these foods, they abound in the requisite elements for the adequate support of the human frame, and, moreover, that they contain these elements in about the right proportion. Furthermore I saw that I had not only hit upon foods spontaneously produced by nature, but also upon foods which need no artificial preparation, no cooking, no sweetening, seasoning, or manipulation of any kind to make them palatable and attractive. If the dishes that are set before a gourmet, those that have been prepared by the most skillful chefs, and that are the product of the most elaborate inventions and preparations, were set beside a portion of the sweet fruits and nuts as produced by nature, without addition or change, every child and most men and women would consider the fruits and nuts quite equal if not superior in gustatory excellence to the most recherche dishes.

Granting all this to be true, it does not follow that the problem has been solved. While fruits and nuts may be the natural food of man, and might have been an adequate diet for primitive tribes who had nothing to do but pluck and eat, and who had none of the severe mental strain inevitable to those in active pursuits in modern civilization, it does not follow that these foods are adequate for civilized man in his vastly changed nature and conditions. A scientist is said to be one who observes facts and classifies them, and science, then, is nothing more nor less than systematically classified facts. I saw that nothing but a scientific test could solve the problem. While it does not follow that sweet fruits and nuts are an adequate diet for man today because they undoubtedly formed the diet of primitive man, still, the fact that they contain every element needed for the support of the human frame, and the fact that these foods were undoubtedly those on which primitive man subsisted, afforded a sufficient basis for justifying an experiment to ascertain what would be the effect of such foods upon modern man. The primal aim underlying this inquiry is the effort to determine what are the causes of modern diseases, and how man may be made as healthy as the animals are in a state of nature.

Instituting a comparison between sweet fruits and nuts on the one hand, and the diet of civilization on the other, I soon detected an essential difference. I saw that while bread, cereals, and vegetables are the basis of the diet of the present day, that starch is the chief element in these foods. Scrutinizing the component parts of sweet fruits and nuts, I saw that these fruits contain very little starch, and hence perceived that I had brought to light a fact that was not unlikely to bear an important part in the solution of the problem before me. What is the effect of starch upon the system? Wherein does a diet that is without starch differ physiologically from one in which starch is the predominant element? In that the two foods involve a very different process of digestion. Sweet fruits are composed largely of glucose, with a fair proportion of nitrogen. As soon as such fruits are eaten the glucose is found ready, prepared by the hand of nature, to be absorbed and assimilated by the system. When first taken into the stomach, the nitrogenous portion of these foods is unassimilable, but when they meet and mix with the gastric juice, they are readily converted into a substance which is at once soluble and assimilable by the system. When the nuts of southern climes—almonds, Brazil nuts, and the like—are ingested, the nitrogenous elements are fixed or free oils are the chief elements of nourishment. The nitrogenous portion, like the same elements in the sweet fruits, is made soluble and assimilable by the gastric juice; the oil is carried to the intestines and meets with the pancreatic juice before it is made into an emulsion which renders it assimilable. There is a small portion of starch in most nuts, and in some fruits. While the ptyaline of the saliva will convert a small fraction of starch foods into glucose, as will hereafter be shown, only a small portion of this transformation is effected in the mouth. As soon as the starch undergoing digestion by its admixture with the saliva reaches the stomach, the acid nature of the gastric juice at once prevents any further change of the starch into glucose, and therefore, although undergoing in the stomach mechanical processes of digestion sufficient to render fruits and nuts soluble and assimilable, the starch is still undigested, and must be passed on to the intestines to undergo a second process of digestion before it is soluble and assimilable.

We are here confronted by a somewhat startling discovery. If it be granted that the sweet fruits and nuts of the south are the natural food of man, it follows that very much the larger proportion of the nourishing elements of man's natural food is digested in the main stomach. True, there is a small percentage of starch in some nuts and in some fruits, and nuts are rich in oil, and this oil and starch must be digested in the second stomach. This relatively small amount of food requiring intestinal digestion is somewhat in proportion to the relative size of the two stomachs, the main stomach in both man and the higher apes being a large organ, and the duodenum or second stomach a small one.

Granting that fruits and nuts and like foods are naturally adapted to man's digestion, this adjustment of the relative sizes of the two stomachs is quite in harmony with the food to be digested. Since man, by artificial contrivance and agriculture, has developed and employed cereals and starchy vegetables as the basis of his diet, he has reversed what appears to be the natural order. He is now living upon a diet the larger proportion of which, although remaining in the first stomach to await the digestion of the nitrogenous portions, still remains mostly undigested, and is passed on to the second stomach before digestion takes place. That the main stomach is thus called on to perform but a relatively small part of the digestion of his food, and the second stomach, although in point of capacity a relatively insignificant organ, is called upon to perform the digestion of the larger portion of his food.

It has been urged as an objection that since the second stomach is provided with a digestive ferment that is adapted to the digestion of starch foods, this fact is to be taken as a proof that such digestion was designed in the formation of man's body. A satisfactory answer to this objection is found in the fact, as before stated, that man's natural food—granting that southern fruits and nuts constitute that regimen—has a proportion not only of oil but of starch, and hence there is a good reason why man's second stomach was provided with a digestive juice adapted to such digestion. But since in man's natural food the starch and oil constitute but a small fraction of his entire food, it is reasonable to expect that a smaller-sized apparatus would be found adapted to their digestion; and such is the fact as regards the relative capacity of the two stomachs.

It has also been urged by objectors that the thousands of years during which man has made cereals a chief portion of his diet have not unlikely modified his anatomy and physiology by evolutionary charges, and that, whatever might have been his diet and physical conformation originally, these thousands of years have developed him into a natural starch-eating animal. A conclusive refutation of this contention is the fact—more fully amplified in succeeding chapters—that the orangutan and the several species of long-armed apes, which have, apparently since time began, fed upon nuts and fruits, to the exclusion of cereals and starchy vegetables, have today the same digestive apparatus in substantially the same proportion of parts as man, after his thousands of years of cereal eating. This fact is undeniable evidence that man's organs have not undergone essential modification or change by these centuries of unnatural diet.

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Lesson 61 - Nutrition And The Skin

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1. Introduction

During the last fifty or so years, we have witnessed a veritable explosion of magazines and other materials being offered to the public, a goodly number of these being devoted to the care of the skin.

In the earlier years the discussions and recommendations in these publications were largely aimed at the female members of the reading public, but in the last few years more and more words have been targeted for both sexes with suggested methods of skin care being accepted as scientific "truth" by many of the readers.

Why such great interest in the skin, this outer integument which holds us together and prevents the parts from scattering to the winds? It is probably because instinctively we recognize that the outer skin is the visible evidence of the condition of the inner man or woman, the mirror that reflects the health, or lack thereof, presently possessed.

Interest in the skin is nothing new, of course. Women throughout history and in all cultures have had recourse to outside agents, including herbs, chemicals, and other concoctions, all supposedly enriched with specific properties capable of enhancing personality and beauty and endowed with mysterious substances to retard the aging process.

In earlier times, when surgery was a relatively new technique on the medical scene, it was the custom in some European medical schools for budding student surgeons to demonstrate their "fitness" for the profession by draping a human skin over their shoulders and strutting around the operating theaters for all to see and admire.

Curiosity being just as much a part of scholastic life in those days as it is now, these students and other scientists, perhaps by accident and even by intent, were enabled to learn much about this very important part of the human body. They learned that the skin is not a dead bit of drapery but rather a functional part of the living body, that it housed a number of very interesting organs and parts and played host to and participated actively in a wondrous array of mind-boggling performances. Surprisingly, too, they also found that the skin itself played many roles vitally important to life itself and that it was a very complex entity, indeed.

Centuries have passed in review since the first timid advances were made to explore the intriguing mantle of man and, of course, much still remains to be learned in this day of electronic wonders.

In this lesson we will unravel some of the mystery of the skin. We will learn how to care for it and how to feed it so that it will remain always glowing and youthful looking in all climates and throughout our entire lifetimes, always remaining a thing of beauty and service.

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2. Natural Hygiene Represents Nutrition For The Whole Person

Those who adhere to the principles of Natural Hygiene are not members of a cult or of a religious group. They are not "oddballs." They are rather a people divorced from the herd because they have observed the herd and do not like the largely inherited common practices of the herd. Neither do they admire what they view as the natural results of such practices, especially those seen as direct consequences of the prevailing eating and living habits of the masses.

Natural Hygienists realize that we are presently witnessing the beginning results of the largest chemical experiment in the long history of mankind. They realize that physiology teaches us certain facts about the requirements of life and that life itself tells us that when these requirements are fully met as and when presented, superior health is as natural a result of this kind of intelligent action as the bursting forth of a wondrous oak from the seed when the environment is friendly and conducive to the life process. Life Scientists believe that, if we desire full health and not just a reasonable facsimile thereof, then we must answer our bodies' needs in every particular and at the right time, but not in excess thereof. Simply put, Natural Hygiene is the study of discipline of total human nutrition and the application of its principles in one's daily living.

2.1 Putting Life Into Perspective

In these fast moving times, in this period in our history when a constantly changing kaleidoscope of newly gleaned facts and details flood the media of the world about things and chemicals purportedly guaranteed to restore youthful beauty and health to the millions, Life Science (Natural Hygiene) represents an "anchor in the wind," a beacon of truth to guide the most weary and inspire the more informed.

If anything be certain in this world it is that life is change, that tomorrow we will not be as yesterday: that we can either be less productive, less healthy that we are today or that we can take positive, physiologically- and biologically-sound steps to gain something back of what we may have perhaps carelessly tossed aside because we formerly lacked knowledge or perhaps even thought that tomorrow would always be forthcoming in spite of all of our shortcomings and errors, known and unknown. Life Scientists, however, know that, within the parameters of the possible, tomorrow, our beauty and our very presence, will depend on the correctness of what we do this day, today.

If we are correct in the doing, tomorrow, our being and our beauty, will all be there. And, perhaps, as Life Scientists, each one of us, having reaped our own reward, can impart to others some of what we have learned and will continue to learn in this course and in reading other Hygienic studies elsewhere in an on-going effort to understand the most challenging of all studies, the Science of Life.

2.2 The Skin as a Part of a Complex Whole

The human skin is an amazing organ. Nothing is ever static about it. It is part of the living organism. Throughout, it is a functioning live entity, except for its outermost layer. Just as life itself is evidenced by activity, by change and motion of parts, so the skin is active in the sense that changes are constantly taking place, often very subtle changes invisible to the naked eye.

In fact, even the outermost layer participates in this change because, as dead cells are scuffed or rubbed off, they are rapidly replaced and this dead layer itself becomes a part of the ever-changing, ever-dying, and ever-rebirthing which is so characteristic of living things.

2.3 Quick Solutions

Because the skin lives and is constantly in flux, it is certain that when errors are made in body care and feeding, abnormal changes often exhibit in the skin. Manmade substances are not the answer when abnormality of any kind exists. Only the body possesses the inherent knowledge of what should be done, how it should be accomplished, and precisely when. As humans, we know so little about humans! About how we are made and how we function. Much of what is touted as scientific knowledge consists of estimates and guesstimates, not fully-established truth. Hopefully this discussion will provide facts and enlarge on truth.

For example, it is fact that, being a living entity, the skin must receive proper nourishment throughout the whole of life and that topical applications are never a long-term solution to problems and that they can often prove destructive to health and beauty. Face lifts and injections can provide only a temporary illusion of beauty and are unable to stem the tide of the degenerative effects of nonadherence to healthful principles of life. Life, being an ongoing kaleidoscope of change, demands total nutrition and care of person, including the skin. True beauty comes only as a response to total life care.

It is estimated that every square inch of the human skin is made up of 19,500,000,000 individual cells. This is amazing, but even more amazing is that all of these cells must work together harmoniously. They are required to serve in many diverse capacities, all of which influence the functional efficiency and performance of every other cell within the total human economy. We must pause to consider and agree that man is, indeed, "fearfully and wondrously made."

Like functioning cells, every cell of which the skin is composed is in and of itself a complete entity which is prepared to cope with all kinds of emergency situations. It possesses, among others, that amazing talent, resident only within the living, of knowing exactly how to heal its own wounds; this, of course, within the realm of possibility.

While a totally self-contained unit, it is at one and the same time a contributing member of the total synergistic society of cells, not only those which comprise the skin itself, but also those which make up the body as a whole.

Thus, the skin is an integral part of the living person and one which plays a vital role within the body economy which is both supportive and functional.

Just as the cells of the skin support the internal functions, it is, in itself, supported by that which lies within. It reflects, like a mirror on the wall, the condition of the inner SELF.

When the skin is ugly, pimply, coarse, puffy; and gross looking, it is conveying a message of internal disarray, it is telling its owner that that is exactly the way the inner body also looks and if we could hold a mirror to our inner self and examine it just as carefully as both sexes do with their faces, we might observe the inner man with some distaste and even revulsion.

The skin, just like the internal organs and parts, is subject to the same rules and regulations that pertain to every other part, whether it be bone, muscle tissue, nerve tissue, or other. Food for the skin must first be eaten, then digested, absorbed, and transported via the blood and lymph to each individual skin cell just as food which is intended for the brain cells or for those in our big toe! Skin wastes must be eliminated as regularly as other body wastes.

If the mirror on the wall reflects a sick skin, it is giving us the word that the total body is also sick. As Dr. J. H. Tilden, M.D., one of the great early Natural Hygienists, so well said, "If the outer skin is measly looking, that's the way the inner body is, too!"

The skin is a living part of man and, if we wish to have a beautiful skin which will last for a lifetime, then it must be serviced by an inner self which functions, as close to perfection as possible. There is no quick magic road to skin beauty, no single or simple solution. Skin problems, such as rashes, itching, bumps, warts, or lesions of whatever kind, are, barring accidental injury, the result of errors in eating and living habits, errors which have caused the interior organs and parts to be reduced in their efficiency of performance to the extent that they have not fully performed their duties anywhere within the body economy including the part which we examine most closely, our skin.

The danger in looking for quick solutions to multiple problems always results in dashing our hopes and worsening an already worrisome condition. Salves and ointments can only serve, at best, to drive toxins elsewhere within the system either to remain as an encumbrance to total body performance or to add to existing debris. Regardless, in time, the poisons must emerge to the surface or create some havoc within some organ or tissue, thus further accelerating systemic decline.

We well remember a time when we were in London, England, and Dr. Elizabeth developed a rather annoying rash which was quite painful at times. This was long before we were "sold" on Natural Hygiene. We were still in the "exploring" stage and even yet wedded to the more orthodox methods we had learned at the various universities where we had studied.

We therefore sought medical advice for the rash and were given a cortisone-based ointment to put on it. In a few days the rash went away but we were soon to receive a very expensive lesson because a funny thing happened shortly thereafter. We had travelled on to Barcolona, Spain, and, "suddenly" Elizabeth came down with a cold which became so deep-seated that it kept her indoors confined to bed in the hotel for almost two weeks, all the while she continued to eat "three square meals" a day. She was so weak after that, that we were unable to resume our investigative studies for almost a month. This particular lesson was not only wasteful of money but wasteful of opportunity and time.

We had not as yet learned that it makes no scientific sense to palliate symptoms of a malfunctioning skin as we did by applying "remedies," per se. The skin is a living part of a complex whole. It must be fed through over 70,000 miles of channels by blood that is replenished from a common pool and which feeds the whole of man. The skin's outward appearance and condition reflects how well the total operation is proceeding and when it is sick, the entire body likewise suffers. To solve the skin's problems, we are required to answer the multiple needs of the entire body through total nutrition.

The new molecular biological sciences are enlarging our understanding of many of man's inner mysteries. Certainly the application of our knowledge of the manner in which all cells receive their nourishment underscores the futility of applying creams, lotions, and other manmade chemicals to the skin in the mistaken notion that they will transform a sickly skin into one that glows with vibrant health. Such is not the reality of the living man or woman.

In our work with our clients we must be cognizant of the fact that in the arena of actually practicing as professional Hygienists, we will be facing the reality of life, not the mirage of commerce. We must be able to convince our clients that when the diet and lifestyle are health producing, the skin will be health revealing! And, lest we forget, our own appearance should be such as to inspire those who seek our services to achieve some higher degree of perfection in their own lives by emulating us and putting into practice what we teach.

3. Structure Of The Skin

In humans the skin is well-defined. Its membranous and cellular texture covers the whole external surface of the body. It serves to surround and hold its contents together. It continues over the lips, and up the nostrils proceeding into the innermost parts of the body.

The same membrane proceeds from the lips into the mouth and lines all of that organ's cavities. It covers the tongue and glands and extends also to cover and line all the parts of the throat and windpipe.

It leads to and through all the innumerable sacs of the lungs, lining the airways of that organ, branching so extensively therein that it presents a surface equal to and perhaps even more vast than the whole of the external body visible to the eye.

The external skin thus gradually fades into the internal but both represent a continuum, a melding together of sudden changes both in composition and functions.

The skin proceeds down the esophagus and into the stomach and through the whole of the intestinal canal. It lines all the ducts and tubes which open into that organ for purposes of servicing and feeding. It also lines all the cavities and organs in the body in a continuous and amazingly intricate network of extremely small meshes through which countless numbers of infinitesimally small capillaries, as many as 180 per square inch, wind in and out providing channels for blood and lymph as they course through and about the body performing their many and diverse duties. The multitudinous numbers of nerve tendrils also wind their own way within and without the membranous meshes and so numerous are these filaments of nerves and vessels that it is impossible to puncture any part without 'harming one or the other or both in the process.

All parts of this amazing network of skin cells must be both serviced and protected so that they can continue to function efficiently as defending and enclosing entities while all the while synergistically working as a single confining unit within an incorporated living system.

Through this vast network, internal man has contact with his external world. Through it and by means of its many passages must enter everything intended to become a part of it or which is intended for elimination from, the human body. It houses and contains, confines and molds, gives structure to all organs, systems and parts resident within the body, including over 70,000 miles of channels and tubes.

And, in the whole of it, there is no cleavage or break. It acts as a barrier to physical agents, chemical poisons, and other agents such as insects, molds, bacteria, and other parasites which might have a deleterious effect on the body tissues and fluids, including the blood.

It may not be vitally important for students of Natural Hygiene to be able to name all the many intricate parts of the skin but we do believe that all of us can get a better understanding of our own bodies and how we function and why it is so very important to have as corrects nutritional regimen as possible if we do become acquainted with some of the gross details of this very important organ, the human skin.

The skin, like all of Gaul, can be separated into three rather distinct, but nevertheless intimately related, parts known as membranes.

3.1 The Outer Skin

The outer skin is that part of the skin which all of us recognize as THE SKIN, the outer covering which we can readily see and touch, the part that holds everything else together and prevents this and that from wandering off and leaving us behind! It is known by various names such as the hide, the epidermis, the cuticle, and also as the scarf skin.

This outer skin develops from the ectoderm, the name given to the outermost layer of cells in the embryo. The epithelial ectoderm separates out at about the fourth week of fetal life and from that point on the epidermis or outer membrane starts to develop and, in the process, splits into several specialized compartments.

The outer membrane or epidermis (in our discussion we will use the term epidermis) varies in thickness in different parts of the body. Sometimes it is thick, hard, and even horny in texture as, for example, in the palms of the hand (especially in laborers and other person who do hard work using their hands); or on the soles of the feet. It is interesting to note that these particular areas are somewhat thickened even at birth as if anticipating their future roles.

The epidermis is several cells thick and is composed of two distinct layers. The external or horny layer is made up of dead cells which are constantly shed from its surface. This layer is known as the stratum corneum.

The stratum corneum consists of slabs of flat, platelike cells which have no nucleus and thus no viable function. This is why they are called "dead" cells. They are dry and scaly and are continuously being sloughed off and then replaced, this process taking from three to four weeks. The cells of which it is composed are pushed up from the living layer which lies just below.

As new cells are born they simply move forward to replace those sloughed off. This is why correction of the diet produces rather spectacular and rapid changes in the appearance of the skin. Clients who may have consulted with skin "specialists" for years are, more often than not, greatly relieved and gratified with their new look after only a few months of following a more appropriate diet. You should be able to explain why from the information contained in this lesson.

The cells in the lower level form a single continuous sheet of somewhat flattened cells. This layer is also known as the stratified epithelium. Nature has been most ingenious in building this part of the outer membrane. Between some of the cells there is a thin layer of intercellular mortar, a kind of "stick-um" which is secreted by the cells themselves, the secretion holding one cell to the other, just as mortar holds one brick to the next.

There are still other cells which have intertwining plasma membranes which reach out "like the tentacles of an octopus," locking the cells together somewhat like pieces of a jigsaw puzzle. These intertwining cells represent the true barrier to the penetration of the inner sanctum by undesirable foreign matter.

The ingenious locking-together arrangement also blocks the pell-mell exodus of body wastes so that they can be sent to more appropriate and designated channels. This unique physical arrangement serves to keep the inner body intact and also prevents it from melting away during a heavy rainstorm or from going down the drain when we take a shower! It permits the skin, as part of a total nutritional program, to be bathed while, at one and the same time, the diluting force of water cannot adversely affect body fluids.

Some Hygienists have written us in recent days with respect to the dangers they believed might be inherent in polluted city tap water relative to bathing. The above arrangement should eradicate such concern although it is always important to use the cleanest water available simply because of the presence of chemicals in solution which can adversely affect the skin. But it is well to know that the water itself will be prevented from entering the system to any appreciable extent via the pores.

The epidermis is insensitive since it possesses no nerve endings. It has no blood vessels and, since the cells have no functioning capacity, they therefore require no nutriment. Thus it is that there is no provision for any kind of transportation mechanism to this surface collection of cells. It has no need for capillaries, for arterioles, so these are nonexistent.

Afferent and efferent nerve fibers end beyond this dead layer. Since they do not penetrate into it, this is why the epidermis itself is insensitive. Constantly we observe that, in the living body, where there is no need, the body does not provide! Thus it is that the body meticulously guards its resources. The epidermis also makes up the nails and hair, about which we will hear more later.

3.2 The Second Layer

The second layer of the outer membrane is the living layer of cells. It is known as the *stratum malphighii* or *germinativum*, meaning germinating layer. It is also known as the dermal layer or dermis. We will content ourselves with the name dermis.

The human dermis is a beehive of activity. Its complexity and design are cause for wonder. Irwin I. Lubowe, M.D., in his book, *New Hope For Your Skin* (as reported in "The Natural Way to a Healthy Skin" by the Editors of *Prevention Magazine*, Rodale Press, Emmaus, Pennsylvania 18049, 1972) reports that every square inch of the human skin contains the following:

- 78 nerves
- 650 sweat glands
- 19 or 20 tiny blood vessels
- 78 sensory apparatuses for heat
- 13 sensory apparatuses for cold
- 1,300 nerve endings to record pain
- 19,500 sensory cells at the ends of the nerve fibers
- 160 to 165 pressure apparatuses for the sense of touch
- 95 to 100 sebaceous glands
- 65 hairs and muscles
- 19,500,000,000 individuals cells.

We also know that our skin covers an area of some 24 square feet and can weigh as much as six pounds.

The mucous membrane is a term applied to that portion of the outer skin which lines the internal cavities of the body. There are three general kinds of membranes:

1. The outer skin or epidermis, which we have just discussed.
2. The fibrous membranes which surround all the bones, the cartilages and tendons and which also line the spinal canal and the cavity of the skull.
3. The serous membranes which line the closed cavities, such as that found in the abdomen. This membrane also surrounds all of the various organs resident within the cavities.

The specific purpose of the fibrous and serous membranes is to cover and line all the parts they service, to help hold them in their assigned positions, to secrete a special fluid which moistens and lubricates parts as they are caused to move one upon the other by body movements and activity, and to absorb any fluid which may, by one means or another, find its way into their field of operation.

The passageways of the inner body are lined with mucous membranes. All the various tubes for ingress and egress are lined with mucous membranes and anything which enters or leaves the inner sanctum must perforce pass through and over these membranous surfaces.

This membrane furnishes the appropriate tubes and organs for conveyance, exhalation, elimination, and perhaps other necessary functions. It also furnishes appropriate mucilagenous substances (mucus) as and when required and for a multitude of necessary body processes such as digestion.

The student can readily see that the skin is a part of every nook and cranny within the living body. Except for the extreme outer layer of cells of the epidermis, it is a wondrously alive part of the whole, and actively concerned in some manner with just about every function that takes place within the body. This is why its nutritional upkeep is so very important to the maintenance of a high level of systemic health. As the body is nourished, so is the skin nourished and as the skin functions in health it contributes positively to the health of the whole.

4. Functions Of The Skin

Because of the vital role played by the skin in the body economy, its tonus or health, should always be maintained at a high level. When we understand the many important functions performed by the various membranes of the total skin, we can appreciate the fact that the skin does serve as a mirror of the inner state of body health. Obviously, it is not our purpose to go into great detail in this regard, but we can examine some of the more important functions performed by the skin.

The skin is a complete factory of many diverse enterprises: manufacturing, distributing, storing, and reproducing a variety of materials. It has very efficient collection, storing and disposal facilities. One of its major functions is that of sensitivity.

4.1 As an Organ of Sensitivity

The human skin is the organ of feeling and touch. It is our chief contact with the world outside of the body. It is highly sensitive to heat, either external or internal. When the body gets overheated, usually from some unusual exertion or from fevers, the skin simply instigates an accelerated evaporation of water from all of its millions of pores, expanding them for this process. In this way excess heat is absorbed to power the transformation of the water to an escaping gas. The body is cooled by this process. When normalcy, or systemic comfort, is once again reached, the skin relaxes and the evaporative process resumes a more normal rate.

The skin is also sensitive to cold. We are enabled to survive extremes of external temperatures ranging from well below zero to as high as 200 degrees. When overly chilled, the body simply closes off the pores so that less water or none is evaporated, thus conserving body heat.

It is vitally important for the body's internal temperature to be controlled within rather narrow limits so that all the infinite numbers of biochemical processes we call life in action can continue with maximum efficiency. It is known that even a deviation of a single degree of temperature from the norm can be evidence of an existing pathology, of abnormal conditions within the metabolic pathways and byways, especially if the deviation persists for a prolonged period.

We must remember that the skin is actually an expansion of the nervous system. It has the ability to transmit two kinds of sensory impulses, that of touch and that of temperature.

There are two distinct sensations of touch, these being distinguished as pressure and place sensations. The palm of the hand is said to have 40 or 50 such touch spots per square centimeter. All over the body there are small areas which respond to cold, others heat. When it is cold outside, the skin simply closes up, as it were, and folds us in just a little bit more to keep in our body heat. In hot weather, it opens up more. We know that the skin's multitudinous nerve endings are so sensitive that the most minute sensations are duly recorded and appropriate messages transmitted to the nerve centers where they are interpreted and appropriate responses ordered, these then being carried out in due course by the cells of the skin. This almost instantaneous transmission of sensation and the orders for action in response thereto is the reason why it is actually unnecessary to take a cold shower following a warm to hot bath. When exposed to the colder air the pores will close automatically in response to even minute variations in the air temperature.

4.2 Elimination

The elimination of a certain kind and amount of toxic wastes is one of the important nutritive functions of the skin. We are constantly surrounded by an invisible vapor consisting of toxic gases and water. We literally walk in an invisible cloud.

Hygienists recognize that the least amount of clothing to provide sufficient warmth and prevent chilling is the most Hygienically appropriate attire for the maintenance of a healthy skin and body. All clothing should be of porous weave to permit the escape of body discharges via the skin. Closely woven fibers can prevent free passage of body wastes which can then back up into the system or collect on the surface to cause skin irritations and inflammations. Even a Hygienically-correct diet will not be conducive to superior skin and body health when tight-fitting garments are constantly worn.

This fact was dramatically demonstrated in Lou's case. Lou worked out-of-doors as a landscape consultant. He came to us with a severe skin problem. His back, underarms, and abdominal area were covered with, sores which oozed pus. Lou's case history and diet profile revealed that, in general, he was in good health by present standards and that he ate a better than average diet avoiding junk foods, candy, and the like.

We observed, however, that at the consultation Lou was wearing a tightly-fitting T-shirt made of synthetic fibers, probably because he wished to display a rather well-developed upper torso. Upon questioning, we learned that Lou wore this type of garment to work just about every day. As our readers probably know the searing sun of our Arizona summers can be highly debilitating and, of course, Lou spent most of his daylight hours out-of-doors, both in winter and summer. His active life necessarily caused him to sweat profusely.

We advised Lou to discard his shirts made of all synthetic fibers in favor of shirts made of more porous weaves of cotton and to buy a size larger than he normally purchased. Inside of two weeks, Lou reported that his sores were already healing. A year later he called to tell us that he had had no recurrence of his problem!

Because our eyes can't see this invisible poisonous cloud, most of us are totally unaware of the fact that every day our skin, as part of the body's total nutritional process, pours off as much as two pints and even more of water and that this water contains many irritating contaminants in solution. Exposure of the body to moving currents of air encourages the cleansing effort as does providing passageways for exodus of gaseous wastes, as is done by porous weaves.

We should wear not only more appropriate clothing, but we should also wear less clothing. If we wish to maintain a well-nourished skin, we should also bathe frequently and change all undergarments at least once a day. Females should bathe the vaginal area following urination and males the penis. While orifices are self-cleaning within, their external surfaces are not.

Simply standing or sitting before an open window or in a passageway with free air passage without clothing for thirty minutes a day will help the eliminative process. If we obstruct the free flow of effete matter from the skin in any way, we cause the sewer lines of the body to become (logged with poisons backing up into the main channels.

To understand just how poisonous this discharged matter can be, all we have to do is to remind ourselves of what happens when the skin passageways are blocked. We have all read of heard of persons who have painted their bodies to produce a dramatic cosmetic effect. Death has often resulted within a matter of a few hours, death being directly attributed to a reverse flow of body poisons which were forced back because the way out was obstructed.

Clients must be made aware of the need for cleanliness and for keeping the pores open in order to maintain this important eliminating organ as a vital functioning unit. Intelligent choice of clothing and cleanliness is a part of proper skin maintenance.

4.3 The Skin and the Sun

Another important function of the skin is to harness the sun's energy and to manufacture vitamin D. The skin, with its oils in the presence of sunshine, can synthesize this vitamin in several forms which can then be absorbed into the body where it can help to maintain calcium balance. In our view, the importance of the skin and its relation to the sun as a remedial agent in many abnormal conditions is too often completely overlooked. Elsewhere in this course you have learned much about the effect of the sun's rays on the maintenance of health. For the skin to be maintained in good health also, it must likewise receive some exposure to the sun.

Physicians in ancient times used to maintain that sunshine was the best medicine in the world. We know that the sun's rays have germicidal power and tend to keep the pathogenic bacteria which may reside on the surface of the skin within reasonable numbers. When the entire body is well nourished, the skin will reflect this health but it can suffer, of course, from too much sun exposure.

The skin has a natural barrier against overabsorption of the ultraviolet rays that produce tanning. Students of Life Science already know that this tanning process should proceed slowly. Ideally, of course, it should start in infancy and be continued throughout the entire life span. A deep brown skin is an indication of natural protection and probably a well-pigmented skin could be exposed for much longer periods than that of most people without resulting in undue discomfort or damage.

In our experience many individuals who thought they could not tan have been able to do so by setting up a planned program in which exposure time was gradually-increased. Consistent and correct exposure of the nude body to the sun's rays is a vital part of the nutrition of the skin and without it no skin can be said to be fully healthy. To paraphrase a statement by Dr. Shelton, a pale thigh is certain proof of diminished health.

4.4 Other Functions

We have already mentioned, in passing, some of the other functions of the skin but let us briefly review. The membranes secrete certain fluids required for a variety of purposes. The skin is also an absorbing organ. It aids the lungs and stomach, for example, by taking up nourishment from without the body in the form of solids, liquids or gases, oxygen being the most important. Each cell must make its own energy so that its functions may proceed as required, so that it may carry on with the multitudinous numbers of chemical, physical and, perhaps, even electrical and other processes that are part of cellular metabolism.

We all have sick skin cells and we all also have healthy cells. If most of the cells in the skin are healthy, they will be able to maintain a working balance between their functioning duties and the elimination of their fair share of the metabolic wastes of the body.

However, the more diseased cells there are in the skin, the more disturbed body equilibrium becomes (known as dynamic equilibrium or homeostasis) and as a result, the integration of bodily function is reduced or even no longer possible in severe cases. The vigor of the important eliminating processes of the skin are always dependent upon the available energy supply. Cells enervated by toxic wastes become inefficient energy producers and thus become diseased.

Another function of the skin is protection. The skin can cope reasonably well with bruises, scratches, hard blows, and friction rubbing. When the latter, for example, becomes excessive or prolonged, the skin simply mobilizes its manufacturing facilities and produces a harder and thicker surface to act as a protective barrier, this being known to us as a callous.

A callous represents just one of the many defensive adaptive measures possible to the skin when it is confronted with danger. The human skin seems to come equipped with its own reparative supplies and with its own repairmen well-trained to cope with all common emergencies. It is fantastically self-healing.

When the skin is well-nourished and healthy, wounds seldom leave a noticeable scar. We personally had a marvelous example of the skin's ability to heal itself a few years ago when Dr. Robert, then in his 78th year, fell and suffered a deep gash over and across his whole eyelid. It extended up and across the brow line. We applied no medication, simply washing it with distilled water to remove the dirt and blood and then applying a simple device to hold the parts together. In a few days the wound had healed and, today, there is no mark of any kind to show where the deep cut had been. Sometimes, and more often than not, the body, and especially the skin, can accomplish more when we leave it strictly alone to its own devices than when we fuss with it.

Another function of the skin is its flexibility. It can be moved in just about any direction we may choose. Whenever it is subjected to any undue pressure, it just bounces back and assumes a normal position once the pressure is removed. Perhaps the most remarkable talent of all is the skin's ability to grow as we grow and, in later life, to shrink as we shrink!

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5. Some Common Diseases Of The Skin

The skin is prone to diseases from external and from internal causes. Exposure to physical or chemical irritants can cause inflammatory conditions to develop. Contact with vegetable poisons such as that associated with poison ivy can have adverse effects as can sunburn from over-exposure to the ultraviolet rays of the sun. However, the most common cause of skin diseases is toxicosis or autointoxication.

5.1 As Recorded in Ancient Works

Even a casual study of the history of the diseases affecting the skin reveals that man has not made any progress by treating them although he has become more or less expert in the palliation of their symptoms. There is a standard joke among professionals in the field of health care to the effect that a dermatologist, or skin specialist, has the best of both worlds: "he never cures anyone but he also never has to bury anyone!" Most skin diseases are not fatal and most physicians think that these disorders were devised as a cure placed upon the world for the special benefit of their coworkers, the dermatologists.

Throughout history at various times different cultures have attributed diseases of the skin to many outside agencies. For example, several thousand years ago the Hindus thought that skin diseases were caused by worms which invaded the body and established their breeding ground under the skin. In the Bible we read about various skin afflictions but especially about leprosy which was, apparently, a rather common malady of the times. Moses himself described two forms of leprosy, one being a rather mild form the other a malignant kind.

In Europe, during the Middle Ages and even later, whole peoples were ravaged many times by fevers and by outbreaking of the skin which was called the "Plague" or "Black Death." These plagues took huge tolls among the populaces of Athens, Rome and elsewhere, especially in Egypt and Syria. The scythe of the grim reaper made no distinctions among class or culture cutting across physical, cultural and class barriers.

We can read in the Bible about ten plagues of Egypt and it is said that God smote Egypt through the hands of Moses and Aaron in order to compel the reigning Pharoah and the Egyptian people to depart from that country.

Today, armed with more knowledge, we can look back on these times and realize that, when the early Israelites wandered over the known face of the earth, that they often lacked proper food and shelter. They were in emotional disarray, dissatisfied, disgruntled and annoyed, not only by the hardships they had to endure, but also by the actions of their friends and neighbors. They were enervated and malnourished.

Additionally, these people were often forced to embrace both customs and food which were strange to them. Their food was unsanitized for humans. Living conditions were less than ideal. Their clothing, their person and their surroundings were, in all likelihood, filthy. It is little wonder that they began to develop running sores, skin ulcers, boils, carbuncles, and even more serious skin disorders.

In more modern times the word "plague" has been restricted to the bubonic or pneumonic plagues. However, during the last century and even in this present century there have been occurrences of smallpox and similar skin disorders which were termed "plagues." In fact, Dr. Elizabeth's maternal grandmother became a "victim" of smallpox. Her story is not untypical of the times in which she lived, the middle 1800s.

Her name was Elizabeth, too. Both of her parents having succumbed to the disease, at the age of 16, Elizabeth was left alone to die, all relatives having long ago fled from the house fearing that they, too, might fall "victims" to the curse. They joined the multitudes of peoples, who, in their terror, were trying to escape from the devastating unknown.

But, the young Elizabeth was not destined to die. As she lay deserted and delirious in her room, she was silently joined by a young merchant of the community who had long admired her radiant beauty and her lithe and graceful young figure. Hour by hour and day by day he unselfishly and lovingly ministered to her needs. He was a student of hydro-therapy. He applied cooling cloths to her brow and body until the high fever subsided and the young girl regained consciousness and became aware of the loving care. John, for that was his name, gave her no medicines but fed her nourishing broths. It was not long before the young Elizabeth regained her health and strength and, of course, fell in love with her kind benefactor.

Because of her devoted care and also because of her personal penchant for cleanliness and for all things natural throughout her lifetime, grandma suffered no disfiguring scars and remained a real beauty up to her death at the age of 87. The young man who had worshipped her from afar continued to do so all of his life.

Our favorite story about grandmother Elizabeth is how, whenever she or one of the children became ill, she would have the doctor come to the house, examine the sick and leave his colored pills and instructions regarding the care and treatment to be followed. No sooner was the doctor out the front door than our little grandmother would scurry out into the kitchen, open up the old coal stove and toss the pills into the glowing fire. Then, out the back door she'd go, into the garden to gather greens of one kind or another. Then, she would brew up her "tizzy," as she called it (a broth of greens). This would be the only food taken until recovery was assured. We believe that grandma Elizabeth was one of the first Hygienists! She had no faith in pills. The best place for poisons in her opinion, was on the open fire!

In this century, of course, there have been "epidemics" of acute diseases, especially of influenza, some of which are said to have caused the death of thousands upon thousands of people, as in World War I. We don't ordinarily consider influenza as a disease of the skin but from the knowledge we have already learned of the structure of the skin, we now know that that is actually what it is, involving, as it does, the mucous and serous membranes.

Up until recently, it was the custom to quarantine any person who developed an "infectious" disease of the skin such as chickenpox, measles, smallpox, and similar acute disorders. Only physicians, ministers, priests, and other persons of stature were permitted to enter quarantined premises.

Such precautions were deemed necessary because, at that time, the medical community and most of the people believed (and unfortunately most still do) that all such conditions were caused by an "infectious" germ or other microscopic organism that entered the body and produced the annoying pustule or rash. It war the general belief then, as now, that these demons of destruction could be airborne, passed on by sneezing, by touching an infected surface or person, and then they could "invade" the unwary victim's body to commence their devastating work.

This voodooistic theory of the origin of the skin diseases still receives enthusiastic support from a large segment of the medical community, from drug combines and gadget manufacturers, but more and more thinking scientists are abandoning it in view of new microscopic revelations which have been forthcoming since the invention of the electron microscope with its confirmation of the existence of cellular garbage and the possibility of such having an adverse effect on systemic and cellular efficiency of performance.

Those of us who are students of the science of life believe that self-generated toxins are the basic underlying cause of all diseases, including those which affect the skin. We further believe that when these toxins are normally removed, they do not accumulate unduly within the system. Then disease becomes impossible. Skin disorders are a very unlikely possibility, except as resulting from certain traumatic happenings.

5.2 Herpes Simplex

As mentioned at the beginning of this lesson, there are so many different kinds of skin diseases that it is virtually impossible to imagine them, to say nothing of classifying them. However, probably fever blisters might be considered the most common affliction of man, and it is especially common among children in the one-to-five age group. It is characterized by groups of small, very itchy lesions which appear on the lips. With children, but more often among adults, these lesions may occur on the nose, face, ears, genitals, or any of the mucous membranous surfaces. They are considered by medical science to be the consequence of an "attack" by a virus but, strangely enough and unexplained by medical authorities, the condition is "self-limiting," that is, it usually disappears, the lesions healing, within a week or two. In medicine, this is known as "spontaneous healing." The virus is thought to remain dormant in the tissues, becoming active in the presence of "trigger mechanisms," these being fever, physical and/or emotional stresses, overexposure to sunlight, certain foods and, perhaps, even drugs. Medically, the disorder is known as "herpes simplex."

Life Scientists know that the skin reflects the condition of the body and it is interesting in studying the process of degeneration within humans to realize that, following enervation of the nervous system, that the digestive system is the first to give way to a condition which obviously can lead to widespread malnutrition. But, we must also note that enervation and reduced energy flow are due primarily to errors in nourishing the body leading to build-up of toxic metabolites. When the liver gets so overloaded with these metabolites that it is really struggling to maintain the "status quo," then it is that the "trigger" may tip the scales with resulting diversion of excess debris to the pore exit points.

Obviously, the method of "cure" should not be massive doses of this or that, the application of topical salves or ointments, but rather to get at the source of the trouble, poor nourishment and an intoxicating lifestyle. When the individual adopts a correct way of eating and living, the fever blisters and cold sores, and other skin disorders, soon become a matter of history and no longer a matter of concern. The fact that medical science must term this self-limiting disease, herplex simplex, seems to us just a way to keep patients coming back again and again, at great financial loss to them when, in fact, the "cure" lies within themselves. Some $200,000,000.00 a year is spent on "remedies" to "treat" simplex!

Dr. Roger J. Williams has stated that, "The skin, partly because circulation does not supply it with copious nutrition, is notoriously sensitive to nutritional lacks." He states that the tongue, lips and gums are "favorite regions where nutritionists look to detect evidence of malnutrition." Of course, Dr. Williams advocates "dosing" patients with skin disorders with high intakes of specific vitamins, but our students have already learned that such practice can prove highly detrimental in the long run.

Using the fast to detoxify the system and realign nutritional forces within the system is the most rapid, most effective and least expensive method to rectify all skin and body disorders and, let us acknowledge, also the most beneficient.

It is interesting in considering nutrition and the health of the skin to note that diseases of the mucous membranes lining the oral cavity affect 75 percent of all adults over 50 years of age. Periodontal disease is the most common condition afflicting these people. Medical science again, as always in their quest for isolated causes, attributes such conditions to long-term reactions of the body to certain bacteria and their products. However, more recently, four researchers from the University of Washington in Seattle presented a paper at the annual meeting of the American Association for Dental Research in which they stated that "very few people become sufficiently deprived of vitamin C these days to develop scurvy, which results in severely damaged periodontal (gum) tissues, but many individuals may not consume enough fresh fruit and vegetables to maintain adequate levels of this vitamin." Life Scientists have long known that few people, and especially in America, eat as they should. In fact, only Natural Hygienists have any concept of what a physiologically correct diet encompasses, namely, eating a preponderance of fresh ripe fruit with limited amounts of leafy green vegetables, non-sweet fruits, nuts and seeds, and eating these as and when required as evidenced by true hunger and in amounts not in excess of body needs. Eating this kind of diet contributes to a smoothly grained skin, faultlessly perfect, wrinkle-free and radiantly beautiful. This kind of eating carries a guarantee, all other life practices being equally conducive to superior health: the kind of beauty that lasts for a lifetime—a much longer lifetime!

5.3 Diseases of the Skin as Outer Manifestations of Inner Toxicity

The skin is always talking and revealing. It can reveal to a competent observer just how well the body is getting along, whether the pathways are clogged with litter or whether the fluids, especially the blood, flow free and clean. When the skin looks like fine pinkish porcelain, it shouts to the world that the body is radiantly alive. But, when it is dull, pale, or yellow in hue or when it has enlarged pores or an abnormally deep flush and pimpled surface, is wrinkled, or has that deadly grey look, then it tells an unhappy story.

Such a countenance reveals a pathetically encumbered inner world, the pathways and byways of which have become obstructed, saturated, the blood thick with debris; debris that is silently and stealthily burning and irritating, working to destroy the tissues of the body. It tells of metabolic avenues and cell factories filled with garbage and of millions of enzymes floundering helplessly in the face of so much toxic wastes. The cause? Systemic malnourishment—inner toxicity.

5.4 Some External Signs of Inner Toxicity

1. Excessive paleness which may be indicative of:
    - Anemia
    - Dysemia (any abnormal condition of the blood)
    - Leukemia
    - Bright's Disease
    - Amyloid Degeneration (occurs characteristically as pathologic extracellular deposits beneath the layer of flat cells of capillaries and arterioles. These deposits interfere with normal function and can lead to very serious disorders including infarction of the heart and even cancer.)
2. Paleness combined with profuse sweating and strong acid odor:
    - Articular rheumatism
    - Strong emotional outbursts: uncontrolled anger, fear, jealousy, etc.
    - Spasms in the arteries and veins. Fainting spells.
3. Redness of the skin:
    - Capillaries in the face may have a tendency to burst.
    - Too much blood concentration in a particular area.
    - An abnormal state which can make the individual stroke-prone.
    - If frequent headaches are also present, there may be present some congestion in the brain.
    - When combined with swelling and mild scaling visible on the skin, the skin may be

    photosensitive at this time with a more gradual exposure to develop pigment advisable. Extreme saturation of tissues and organs with animal protein wastes.

4. Shiny, tight, skin:
    - Due generally to a previous history of high salt intake either in foods such as canned vegetables or applied topically to foods.
    - Due, also, to excessive drug taking, both prescribed and over-the-counter drugs are chemical compounds containing sodium, the main ingredient of table salt and the causative agent in most cases of shiny tight skin.

5.5 Relation of Cause to Effect

By this time in your studies the student should be convinced that saturation of the fluids of the body, especially the blood, with toxic metabolites and/or other poisons is the underlying cause of all diseased conditions, exempting, of course, those directly attributable to some major trauma. This is true of skin disorders also.

Certainly we can say without fear of contradiction that no person should be considered even reasonably healthy who has a sick skin, especially when the condition persists. The acne of the teenager is a forerunner of more involved diseases to come, while the more serious and I vertical skin conditions such as chronic eczema, psoriasis, ichthyosis (fish skin disease) speak a language all of their own and are the visible signs of cellular malfunctioning, organic degeneration and systemic pollution, all of which have been brought about by faulty eating and living habits. They are certainly not the product of a sudden invasion by germs, viruses or other unknown "demon."

Once the real cause of the disorder has been determined and then removed and a more physiologically sane method of eating and living has been established and then maintained for a sufficiently long period of time, the skin disorder, regardless of its nature or origin, usually disappears and thereafter can be kept under control.

Often unnecessarily, over the years, the once beautifully clear complexions of the very young become wrinkled and old-looking, filled with coarse pores and so often marred by disfiguring moles and blotches. Deep-seated wrinkles, once established, cannot be eradicated but, with a well-planned and scientifically-correct total nutritional program including correct food, sunshine, fresh air, cleanliness, exercise, and all the other requisites of our organic existence, then much can be accomplished. The body fluids can be cleansed and the liver and kidneys restored to some semblance of normalcy which will be reflected in a younger looking, more elastic skin.

Frequent attempts have been made throughout modern times to classify the multitudinous numbers of skin disorders, but the task is well nigh impossible. There are numerous divisions and subdivisions in the nomenclature.

When the extreme outer skin is affected, any of the following common skin conditions can develop:

1. Numbness which often accompanies other common skin disorders.
2. Chronic or acute eczema characterized by papules, vesicles, crusts and scales. Generally accompanied by itching and/or burning.
3. Ichthyosis, a condition characterized by a lessening of flow from the sebaceous glands with scaling. Generally accompanied by severe itching. Can afflict any part of the outer skin.
4. Psoriasis, an eruption covered by silvery-like scales which characteristically "flake off." Generally found most prominently on the elbows, knees, scalp and trunk but can also be found around breasts and in the groin area. Rarely does it cover the entire body. (See Case Study—John to follow.)
5. Plus numerous other similar, but slightly differentiated conditions, some of slight concern, others of major concern as the various forms of lupus (an inflammatory condition which may be localized, usually in the face, but also general as in systemic lupus, an idiopathic disease,

meaning of unknown origin, according to medical thinking).

The mucous membranes normally secrete a clear mucus which serves to keep them moist. The outer layer of cells of this part of the skin is equipped with microscopic flagella which are in constant motion. These serve to propel any kind of irritant or foreign substance to some point in the body where they can be more readily eliminated.

All of the activities of the skin are under the control of the thyroid gland located at the base of the neck. Sometimes this gland will direct the mucous membranes to assist in an eliminative effort if the body is under great stress. In such a case, the toxins will be forced out through the mucous membrane cells. During such times polyps or other growths may form. Polyps can appear in the nasal cavities but also in any part of the alimentary canal where they can prove most troublesome. Generally, polyps respond quite well when a sound hygienic program is instituted. We recently were consulted by a young woman schoolteacher who had already had three surgeries for nasal polyps and was anticipating a fourth. We made abrupt changes in her dietary program from the traditional meat and potatoes diet to an all raw diet composed of fruits, leafy green vegetables, fruit vegetables, nuts and seeds and within three months, upon examination by the consulting specialist, an operation was no longer required!

If the elimination process is unsuccessful or only partially so, then the individual may develop a "cold" or a mild case of "catarrh." If the toxicity is permitted to increase, deeper layers of the mucous membranes can become involved and the discharge will consist of a combination of mucus and pus.

When this latter condition develops, we observe such diseases as the following:

- Appendicitis
- Bronchitis
- Cervicitis
- Enteritis
- Gastritis
- Mastitis
- Pyelitis
- Sinusitis
- Tonsilitis

and other "itises" which involve the mucous or serous membranes including, among others, the following: arthritis, bursitis, encephalitis, iritis, meningitis, neuritis, pericarditis, peritonitis, and so on.

While not normally considered as diseases of the skin, the student will readily see that, by the very nature of skin construction, this is exactly what they are, one and all, without exception.

It is interesting in this regard to know that by correctly evaluating the kind of condition which has developed, it is possible to gain a pretty fair idea of which organ in the body is the more involved.

The lungs act as a substitute kidney, the outer skin as a substitute liver, while the pancreas enlarges its normal operations to compensate for a malfunctioning and/or overworked liver.

The worst kind of skin diseases and the hardest to eradicate are those caused by severe protein-poisoning because these are usually longstanding. Studies seem to indicate that it takes about twenty years, at least, of indiscriminate feeding of refined carbohydrates and animal products before the presence of major disorders begins to be revealed. The intervening years are characterized by minor disorders beginning with the first sniffle in infancy and early childhood, the acne of the teenager, the later itches, wheezes and sneezes, and ending up in the mature years with the embarrassment of psoriasis, the pain of rheumatoid arthritis, or other major catastrophic vertical disease (meaning progressive).

Man simply does not possess the metabolic machinery to cope with the modern senseless deluge of sugars and meat, nor with, the heterogeneous concoctions of chemicalized substitutes quaintly described as "food."

To those clients who are afflicted with skin disorders of whatever kind, and especially when these have already established chronicity, it must be made crystal clear that they have a choice: the present skin condition, an unsightly appearance and a constantly diminishing vitality, OR the acceptance of certain restrictions and the introduction of a new way of eating and living, all measures which will help to restore a more normal systemic health as well as clarity and beauty to the skin.

5.6 Behind the Scenes

When an unhealthy, scabby-looking animal is killed and then dissected, the organs of the corpse will be seen to be diseased also. A scaly, pimply or ulcerated skin likewise tells us that the entire inner body is, more likely than not, to be in the same state, in a rather advanced state of malnutrition and deterioration. The rashes and pimples so casually treated on the outside also deserve attention to the whole body.

Quite often the very same ulcers and measly appearance visible on the outer skin have been observed in autopsies of humans who have died from "sudden" illness of unknown origin. Dr. Robert W. McCarter, Sr., M.D., at one time stated that autopsies such as these showed that most of these individuals could have died from any one of ten different diseases, so far and to such an extent had malnutrition caused systemic degenerative malformations.

A healthy skin sings of a well-nourished body, of systemic equilibrium, of balance, of homeostasis, of sound living practices, of good inheritance, of vitality, of a clean, free-flowing unobstructed bloodstream and of organs functioning silently and efficiently in a body at peace. But, what causes the sick skin?

If we place a fermenting mass in a bottle and close it up tightly with a cork and then put it in a warm place, some perhaps drastic results may be noted. It won't be very long before the force generated by the gases bubbling inside the bottle will cause the cork either to give way or the bottle to explode?

Dr. Elizabeth well remembers a time forty or so years ago when she was serving as a physical education instructor at a penal institution in the East. She was called upon in an emergency to supervise in the kitchen during the canning season. The inmate temporarily designated to supervise the canning was inexperienced at canning corn, as was Elizabeth, but, since the corn was arriving in truck-loads from the fields, all the inmates went ahead with their own version of the proper way to can corn.

Before the day was done glass jars of corn decorated table after table in the huge kitchen. There were hundreds and hundreds of the two-quart glass jars. The crew went to bed that night happy that their work was successfully accomplished.

In the morning, Elizabeth went to the kitchen to inspect. She found, to her dismay, that most of the jars had exploded! Corn covered the tables, the floors, and was even glued to the ceiling! She said that that was the first and the last time she was ever involved in the canning of corn.

So it is in the human body. When the toxic condition of the body becomes so great, the pressure simply becomes intolerable, the mass swells and becomes intolerably large; the channels which normally dispose of metabolic waste find that the load is beyond their present ability to handle. All organs and systems are being subjected to degenerative poisons. It is then that the liver and kidneys must request assistance to preserve the integrity of the body (its life).

The interpretive and control centers in the brain then redirect body energies and call the skin to urgent duty. It must perform extraordinary vicarious duty as an auxiliary eliminating organ. Otherwise, the system might burn up from the heat generated systemically.

Even though it is the largest organ in the body, the skin is not normally a major eliminating organ. The lungs, however, and kidneys, with the liver being the great body filter and organizer y normally, are entrusted with, this responsibility and well capable of carrying it on successfully. However, in emergency situations, the body will forcefully eject its excess gases, acid sweat, toxic oils and greases out through the pores of the skin and also through temporary exit points devised for the purpose, those being called boils, pimples, rashes, ulcers, and so on. Itching is a typically annoying symptom characteristic of the exodus.

The client must be made to understand why the abnormal skin condition exists, that it is the outward manifestation of a badly contaminated interior. Not that an infection exists, but rather that undue acid wastes have accumulated with possible damage to the liver, to the nervous structure and perhaps even to all systems and organs with the result that they are no doubt functioning at a reduced capacity as they strive to accomplish their allotted duties while working under greatly enervating conditions.

The outward violent exhibition is the visible evidence of the turmoil that exists within, of the fact that the blood is so saturated with toxic material that the body itself is attempting to eliminate the excess before irreparable damage can be done.

When the skin condition becomes chronic and/or acute, the visible symptoms will, more often than not, be accompanied by fever, as for example, in measles and other so-called "childhood diseases."

When the body vitality is high, the skin eruptions can be very violent but if it is at a lower level (as is generally true in the elderly), then the disorders will be either milder or will have become chronic. The outward manifestation is always dependent upon these factors:

1. The existing vitality.
2. The systemic weakness.
3. The amount and kind of impurities which are present.

When the exodus of toxic material becomes so great that the glands and follicles of the skin themselves becomes obstructed or injured in any way, then we usually witness the development of abnormal growths, such as warts, benign tumors, moles, and the like, some of these being of enormous size. We have observed one such growth which extended some eight to ten inches along one thigh and several inches across. One client had a very noticeable wart which protruded right out from the tip of her nose. After two prolonged fasts and two full years of hygienic living, this disfiguring wart was finally autolyzed.

When the exodus is mild and the symptoms likewise mild, we generally find that there is no fever present.

It is well to know that skin diseases usually become chronic in those persons who develop them early in life and continue to have them periodically throughout life. The periodicity is due to the fact that such individuals begin to develop levels of tolerance which are higher and higher. Indeed, the symptoms may disappear for years and then reappear. As the level of tolerance to systemic poisons increases, the vitality of the individual decreases. From time to time, especially when a person is under unusual stress situations, the poisons which exist begin to exceed whatever level of tolerance has been established and, at such times, a "sudden" eruption can occur.

Once the toxic burden slips again below the existing level of tolerance, then the condition, whatever it may be according to individual weaknesses, the skin begins to clear until there are no further outward signs—until, of course, the next time! No "cure" has been effected. All that has taken place is a certain amount of elimination which has reduced the toxic load to a level whereby the body can function albeit with diminished vitality.

It is worthy of note to observe that those persons with vigorous circulation are more likely to have eruptions on the surface of outer skin; for example, on the face, back, neck or elsewhere, while those possessing a somewhat reduced circulatory power will usually suffer from eruptions on the surface of the mucous membranes, especially those lining the nasal cavities and the digestive tract. Usually these latter persons have highly-inflammatory and catarrhal conditions, with the colon being a frequent location for such. It is common for persons with diminished circulatory powers to be afflicted with all kinds of digestive disorders, often quite serious, these leading, of course, to increasing malnutrition.

The prognosis is always more encouraging when the eliminating effort is made through the outer skin. Generally, if all contributing causes of toxic build-up are removed, and especially incorrect habits of eating, and this is followed by a more constructive dietary—living regiment, then the eliminating effort should be successful in time.

It is important at this juncture to emphasize most emphatically to all clients who consult with you regarding skin eruptions that, after the cleansing has been accomplished and the healing has taken place, any resumption of old habits of eating and living will, in all likelihood, plunge the individual into an even deeper pathology than before, due to the fact that the body's level of tolerance has been lowered while, at one and the same time, his vitality has been increased. He has already demonstrated his vulnerability!

As we examine the masses more closely we can observe the progression of skin diseases from bad to worse. Young people build their pimpled and mottled oldish skins on their hamburgers, french fries, and cola drinks. School lunch programs add to the problem. Here in Tucson, a "Type A" lunch is made up of a hodge-podge of heterogeneous digestive problems artfully disguised as a protein, fruit or vegetable, bread and milk combination scientifically planned to contain the FOUR BASIC GROUPS.

A meal planned thusly is sufficient to confound the most vigorous enzymatic capabilities even of the very young. In recent years peer drug use has become a serious problem, not only among adults, but also among the high school crowd.

And have you looked at the skins of infants and toddlers? Gray, sicklish products of baby formulas and canned processed baby foods, of soda pop and Kool-Aid and other chemicalized poisons.

Older people gorge on pies, cakes, steaks, soft drinks by the carload, on processed products of every imaginable kind often accompanied by alcoholic drinks; they nibble at all hours and fail to get proper rest: they down all manner of drugs, prescribed and over-the-counter. Like children offered candy, they enjoy and then wonder why they break out with rashes and pimples and are lacking in vitality!

5.7 Cosmetics

Probably just about every woman in the civilized world (and in recent years, many men, loo!) has been entranced by the advertised promises of youth eternal as depicted in demographically targeted advertisements. But, contrary to all of the seductive avowals, the skin cannot be fed externally. Its beauty comes from deep within!

We have previously pointed out how the pores act as exit points for certain kinds of waste metabolites. It is vitally important for these cleansing avenues to be kept open and clean so that all toxic material oriented to these exit points can be discharged according to systemic planning.

It should be obvious that using creams, oils, powders, or other common cosmetics can serve only to clog up an important segment of the body's sewer system. Industry makes billions of dollars catering to a woman's natural desire to be young and beautiful and for a man to be a '"Number 10," but it is a sad fact that all such concoctions only cause the skin to wrinkle and age prematurely.

The sebaceous glands, which lie deep within the skin are, in fact, excellent cosmeticians and especially so when the entire body is healthy. These glands manufacture a fine face cream which contains various waves and fatty acids which serve to keep the skin moist, pliable, wrinkle-free and young-looking. They can do a far better job than any product devised by a laboratory technician.

No foreign substance from the outside belongs on the skin. Nature has provided well for the *entire* body. As Dr. Virginia Vetrano so well said in an article entitled, "The Skin. Our Natural Umbrella," featured in *Dr. Shelton's Hygienic Review*, June 1979. "Nature puts there what she wants and that's the way we should leave it."

Thus it is that any extraneously applied substance will annoy, irritate, clog, and eventually wrinkle and age the skin and if the foreign substance should penetrate the membranous barriers of the surface cells, perhaps cause some amount of harm in the body cavity itself.

The living skin cells must cope with the very same problems and challenges common to all living cells. They must secure food from the blood, they must repair or replace any old and worn-out cells. They must take the food supplied to maintain and build on the skin. They must reproduce as and when required to sustain the larger community of cells which they enfold and protect, the entire body. It would appear to be the height of folly to place road blocks in the way of potentially efficient feeding and eliminating processes by applying creams, lotions and the like to block transport.

Certain skin problems have been known to arise from outside applications which have blocked exodus of systemic wastes, conditions such as dry, scaly, itchy skin; red, swollen eyelids, rashes on the neck and behind the ears accompanied by intense itching; abnormal deposits of pigment on exposed areas such as the cheek; and swelling, peeling and rashes around fingernails and even under them. Often such conditions are termed "allergies" and treated topically when simple abstinence from the use of all cosmetics coupled with a Hygienic diet quickly removes the problem.

It is interesting to know that there are about seven million pores (exit passages for wastes) and they represent some seven or more miles of leading duct sewer lines. Each duct acts like a miniature sewer pipe, complete with valves that can be turned on and off according to the conditions at hand, all control being handled by the autonomic nervous system.

The ducts from the glands are built in a spiral from which is so ingeniously designed that it is well nigh impossible for foreign materials, "cosmetic foods," to enter the inner sanctum, through these pore barriers. Oxygen from the air may be the sole exception.

In *Foundations of Health Science*, Second Edition, 1972, authored by Henkel, Means, Smolensky, and Sawry and published by Allyn and Bacon, Inc., Boston, Mass., we read the following: "There is no known substance or combination of substances that can live up to the promises suggested in any of the following names: contour cream, crow's-foot cream, deep pore cleaner, eye wrinkle cream, scalp food, skin conditioner, skin firmer, skin tonic, eyelash grower, or wrinkle eradicator."

However, science marches on—sometimes penetrating into strange uncharted, and perhaps even dangerous, waters. The skin is such an area. Dr. Vetrano again in an article entitled, "The Skin, Our Natural Umbrella." in the *Review* of June, 1979, tells us that "pharmacologists have long been engaged in finding formulas that will penetrate our membranous barriers, either the skin or our mucous membranes, or the cell and its nuclear membrane" and let us add, to date they seem to have had some success. A to be making more and more "progress" in this regard. It would seem that our scientists can never give up tinkering with the nutritive process of the human body.

Some substances are used to convey drugs and other substances through the skin, either for cosmetic or other drugging purposes, the practice increasing with each new discovery. These materials are either damaging to the skin itself and/or to the entire system. In our view, they should be strictly avoided.

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6. The Hygienic Practitioner At Work

Steps to Take

6.1 Step One

On first meeting it is advisable to become better acquainted with your client. To save time, this may best be accomplished, at least at this time, by having him fill out a form which, in essence, details his medical history and present symptoms. The client should also provide a diet profile, if it all possible, for at least a two-week period. On subsequent consultations, as may be required, give-and-take conversation will provide much insight into the client's more intimate habits of eating and lining, especially as to his emotional health, his knowledge of Hygiene, and so on.

6.2 Step Two

We must begin the treatment of skin disorders, or indeed of any diseased condition, by first keeping OUT of the system anything and everything that could, in any way, contaminate the body. Care must be taken in elimination of possible contaminants and here is where the practitioner must use good judgment. In general, corrective steps can be taken much more quickly with younger clients than with those who are more mature. Sometimes, also, corrective steps are more easily accomplished with one sex than with the other; as, for example, eliminating the use of cosmetics such as face powder with women or certain hair products with both. Experience will broaden one's skill in this area. In this category we include any and all drugs including familiar over-the-counter drugs such as aspirin, Tylenol, and the like; also, salt, sugar, condiments of all kinds; stimulants and depressants, such as alcohol, meat, eggs, cheese, fish and poultry, cereals, and all products made from cereals; and so on including a wide variety of packaged processed foods, candies and the like.

6.3 Step Three

Detoxify the body. A total fast under supervision, preferably at a Hygienic institution, should be instigated as soon as possible as conditions warrant. Most of your clients, at first meeting, will be totally unfamiliar with Natural Hygiene and will come to you by referral. They may be totally "turned off" by fasting. Therefore, it is appropriate to begin a planned educational program using the materials you receive in this course of study and those in your own library.

In many cases a series of short fasts starting with 24-hour fasts and gradually extending the fasting time to 36 hours, then to five days and eventually to seven and, in some cases, to ten days will prove feasible after a suitable period of orientation as to the benefits accruing to fasting. In other cases, especially if your client is elderly, you may have to proceed without the initial detoxification by fasting. In this case the client must be made to understand that the cleansing of the system will require a longer time and that he should not expect immediate results.

6.4 Step Four

Change the diet. There is nothing to be gained by making changes gradually and everything to be gained by changing immediately to a physiologically-correct diet, such as has been outlined in these studies. With new clients, it is well to present them with a specific dietary regimen to follow until they themselves have become familiar with Hygienic principles and food combining rules as based on human physiology.

While abrupt changes are preferable, they may not be feasible for one reason or another. Children are open to change. Some young adults are, also. Rarely are mature adults, especially after the age of forty, either willing or able to make an abrupt about face in their dietary intake. Peer pressure, cultural mores, indeed, any number of societal reasons will make such a transformation difficult. Additionally, too rapid a change may produce a flood of adverse symptoms, including a worsening of the present skin condition, to the discouragement and even dismay, of the client.

Where abrupt change is inadvisable, the client should be placed on an extended detoxification plan; eventually, of course, on a fruitarian diet.

Provide your client with something concrete to take home with him: a change in diet, or in his exercise program, etc., this at each visit.

6.5 Step Five

Make Changes, as advisable, in the client's lifestyle. Among such changes might be the following: a planned exercise program, one commensurate to the client's present capacity with a gradual working toward his potential; sun- and' air-baths as well as planned rest periods. Emotional problems may be present or may present themselves during the course of education. These will have to be resolved as best they can by cooperation between the practitioner, his family and friends, and himself. Cleanliness must be emphasized and, if necessary, the client must be instructed in how to take a bath, wash the hair and so on. In fact, the client must be instructed in all phases of Natural Hygiene. It is well to do this by following a planned course of instruction. Here at the ranch, we advise all clients on the first visit that they must embark on a program of education in the principles of Natural Hygiene. Most agree to do so, out of curiosity, in some cases, and because they feel that they must, in others. We advise our clients that the more they learn about how to care for their bodies, the more quickly will they learn to care for themselves in such a way that they will have no future need for medicines, vitamins, or medical advisors. One couple we know took us up on this promise and after the very first year flew to Hawaii and took a tour around the islands on the money they saved by not buying supplements and medicines and making office calls to their former health advisor! Incidentally, by that time, they had both recovered from their illnesses, the wife from the pain of arthritis, the husband from a long-standing skin disease.

6.6 Step Six

Expect clients to make errors and to regress. This is understandable and to be expected. Only a very few will go from A to Z in an absolutely correct progression. We have a nurse who regularly comes and confesses her transgressions. She then picks up again, resolves to do better and each time she progresses just a little bit more. In such cases, patience is indeed a virtue. Holding forth the goal of the joyful life, as we like to call it, continuously, if need be, is your best tool. Ask more successful clients to assist you. They are often willing and even delighted to share their experiences with newcomers to the Hygienic way of life. Telephone support can often keep a client on his chosen path, especially if it comes from someone who has also experienced his pain, his embarrassment, his frustrations. Additionally, giving support to others also gives support and confidence to the giver!

We suggest holding meetings from time to time. We occasionally hold a potluck luncheon here at the ranch. Clients and students exchange experiences. They usually leave inspired to reach their individual goals. We also give public lectures and encourage our clients to meet and talk with those members of the public who attend. Most are more than willing to share their experiences. These lectures are usually devoted to a single topic of interest as, for example, psoriasis. The sharing of success stories by your clients helps also to bring new clients to you.

6.7 Warts and Moles

In his book, *Getting Well*, Dr. Herbert M. Shelton says that, according to medical "science," little is known about the cause of warts and similar out growths of the skin.

In *The New American Encyclopedia*, revised edition of 1939, we note that warts are "due to excessive growth of the skin." No other speculation is given and no explanation of why the skin should evidence such abnormal growth. A 1979 edition of *Funk and Wagnalls Encyclopedia* states positively that warts, or averruca, are caused by viruses and that treatment involves the use of local medication initially and, if they return, by freezing, with dry ice, X ray, burning with an electric needle, or surgical removal. This edition points out that plantar warts, those that develop on the soles of the feet, are especially hard to treat and remove.

Shelton believes that warts and probably other disfiguring skin manifestations of a similar nature, are due to a perversion of nutrition, perhaps due to some local irritation such as dirt, cosmetics (as for example, after shave lotions which contain harmful irritants or drugs), or by internal toxicosis.

Dr. Shelton emphasizes external cleanliness and says that when external cleanliness is supported by all other Hygienic measures—fasting, improved diet, exercise, sun-baths, etc., the wart often disappears.

Occasionally, in stubborn cases, recourse must be had to the blue lens, a device used to concentrate the sun's rays on the affected area(s).

One case we worked with is especially interesting. This woman had a very unusual mole on her back. It was very black and about the size of a half-dollar, sat on a pedestal, elevated about 1/4 inch above the skin surface. It was disfiguring and annoying, even painful should she happen to sit in such a manner as to put the mole in contact with a hard surface.

This woman had been advised to have this mole removed surgically but she was reluctant to do so, so she sought our help. She elected to fast and to follow Hygienic principles. Nothing seemed to happen to the mole but after a time, her other ailments gradually began to improve including what had been a severe sinusitis and frequent aching in various joints.

Little by little, this huge mole began to peel, small pieces breaking off at times. By this time our client was a raw fooder and a fruitarian.

Recently, some fifteen years after her initial decision not to have surgery, she told us that all that remained of this once monstrously disfiguring and annoying mole was an almost invisible dark spot, about 1/4 inch in diameter, a mark that was perfectly flat on the surface of her skin. The mole was no longer a matter of concern.

This case study illustrates McCarter's Law that "sickness begats sickness, but health begats health." In other words, if we are sick and do nothing constructively to improve our living and eating habits, we will grow sicker but. if we improve our health by healthful living and continue to take a positive direction in our lives, we will just keep on getting healthier and healthier. And, experience has demonstrated often enough to us that we are able to say with confidence that this law applies to all skin diseases, too!

6.8 Finally

It is important for all those who suffer from skin disorders, from lupus to eczema to psoriasis to ulcers of the stomach, to realize that they cannot return to their old ways. They have already demonstrated a systemic weakness. Should they regress and return to their former practices, they would soon find that old, and perhaps even new, ailments would appear, some perhaps even more involved and annoying.

The client must be made to realize, that the mouth is an open door either to superior health or to diminished health. It is also the open door to skin diseases of all kinds, particularly when external cleanliness is neglected. He must be impressed with the fact that the ways, of health are not destructive ways; rather that they are most gentle and always in the direction of perfection.

If the student has arrived at the conclusion that the basic treatment for all skin diseases is one of complete body cleanliness, inside and out, coupled with a physiologically correct diet and an appropriate lifestyle, then he is correct. The only way to skin and body health, and the two cannot be separated, is to employ all known means of health.

6.9 Case Study—John

John was a reluctant student of Natural Hygiene. His wife first attended classes here at the ranch while John strolled around outside admiring the desert flora and fauna. His reluctance to consider new methods of healing were understandable. He had suffered from psoriasis for over thirty years, had consulted innumerable specialists in skin care and had tried all the remedies prescribed and many nonprescription remedies. He had tried many diets and had taken vitamins and other supplements by the carload. His search for a "cure" had borned no fruit. Patches of the dread disease appeared on various parts of his body. His face was almost brick-red.

When Dr. Robert learned that John was on the ranch he persuaded him to come in and at least to give us a fair hearing. That was the beginning of a successful story and of a changed man. From that moment on both John and his wife became ardent students reading everything that we had written and works that we suggested to them. They began slowly to incorporate what they had learned into their daily lifestyle. They gradually reduced their intake of animal products, soon took up golf and hiking. They started their own garden and began to incorporate what they had learned into all phases of their lifestyle.

Gradually they introduced fasting into their program, starting at first with 24-hour fasts and then extending them first to three-day fasts and eventually to five-day fasts. The changeover has been consistent over the last three years.

They did not make sudden or profound changes but rather "grew" into a much improved program for living.

It has been most interesting to watch John's progress. First, the extreme reddish hue of the face began to subside. The lesions grew smaller, the sloughing off of cells less [noticeable on clothing, patchy areas began to recede, some completely disappeared. John's psoriasis is now under control.

It is interesting to know, however, that when John deviates from the Hygienic diet, as he does occasionally, he receives the bill! Most of the lesions now are in obscure parts of the body but on these occasions, almost without exception, a new one will open up on John's face! That soon puts him back on the Hygienic path once again.

6.10 Case Study - Sandra

Sandra came to us about two years ago with diagnosed dermatomyositis, a condition characterized by muscular weakness with a nonspecific eczematous skin eruption or urticaria. According to *Stedman's Medical Dictionary* the "muscles are tender, and owing to weakness the patient is unable to perform normal tasks. The condition is progressive; it commences with erythema (inflammatory condition with redness) and swelling of the eyelids, face and parts of the limbs); muscular weakness succeeds the skin changes. The pathologic changes in the muscles are diagnostic (that is, they identify the condition), but the histopathologic (diseased cellular changes) skin changes are nonspecific (that is, from the condition of the skin alone, diagnosis can not be made)." (Notes in parentheses by the authors.) Sandra's condition was typical and considerably advanced. Her face was covered with reddish, almost black patches. Her entire face was puffy, including the eyelids and nose. Around the nostrils were lesions.

Arms, fingers, calves, and ankles were swollen. Her gait was unsteady and she was subject to falling. Her vitality level was extremely low. The prognosis was very dim, indeed, that anything could be done for her but Sandra was convinced that she could not go on with her present methods of treatment, the drugs causing even more weakness. They also made her nauseous. She was irritable and unable to cope with the daily chores necessitated by her young family. Sandra was willing to learn. She attended classes and read study lessons. We placed her on the McCarter Extended Detoxification Plan (to be outlined in detail in Lesson No. 63). A friend allowed her to work out at the spa. She began with simple resistance exercise routines and learned how to exercise her legs in the pool.

A year has passed. Sandra is a confirmed Hygienist. We recently had some salesmen here at the ranch referred by her. They had approached her regarding the well-known "benefits" of aloe vera and herbs. They wanted to meet us because, as they told us, Sandra would not cough unless we approved! You see, Sandra now has no fear of falling, she can care for her little family and, best of all, she is beginning to look more normal. The patches on her face have all disappeared, melding one into the other until the surface looks as one color. The hue is still somewhat darkened but I much, much lighter than when first she consulted us. There are lesions still on the inner surface of both hands but these also appear to be receding. Sandra's hands are still quite puffy but the eyelids, nose and face appear much more normal. The change in her attitude toward life and living is worthy of note: she now laughs and looks forward to the years ahead where before she was discouraged, having little hope that the future would bring any change. Sandra knows the many faces of joy that Natural Hygiene can impart to those who follow the laws of life. At age 43, she looks forward to a future filled with bright promise.

6.11 Case Study—Mrs: "B"

Mrs. B. was brought to our attention by her daughter and son-in-law. Her daughter had taken one of our courses of study about a year previous and had talked her mother into at least listening to what we had to say about alternative ways of healing. This had been a rather difficult task since Mrs. B's son was an internist and she had considerable confidence in orthodox methods.

However, she knew that she was now faced with making a major decision that could completely change her life: her own physician was suggesting that he might soon have to recommend amputation of her right leg above the knee.

A widow, the mother of several adult children, Mrs. B. had a history of medical abuse: every so-called "expendable" organ had been removed. For years she had suffered from ulcers of the skin which came and went. They had first appeared in the groin area, then they covered the abdominal area and progressed up and under the arms. At times they made moving the elbows extremely painful due to pus-oozing sores in the crook of that joint. Both legs were puffy and filled with open sores but the right leg was in a frightening state. It was a deep red, tending almost to a deep brownish color. The pain was excruciating. Mrs. B. had almost reached the point of total exhaustion. Both of us were extremely reluctant to handle this case but resolved to see what Natural Hygiene could do.

We made it clear to Mrs. B. that if anything could be done, it would represent a long hard struggle and would require complete adherence to a very strict program. Faced with a more frightening ordeal in the proposed possible amputation of her leg, she agreed to try.

At the time Mrs. B.'s digestion was so deranged that she could not even digest lettuce without suffering stomach cramps. Bowel movements could only be accomplished by using laxatives. The woman was 66 years of age, her living and eating habits well etched. Fasting was not advisable due not only to her weakened condition but also because of her total lack of knowledge of the subject. Abrupt changes in eating styles was not advisable either because we knew that the appearance of any undue symptoms would be immediately attributable to the change in diet, at least in our client's mind.

Therefore, we placed Mrs. B. on the McCarter Extended Detoxification Plan (to be discussed in Lesson No. 63) and made some constructive changes in her lifestyle. For example, the first four days were to be spent prone in bed following which she was to spend two hours resting on a couch or in bed and one hour sitting up with one half-hour during the day spent out of doors sitting in the shade. This was to last for one week after which she was to spend two hours up and one hour resting with one hour sitting out of doors in the shade. Gradually, as her condition permitted, simple flexibility and stretching exercises were introduced. By this time, Mrs. B. was showing a greatly increased vitality. The worried look had departed from her face.

The dietary changes were extremely simple at first. For example, during the first four-day bedrest period, she took only warm to hot soups made of an assortment of vegetables including potatoes, carrots, celery, and other common garden vegetables. It was amazing to watch how Mrs. B.'s nervous structure calmed itself. Even the stomach relaxed with the gas and the cramping disappearing.

Gradually food combinations were corrected and meals acceptable to Mrs. B. were devised. It is now four years later. She can now eat a bowlful of salad greens and fruit by the peck! There is no longer any talk of amputation for she is hiking around the mobile home park where she lives, striding along with her peers, and outdoing most of them! Every ulcer has healed. True, her skin is lull of pock marks where sores had once been but her face is totally clear and shines with health. Her physician? Well, he told her never to lose sight of her nutritionist, that Mrs. B. had accomplished a miracle! Recently, Mrs. B. told us that she now had a boyfriend and, as she told us about him, we saw a few tears of joy glisten in her eyes. This is what Natural Hygiene can do when given its chance.

On first meeting, older people who consult hygienic practitioners have little or no knowledge of Natural Hygiene. Schooled in orthodoxy, they want healing "now!" They fail to realize that it takes many, many years for chronicity to develop and that it will probably take considerable time for full recovery to lake place, if that, indeed, be still possible. In most cases, it will not be. It is often advisable to take photographs of your client on first meeting, photographs with front and side view in a standing position and to keep these in the client's file together with as complete a history as possible, one containing as full a disclosure of symptoms as the client can give.

This is advised, not because we should be overly concerned with symptoms, but because both the pictures and the records are often helpful in reminding clients of just how much improvement has taken place in a given time. Clients are often apt to forget what they looked like when they came and also how they felt! Reminding them from time to time is one means of encouraging them to keep on with a more physiologically sound regimen and not to digress from it.

6.12 Case Study—Mickey

With older clients the progress is often extremely slow with constant prodding and encouragement required. With Mickey, this was totally unnecessary for Mickey, at three years old, was at the other end of the spectrum of life and filled with the vibrant energy of the very young.

In fact, Mickey, according to his parents, had too much energy. He was well described as being "hyper," but with good reason. Mickey was a product of the times, his body saturated with the poison products of cow's milk and formulas fed from birth on. Candy and sweets of all kinds coupled with liberal amounts of Kool-Aid and other goodies had made this little boy break out in a rash which refused to go away in spite of the many medications, prescribed and over-the-counter which had been dutifully applied. His, parents brought him to our attention in despair, themselves almost exhausted from sleepless nights and tantrum-filled days.

All medications were immediately stopped, all sweets forbidden. Mickey was taken off milk and placed oh a simple diet of raw fruits, vegetables, and nuts. The synthetic food products were relegated to the trash can. In ten days Mickey's parents reported with joy and delight that they once again had a normal boy: the rash had completely healed and, both Mickey and his parents were sleeping the whole night through.

Children recover almost with miraculous speed due to their great store of vitality. This is lacking and often in very short supply in older clients. Expectations of recovery time must therefore often be extended in the elderly to years instead of weeks and months and the extent of the recovery must be expressed realistically in terms of possibility. However let us stress that we ourselves are often amazed at what can be accomplished even in cases of extreme enervation, as was true in the case of Mrs. B. We must keep ever in mind as practitioners that whatever may be possible is not, at early reading, an open book. What will be revealed, given enough time for the body to extend its marvelous healing powers, is an unknown. But this we do know as a certainty: the body can and often does produce a miracle when given the proper tools!

7. Questions & Answers

I have been on a regimen of two fruit meals per day, one in the morning and the other at noon with a raw vegetable plate in the evening at which I alternate a starch food one day with a protein food the next day. But, I don 't seem to be improving. In fact, the rash on my face has actually grown worse. What should I do?

> Your reverse progress is actually evidence of stepped-up body elimination, thus indicating that your vitalities and energies are imputing. The body does a general housecleaning first of all when its conditions are improved and you're no exception. If you want to get the elimination over with more quickly, go on a fast. If you want to continue to improve more slowly but faster than now, you might consider an all-fruit diet or meals of a single fruit. If you want to slow your body improvements so that symptoms do not exhibit, replace a fruit meal with another salad and a single concentrated food, thus eating a starch meal with a salad and a protein/fat meal each day with a salad.

I am a married man and my wife is in total disagreement with me on the advisability of my continuing with the Hygienic program. This keeps me on an emotional roller coaster. Is this at all helpful and how can I handle this situation?

> This is a problem that often arises. In such a case, one has an important decision to make. Which is more important, one's future health or domestic peace at this time? It seems to me that we must separate ourselves emotionally and dietetically from the masses else we will end up as they, more often than not, which is prematurely dead or subject to the "mercy" of the medical establishment warehoused in some institution. If we make the correct choice, which can only be a physiologically-sound way of eating and living, the Hygienic way, then we will enjoy the fruits of a life well lived: superior health for a lifetime.

Will I ever really enjoy this way of eating? I see an advertisement, for pizza on the television and my mouth waters. I just don't enjoy this food and I have no appetite for it.

> I guarantee you that if you stay on your correct diet, assuming it is Hygienically correct, you will, within a very few months, be totally committed to it, not only because you feel and look better but because you are now discovering new and exciting tastes formerly completely unknown to you. In fact, no one would ever be able to talk you into any other way of eating! Keep on your program. Let nature convince you of its merits and of its delights.

I have been on this program for two months and I now not only have all the boils I used to have but I also have headaches and occasional pains in my fingers. I am getting discouraged and depressed. Should I keep on?

> By all means! What you are experiencing sometimes occurs and actually should tell you that your program is doing the work. The elimination from the skin is continuing and even accelerating indicating that your vitality is at a higher level than formerly. The pain in your fingers is no doubt caused by poisons entering the bloodstream from that area on their way out of the body. Remember that these acid wastes have a tendency to irritate nerve endings. This may occasion mild pain at times. Hot applications may help. Do not take drugs to relieve the pain. Bear with it. It should be alleviated shortly. Once the poisons have made a suitable exodus from the blood and other body fluids, the pain AND the boils will be no more! Don't give up now when you have proof that your new diet and lifestyle are producing positive results.

Article #1: Skin Diseases by William Howard Hay, M.D.

Like diseases of every other sort, those of the skin are traceable to toxic states of the body. The skin, being wholly visible, is merely the covering of the body, and blends with the mucous membranes, lining the exits and entrances to the body, so that these orifices are merely inversions of the skin. Thus the skin is a most valuable index of internal body condition, when we know how to read its appearance.

Of the emunciories whose duty it is to keep the internal body clear of accumulations, the skin stands in importance. It is therefore mighty important that this organ which covers the body and at the same time takes care of certain of the chemical wastes of the body should be kept as healthy as possible, in order to function properly.

It is not enough that the skin be kept clean in the ordinary sense, for no matter if it is washed thoroughly three times every day, scrubbed with a brush, rinsed thoroughly after a soap bath, it is still in far too many cases a dirty skin, because through it is continually passing all sorts of chemical debris from a body that is throwing off poisonous materials, which, if retained, would cause death in five hours or less.

It is the passage of an extraordinary amount of toxic material through the skin that sets up the irritations and inflammations that we have classified and named through these many years of medical study and research. Seldom do the so-called diseases of the skin arise from outside irritations.

As the toxic material accumulates in the body it must have an outlet or we would soon perish, and it is in seeking such an outlet that the body uses all means available, including acute fevers and colds, indigestion and chills, and tonsiliuses and eruptions of the covering membrane, our external organ, the skin.

Without internal congestion due to intoxications there would never be evidences of the condition visible on the skin.

We so often see eczema alternating with such internal conditions as neuritis or rheumatism, or asthma, and while the skin is broken out, the internal condition is not in evidence, but when the skin ceases to throw off the accumulating debris then it again is manifested in the internal condition. It is a realization of this fact that makes the specialist say that eczema and asthma are merely expressions of the same internal conditions, the one manifesting on the skin and the other through the bronchial mucous membrane. This is all that disease is, one thing, a toxic state of the entire body, and such toxic states do find expression through many and varied symptom complexes or syndromes.

If one doubts this, then use the skin as an index of internal conditions, and no matter what the particular skin disease presents, detoxicate the whole body, keep the laws of nature in the matter of nourishment, and bring the lazy colon up to date and keep it there, and observe that every one of the many and varied skin diseases will disappear as readily as will any other condition that we attribute to internal uncleanliness.

It is the fine delicate skins that are the most subject to eruptions, as we have always known, and when the internal condition is brought back to anything like a normal balance the skin will again be as clear and fine as before it was affected, if you are a victim of eczema or psoriasis, two of the commoner forms of skin eruption, you can very easily prove to yourself that what has before been said is all loo true, and that when your internal chemistry is approximately normal so will your skin be. Ichthyosis, or fish skin disease, is a condition of dryness and harshness of the skin that is congenital. The victims of this condition are never handed any encouragement or hope of ultimate recovery, and their health is impaired to the extent to which their skin is deficient in function.

Yet the one case of this condition that has come under direct treatment by this system improved in four weeks to such an extent that normal perspiration was easily obtained through either the hot air bath or exercise, and in six weeks the skin returned to a normal softness and fineness with complete absence of the usual dryness and harshness and continual scaling...

In the nearly thirty years of application of the principles of natural treatment of disease I have seen no case of psoriasis or eczema that did not recover, even though both conditions had failed to improve under the most "scientific" treatment of many prominent skin specialists.

Acne vulgarus is the commonest of the skin blemishes met with, especially in the young, and every case of acne is merely an expression of an internal condition that is all wrong, and means that the lungs, skin, kidneys, and bowels are among them unable to keep the body clear of its own irritating acid debris. Every boil or pimple means the same thing: every carbuncle, eruptions of whatever nature, except the few caused directly by external irritants such as poison ivy or nettles or the bites of various insects or snakes or the application of chemical irritants to the skin.

Skin allergies, by which we mean those very sensitive skins that will break out with a sort of eczema whenever brought into contact with the primrose or other vegetable irritants, are merely evidences of the internal condition of the body that makes these particular pollens irritating to these particular skins, and "allergies" of every sort will disappear when the body is again in proper chemical balance.

This applies also to foods, arid if certain foods are "allergic" today, it does not follow that the same food will disagree next year, even though the so-called "allergy" has been life-long. ...In every case these "allergies" will disappear when the wrong body chemistry has been corrected, and the food that was formerly "allergic" may then become the favorite food and agree better than other common foods that had been the chief items of daily use.

If you have had years of eczema or psoriasis, you can correct the skin irritation in a few weeks or a very few months by detoxicating the body, and with such correction of the dietary habit as will stop the excessive, formation of these irritating acid end products of digestion and metabolism. But when the whole manifestation is fully corrected, this does not mean that your skin will become as resistant as that of someone who has been born with a strong organ instead of a weak one, and it does mean that if you again let yourself get far out of chemical balance you may expect a similar manifestation, for your skin is your weakest organ and its resistance will break down first.

Women consider the skin chiefly from the standpoint of cosmetics, yet mention a woman's skin and its relation to health and you excite her interest almost immediately. The sallow and dry skin lacks the normal elasticity that smooths out all wrinkles. The skin has so much to do with health that next to breathing pure air our second duty in keeping right inside revolves about the function of the skin. Julius Caesar attributed the health of his very efficient army to the fact that every man had to sweat at least once every day. To keep the skin active it should be given the advantage of one real sweat every day, not artificially induced sweating, but the sort that comes from sufficient activity to compel free sweating.

When the pores are thus opened, it gives opportunity for the skin to unload freely the chemical waste matter that is carried in every body, the result of its combustion of fuels, the death of its cells, and the metabolism of food materials taken in every day.

These all produce waste matter of great diversity, and those chemicals that cannot pass out through lungs, kidneys, or bowels must be taken care of by the skin. To accomplish this fully this organ must have the proper cleanliness and exercise, through activity sufficient to produce sweating, aided very materially by a brisk brushing with a bristle skin brush.

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Article #2: Lupus by Louis Kuhne

The innumerable successful cures effected by my method, also in the case of lupus, proves that in this disease, as in all others, my doctrine of the unity of disease holds true. I will here cite a case of lupus of general interest.

The patient was a lady, 41 years of age, and had been perfectly healthy until vaccinated in her second year; from that time dated her misery. After the vaccination, obstinate eruption of the skin occurred, which in her tenth year developed into lupus of the face. For over thirty years this lady had suffered from this painfully disfiguring disease, without finding assistance anywhere, notwithstanding that she consulted many famous physicians. Her face was horrible to look at; in fact she could go nowhere without people turning their gaze from her with aversion. In this helpless condition she came to me, all the doctors having pronounced her disease incurable. My diagnosis showed an extremely favorable position of the encumbrance, so that I could assure her of good prospects of a rapid cure. This opinion was confirmed. After only a fortnight the disfiguring lupoid places on the face had undergone considerable change and were no longer quite so repulsive. Her digestion, in particular, which had until now never received any attention, had also improved quite remarkably. The result was abnormal evacuations, whereby the morbid humours were expelled. In seven weeks the patient's skin assumed the normal color.

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Article #3: The Skin by M.O. Garten, D.C.

With the lowering of metabolic efficiency, the skin becomes pale, thin and dry with development of many folds. Secretions of perspiration lessen with an increasing difficulty of keeping warm.

During the fast, the skin resumes more effectively its role of body cleanser. Perspiration may become odoriferous as it may carry dissolved particles of uric acid, decomposed cells, etc.

One of the most gratifying effects of the fast is the observance of changes of the skin. The once shiny cigarette paper appearance, particularly on extremities, changes over to a more velvety texture, the skin loses its shine and many folds, and becomes thicker.

Excerpted from The Health Secrets of a Naturopathic Doctor.

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Article #4: The "Hurry-Up" Disease by Elizabeth D. McCarter, D.Sc.

Don't be a victim of the "hurry-up" disease. Rejuvenation and recovery from sickness do not usually occur overnight. It takes nine months after conception, on an average, before a baby is born! Healing and repair also take time, often considerably more than we anticipate. Dorothy M. found this out, but eventually she, too, received her reward.

When we first came in contact with Dorothy, we found that she was suffering terribly from a fungus which was buried deep in the palms of her hands causing itching so intense that she said it just seemed to burn even into the marrow of her bones. This condition had existed apparently for some time and, needless to say, had almost exhausted her vital power supply. She had wandered from clinic to clinic searching, always searching, for "relief," but without success. At 65 she was still trying caustic solutions, vitamins, ointments, herbs; even steroids. Everything anyone anywhere had recommended, from California to Australia, Dorothy had tried, used for a time, and then discarded as useless. The terrible itching, the painful cracks in her skin and the inflammation persisted.

We explained to Dorothy that parasites live on the effete material within the system—the poison within—and that the only way to get rid of them was to get rid of their food; in other words, to starve them out! Thus, it was that Dorothy embarked on a program of Natural Hygiene that was to extend over many years. She first fasted for a period of about ten days. Then she began a greatly reduced and modified food intake that consisted of about 90% raw fruits, vegetables, and nuts. She learned that these were the kinds of foods which contained all the nutrients of life and contained them in the proper proportion as required by the human body. At suitable intervals she would fast for two or three days, gradually, as she phrased it, "cleaning out the fungus food!"

Would Not Give Up

Months passed with no results—apparently. Almost anyone else would have given up, but not Dorothy! She was convinced that she was now on the right track. You see, it all made sense to her. At long last she realized that obedience to the laws of nature is the only way to find health and that there can be no compromise. Gradually the itching seemed to lessen. Dorothy knew that drugs give only temporary relief, so she endured the terrible itching and persisted in her health program.

Years came and went. She had to wear gloves to take a bath and whenever she put her hands in water. So sensitive were her hands and fingers that even plain water caused her discomfort. Frequently cracks and blisters formed where spores were deeply imbedded.

Four, five, six years passed in review until the day finally arrived when Dorothy first put on the wedding ring so long abandoned. Progress was rapid from that moment on and, before the seventh year had passed she was able once more to take a bath and wash dishes without having to wear rubber gloves. The itching and the pain were now nothing more than a hideous memory.

Dorothy was now almost 73 years of age, but she looked younger than she had when we first saw her! Her complexion was radiantly alive and her vitality that of a much younger woman. She was living proof that age is not necessarily restrictive of improved health. There is an old German proverb which says, "Patience brings roses!" Dorothy had found her roses! It had required patience, perseverance, and a dedication to a firm belief that the ways of health are the natural ways of life.

The lesson, of course, is clear. We, too, must persevere in the ways of health. At any time, Dorothy might have chosen the ways of drugging to relieve the immediate pain. Like so many others, she too could have soothed away the pain and the discomfort with products of the chemist's art, those "instant relief" pills and potions. It would have been so easy, so quick; but Dorothy had learned that drugs only appear to give health, that they present only a false facade.

When we are very young, our bodies are filled to overflowing with vital energy, the return to health may occur with amazing speed; but when we are older, the return may be elusive and taunt us with its tantalizing slowness, as was true in Dorothy's case. But, regardless of our age and our condition, we must remain steadfast in our goal to attain superior health. We must persevere in the ways of health. We must not be victims of the "hurry-up" disease!

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Lesson 62 - Healthy Eyes And Teeth

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1. Introduction

"An eye for an eye, and a tooth for a tooth." You've heard this said many times, and no wonder. This old Biblical statement simply reflects the value we place on our teeth and eyes. The eyes and teeth may be the two most vital body parts we have for sensual appreciation. Good teeth allow us to savor and enjoy eating. Good vision allows us to participate more fully in the world.

Old age often has meant that the eyes and teeth rapidly fail us. Dentures and eyeglasses go hand in hand with Social Security checks. But does this mean that poor or missing teeth and weak, failing vision should be the norm for the elderly?

The young, too, have miserable dental health and vision problems. Younger and younger children are forced to wear glasses, and it is a very rare child indeed who does not have at least one dental cavity.

The truth is this: the overall health and well-being of the body is reflected through the health of the mouth and the clarity of one's vision. Dental decay and failing eyesight are signs of a deteriorating body. Yet, it doesn't have to be this way.

The teeth and eyes are built for long years of service—at least for 120 years. There have been stories of people who grow a third set of teeth in old age, and regained eyesight among the elderly is not impossible. So, poor teeth and eyes are never natural. Your teeth and eyes should be as sound at 50 as they were at 20—if you understand and follow the precepts of a healthy lifestyle.

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2. The Teeth

2.1 Sinking Your Teeth into Good Health

Dental health indicates body health. A proper program of diet, exercise, freedom from stress, and sensible living habits will insure that your teeth will last for a lifetime. Outside of gum disease, the two most common dental problems are caries and malocclusion.

Caries are erosions of the teeth, and are usually called "cavities" by the layman. Malocclusion means that the teeth do not fit together properly, such as in "buck teeth" or other deformities of the jaw and mouth.

Both of these conditions will not occur if a person consumes an optimum diet. Not only the diet of the person involved must be superior, but also the diet of the person's mother as well. Good nutrition for the teeth must begin *before* birth, and the diet of the pregnant mother will shape the child's dental health for the rest of his life. To understand the role of nutrition in dental health and well-being, you must be familiar with the chief causes of dental abnormalities and diseases.

2.2 What Is a Cavity?

A cavity is a hole, whether it is in your teeth or in the ground. Holes appear in your teeth when there is a mineral imbalance in the body. Chiefly, the calcium-phosphorus mineral relationship is the determining factor in cavity formation.

When the diet is excessively high in phosphorus, or in foods commonly known as "acid-forming," a calcium deficiency may occur. This deficiency is usually not due to inadequate calcium in the diet (although it may be if the diet is especially poor), but due to such foods as white sugar, refined flour and grains, and other processed carbohydrates that deplete the body of vitamin and mineral reserves (including calcium).

Cavities are *not* created by the external action of bacteria on the surface of the teeth, as is commonly thought, but by the imbalances created in the body by improper foods. Consequently, thorough brushing and flossing of the teeth are ineffective in preventing cavities if a substandard diet is still followed. Healthy teeth can only be built by a healthy diet and lifestyle—not by fluoridated water or "whiter than white" toothpastes.

2.3 The Truth About Dental Health

For the truth about nutrition and tooth decay, read the book *Nutrition and Physical Degeneration* by Weston Price, DDS. Dr. Price traveled throughout the world to study the effect of various diets on dental health.

He found, *without exception*, that the people who ate diets free of refined and processed foods were almost completely free of tooth decay. In addition, these people had excellent bone structure, jaw formation, and were well adapted for chewing, singing, and speaking. (In other words, not only were cavities not a concern, but a natural diet does not cause malocclusion, or deformity of the dental bite.)

He also discovered that within so short a time as a single generation, eating refined foodstuffs resulted in narrow dental arches, malocclusion, and rampant tooth decay. His book has pictures of families that show the older generation who ate unrefined and natural foods with perfect "choppers." The younger members of the family who ate the "civilized" foods, like candy, soft drinks, canned foods, and refined grains, had teeth with holes, snags, and decay.

His conclusion: rough, unrefined, whole, unprocessed, and untampered foods promote the highest degree of dental health. Without exception, the eating of modern foods produced dental deterioration.

Although the medical establishment's standard position is that tooth decay is caused by food particles stuck to the *outside* of the teeth, even the *Journal of the American Medical Association* recognized that tooth decay dropped when a more natural diet is followed. In an issue of this magazine, Dr. James H. Shaw reported on the improvement in dental health that occurred when certain countries during World War II had to revert back to a traditional, unrefined diet:

"Careful study of these countries indicates that the nutritional influences imposed on the teeth during development and calcification through the consumption of coarse, unrefined diets of natural foodstuffs resulted in teeth that were more decay-resistant than those teeth formed during the prewar years."

Notice that emphasis is placed on the formation of the teeth and a good diet. Your mother's diet during pregnancy and lactation provided the foundation of your dental health. Even if you now eat an excellent diet, your teeth may be suffering from poor eating habits of your younger years, or from your mother's prenatal diet.

Still, a diet of chiefly raw fruits and vegetables can make your present teeth last longer. Besides diet, what else can prevent tooth decay? Exercise!

Most people would laugh if you suggest that they exercise their teeth. After all, with all the overweight people in this country, you might think that people need to keep their mouths shut more and exercise their teeth less. Like any other healthy part of your body, however, the teeth require regular exercise. It is a fact: if any part of the body is not exercised or used properly, it will deteriorate. The teeth are no different.

2.4 Exercise, Chew, Chomp, and Gnash!

So, how do you exercise your teeth—by flapping your gums? No, the best exercise for your teeth is to use them for the exact purpose that you have them: chewing food.

Look at the typical American meal: white bread, mashed potatoes, gravy, meatloaf, mushy peas, and a glass of tea. You don't need teeth to eat that kind of food. You could almost swallow the slop in a few gulps with one or two chews. You need a meal you can sink your teeth into. You need to eat food that requires chewing and using your teeth.

Which foods exercise the teeth best? Raw, fibrous, wholesome fruits, vegetables, and nuts. Cooked foods are poorly chewed; raw foods must be thoroughly masticated. The chewing of the firm raw fruits and vegetables give the teeth exactly the kind of exercise they need. In fact, so effective is this exercising of the teeth in promoting good dental health that Dr. Shelton has this story to tell:

"A mother brought her young child to me. She was distressed that his jawbones and mouth were developing poorly. The boy had a terrible bite (referring to the way the teeth fit), and there did not appear to be any room in the crowded mouth for the new teeth to erupt. After discussing the child's diet, I suggested that the mother give the child a raw carrot to chew on at his regular meal and as a replacement for his sweet snacks. Years later I saw the mother and child again. The child had beautiful straight teeth. The hard chewing that was required for the raw carrot allowed the teeth to straighten out as they performed the job for which they were originally intended."

Not only are raw fruits and vegetables beneficial in exercising the teeth, they may be your best Toothbrush! Consider this report made by two British researchers in the *Medical Press*:

Two groups of children were chosen at random. One group ate a raw apple after their regular meal the other group did not. It was found that chewing an apple stimulated the gum tissues, increased the saliva flow to cleanse the teeth, and provided optimum exercise for the jaw muscles. The researchers discovered that the children who ate apples (or any other raw, fibrous fruit or vegetable) with their meals had significantly better gum health and fewer cavities than those children who simply followed a regular program of brushing and a conventional diet.

Dr. Maury Massler, a professor of children's dentistry at the University of Illinois stated that the best way to clean the teeth and gums is not by harsh brushing or chemical toothpastes, but by eating foods which are "natural cleaning agents for the teeth, such as pulpy, fresh, raw fruit, nuts, and vegetables."

Raw food particles do not produce decay or stench in the mouth as does food which has been processed, cooked, or refined. Once a food's composition is altered by cooking or refining, the food particles decay rapidly when left in the mouth and between the teeth. By eating raw fruits and vegetables, your teeth will stay naturally clean and healthy without abrasive toothpaste or excessive brushing.

2.5 Here's to Your Teeth—Drink Up!

"Studies have shown," writes Dr. Arthur C. Guyton, "that teeth formed in children who drink water containing small amounts of fluorine develop enamel that is more resistant to caries than the enamel in children who drink water not containing fluorine."

Can fluoridated water prevent decay? Actually, the real evidence proves otherwise. An engineer in Massachusetts has analyzed the official government figures on tooth decay and municipalities that use fluoridated water. His figures have conclusively shown that artificial fluoridation does *not* prevent tooth decay, but only *postpones* it for a few years.

Fluorine does *not* make the enamel of the tooth harder and more resistant to decay. Instead, the fluorine simply displaces certain chemical ions in the enamel which makes it less soluble. The fluorine which is now stored in the tooth's enamel is said to be *toxic* to some of the bacteria in the mouth, which is the original rationale behind putting fluorine in our water in the first place. Bacteria causes cavities; fluorine kills bacteria; therefore, fluorine prevents tooth decay.

Such reasoning is both dangerous and faulty. Bacteria no more causes cavities than they cause any disease. It is true that fluorine will kill bacteria, and that in itself should make you wary and alert.

Remember, any substance that is capable of killing bacteria is an *anti-life* agent. If fluorine is poisonous to bacteria, you may be sure that it is poisonous to you as well. In many locales all over the world, the people have excellent teeth and *there is not a trace of fluorine in the water supply.*

Actually, fluorine in its organic and naturally occurring form as found in small amounts in some foods is a beneficial mineral for the teeth. The fluorine that is dumped into the water supply, however, is a harsh chemical byproduct from industrial manufacturing and fertilizer production. No wonder some people would like us to believe that fluoridated water is beneficial. This simply gives chemical and metal industries a profitable outlet for a hazardous waste. Fluoride toxins are dumped into public water supplies in the name of dental hygiene. In reality, fluoridation is rank pollution of our water supply.

2.6 Building Healthy Teeth

You cannot drink a chemical and expect to have healthy teeth. Good teeth are only built through good nutrition, and this means avoiding the harmful foods as well as including the natural fruits, vegetables, and so on.

Which foods are the tooth destroyers? Refined carbohydrates, in the form of sugars, sweets, breads, pastries, cakes, and cooked foods, are the worst foods for the teeth. The white sugar and white flour in these products are nutrient-robbers, and they set the stage for cavity formation. Other poor foods are those high in phosphorus and acid-forming elements such as soft drinks (the chief source of inorganic phosphorus in the American diet) and meat.

The most important person in tooth care today is not the dentist but the mother-to-be. A pregnant woman's diet determines the quality of teeth that her child will have throughout the early years and the entire adult life. After birth, the child should be fed only the optimum foods. If this practice is continued through adulthood, perfect dental health will be a reality.

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3. The Eyes

3.1 Failing Eyesight and Vision Problems

What causes a person to be near-sighted or far-sighted? Why do so many older people require glasses? What is astigmatism? What are cataracts and how are they caused? Poor eyesight and vision problems affect almost every person alive today. Most of these problems could be prevented or corrected if the causes of poor eyesight are understood. Let's look at the most common complaints about the eyes and sight:

3.2 Is Failing Eyesight Natural?

Your vision often seems to deteriorate as you grow older. People that never wore glasses in their early years often succumb to using reading glasses around the age of fifty. Does the power of vision naturally falter with passing years? Yes and no.

Your eyes can focus on both faraway and closeby objects because the lens of the eye can be "stretched." The lens itself is composed of a strong, elastic capsule of proteinaceous fibers. Ligaments attach to the lens which allow it to be contracted and relaxed. As the lens changes shape by the ligaments pulling on it, the eye adjusts so that it can look at both objects in the distance and those that are close up.

As a person grows older, the lens loses its elastic nature and becomes more and more solidified. This is probably because the protein composing the mass of the lens becomes denatured. As the lens loses its elasticity, it can no longer quickly adjust in its focusing.

Around 45 to 50 years, the lens can only move about one-eighth as much as it could at birth. Finally with advanced age, the tens of the eye loses all elasticity and remains permanently fixed and focused at one distance.

This condition is called presbyopia and it simply means that the person has reached a stage where each eye remains permanently focused at an almost constant distance. The distance that the eyes continually focus on depends upon the physical characteristics of the person's eyes.

What this means is that a person may be able to see moderately well for objects that are three to thirty feet away, but cannot read or see distant objects without glasses. Although similar to "farsightedness" or "nearsightedness," the condition known as presbyopia is strictly speaking not the same. This vision problem affects only the older segment of the population, and occurs as a result of gradual deterioration instead of any congenital defect.

Does this mean that you must have poor vision by the age of fifty? Absolutely not. Although the lens of the eye does gradually decrease in elasticity, it can be slowed down enough so that it is almost imperceptible.

The proteinaceous denaturement of the material that makes up the lens of the eye occurs because the body is focusing its healing and regenerative energies on the more vital body areas. There is no reason why the materials making up the lens cannot be rejuvenated or maintained at their present level.

If the body is unencumbered by toxins, stress, or disease, then it can rebuild its weakest parts—including the eyes. If, however, the individual is in the state of toxicosis or is leading an unhealthy lifestyle, then the body never has a chance to revitalize the eyes. Instead, all the body's energies are directed simply toward keeping itself alive.

As long as the health of the body is in a critical state, then the type of rejuvenation that is required to correct failing vision cannot occur. Perfect eyesight is not an absolute requirement for the survival of the organism. Consequently, the body always tends to correct the most pressing problems first. For most people, this means that the eyes and eyesight are low on the body's list of priorities for revitalization and healing. Until you can "get ahead" in rebuilding your health, your eyesight will remain at its current level.

The most effective method known for restoring failing eyesight is a *prolonged* and supervised fast. This allows the body to reverse the deterioration and denaturation of the eye lens because the fast provides the necessary physiological rest for this to occur.

Old age doesn't mean poor vision. Perfect eyesight, along with perfect health, is your birthright and heritage. A failing of the senses is not "natural" any more than any illness or disease is natural. Most people believe that poor vision goes along with increased years. Fasting, an optimum diet, and freedom from stress are the only requirements for improving your eyes. No matter what your condition, these steps will give you some noticeable improvement in your vision.

3.3 Can You Throw Away Your Glasses?

A man or woman who lived a thousand years ago would find the twentieth century to be a very strange place. The first thing that such a time traveler would notice is that about one out of every two people walking around his pieces of glass tied together and strapped across the nose. We call these things "eyeglasses" and we take them for granted.

But are they natural? Going through life with a pair of glass lens perched atop your nose or stuck onto the eyeball itself (if contact lenses are used) is the same as using crutches or a cane to walk around with. Why are there so many 'vision cripples?"

Most people who wear glasses do so usually for one of these three vision problems: near-sightedness, far-sightedness, and astigmatism. Are these conditions natural, and what can we do about them?

3.4 Seeing Near and Far

The most common eye problem is near-sightedness, or myopia. This means that the eyes cannot focus properly on anything beyond a certain distance, and can only see objects that are "near"—hence the term, near-sightedness.

Interestingly enough, near-sightedness most generally occurs in children and gradually worsens until around the age of 20 or so. Why is this? Some researchers have speculated that diet may be the clue in the myopic mystery.

In the *Pennsylvania Medical Journal*, Dr. Hunter J. Turner singles out soft drinks or carbonated soda water as the number one cause of near-sightedness in children. The carbonic acid in these drinks is one of the worst enemies of the eyes, and Dr. Turner believes he has discovered a strong link between soft drink consumption and the incidence of near-sightedness.

What will help a near-sighted person? Exercise. But not only general body conditioning, but a special set of exercises that are performed exclusively for strengthening the muscles of the lens of the eye.

For example, the Bates System of eye exercises has been used for years with moderate success. According to the *International Record of Medicine*, "a specific course in visual training may improve visual acuity, size of visual field, refractive errors, and even reading speed in selected individuals." Additional references to these series of eye exercises are at the end of the lesson. The good news is this: near-sightedness can be overcome by proper exercise of the eyes. Among children, the results are especially impressive. You can throw those glasses away.

What about far-sightedness? Can it be corrected? Farsightedness is also known as *hypermetropia*. In this condition, the person cannot focus on objects close to them (such as a page of a book), but can see things in the distance as normal.

This is rarer than near-sightedness, but it is also caused by a weakened lens system. Both far-sightedness and near-sightedness are "corrected" by placing glasses or contacts over the lens so that the light is refracted in a different way.

Many far-sighted people have corrected their condition by *not* wearing glasses. In other words, they regularly exercise their eyes and try not to rely on any "crutches" or aids that might hinder their progress. Exercising the eyes and following an optimum diet (with periodic fasting) are effective and harmless ways to improve the vision.

If you wear glasses continuously, start off by removing them when it is not essential that you have clear vision. Gradually become used to not wearing glasses, and work your eyes. Focus on objects as far away as possible. Look at mountaintops, faraway trees, or signs. Then turn your eyes to objects less than three feet away. Practice regular rotation and exercise of the eyes for two to three periods a day. At the end of such exercising, press the palms over the eyes and keep them closed and relaxed. If you make a serious effort to exercise and relax your eyes in this manner (along with a regular program such as the Bates Vision System), you should quite literally see some improvement. Don't forget that an excellent diet and fasting program should be used along with your eye exercise program in order to correct near- and far-sightedness.

3.5 What is Astigmatism?

Like myopia (near-sightedness) and hypermetropia (far-sightedness), the eye condition known as *astigmatism* is due to a refractive error of the lens system. People with astigmatism have a "fuzzy vision", and things often appear out of focus, whether near or far.

Due to the nature of this condition, it can never be completely corrected by eyeglasses or contact lenses because an astigmatic eye can never bring the light rays from all angles into focus at one time. The eye is said to be "lazy."

What can you do with a "lazy" or astigmatic eye? Exercise it! Astigmatism responds best of all to a regular eye exercise program. In fact, one method of correcting a single astigmatic eye is to cover the other good eye with a patch for certain periods of the day. This forces the "lazy" eye to do its share of the work and so become gradually strengthened.

3.6 Cloudy Vision: Cataracts

Cataracts are a common abnormality among older people. A cataract is a cloudy or opaque area in the lens of the eye. In advanced cases, the lens may be completely covered by a milky-like coating. Eventually this coating becomes so heavy that light can barely enter the eye, and vision is seriously impaired.

The common medical solution to cataracts is to cut them out. When this is done, *the entire lens of the eye* is also removed. Needless to say, when the eyes lens is removed surgically, the eye loses a large part of its refractive power. To compensate, a convex lens is placed in front of the eye.

There is a better way of dealing with cataracts, and that is to not cause them. To do this, you need to understand what causes cataracts.

Cataracts formation occurs as the protein fibers in the eye lens starts to coagulate with age. As the fibers harden, calcium deposits start to occur in the lens which gives the cataract its milky, opaque color. You can think of a cataract as almost like an "arthritis of the eyes" because inorganic calcium deposits play such an important role in both these degenerative conditions.

Inorganic calcium comes from mineralized waters, cooked foods, and of course, dairy products. Can such food items cause cataracts? There does seem to be an impressive connection. In areas of India where yogurt consumption is the highest, there are also more cases of cataracts than anywhere else. The *galactose* in the yogurt, along with inorganic calcium, appear to be the culprits in fostering cataract growth.

The solution to cataracts: a strict avoidance of dairy products and all other foods containing inorganic calcium. (Calcium becomes "inorganic" when the foods in which it is present are subjected to high heat. Inorganic calcium is also found in mineral water and in all calcium "supplements.")

3.7 Your Keys To Better Eye Health

Healthy and responsive eyes have the same requirements as any other part of the body: good nutrition, rest, and exercise.

What types of foods build healthy eyes? Carrots? Cod-liver oil? The answer is: none of these. There is no one single food or one single nutrient that insures good eyesight. Nutrition for the eyes is basically the same as good nutrition for the body: an optimum diet of fresh, unprocessed fruits, vegetables, nuts, seeds, and sprouts.

Your eyes do have a definite need for vitamin A, as well as vitamin C and the B vitamins. Your eyes need certain amino acids for their work. But all of these nutrient needs can be *abundantly* supplied in a Hygienic diet of primarily raw fruits and vegetables. You do not need to worry if you're getting the proper nutrients for your eyes if you eat wholesome foods and scrupulously avoid destructive, denatured food products.

Which foods destroy the eyes? Here are, your eyes biggest enemies: dairy products, meat, sugar, alcohol, smoking of any type, white flour products, heated fats and oils and all processed and adulterated foods.

Besides optimum food, your eyes need exercise. Exercise does *not* mean using the eyes continuously for the same task, such as reading or sewing. People who read, write, or perform closeup tasks often think that they are giving their eyes adequate exercise. After all, they use them all the time. Eyes, however, require different types of exercises just as the body responds better to be a varied exercise routine.

As mentioned earlier, the Bates Eye Exercise system is helpful because it requires the eyes to move in certain patterns that are not duplicated by the common tasks of reading, writing, etc.

Eye exercises can be very simple, however. The prime requirement for an affective eye exercise is that the eye must alternately focus between close and far objects. For example, if you are reading outside, take a few minutes every now and then and look at the farthest object you can see. Stare at it for a few minutes and try to bring it into sharper and sharper focus. Now look back at your book and focus on the text. This alternation between close and far objects forces the eye to exercise.

If you now wear glasses, remove them occasionally and try to focus without them. It will be different at first, but if you make regular efforts to get by without your glasses, your vision will slowly improve (be patient!).

Along with exercise comes rest. Your eyes deserve the best lighting possible. Harsh and direct lights do not allow the eyes to rest to relax. Fluorescent lighting is particularly hard on the eyes and soon tires them. How else can you rest the eyes? Here is a method described by Dr. Herbert M. Shelton:

"The eyes may be refreshed by a simple process. Close the eyes and relax them, and then cup the palms of the hands over the eyes. Press the palms against the eyes, with no pressure on the eyeballs for a few minutes. Palming, as this is called, relaxes and refreshes tired eyes as few things will."

3.8 The Eyes Have It!

Vision is one of our most precious senses. To keep your eyes at their peak throughout your life, follow the Life Science diet of chiefly raw fruits and vegetables, exercise the eyes, rest them, and stay free from stress and destructive habits. Your eyes will serve you well as long as you follow the teachings of healthful living.

4. Questions & Answers

I went to a doctor for a checkup and he said I had the start of two small cataracts in each eye. Later this doctor said he just thought so but wasn't sure and said I should have an eye doctor check my eyes. Up to this point, 1 never had any problems with my eyes

I was very worried about it, so I went to a health food store and they recommended Dr. Christopher's Eyebright. I used it and wrote Dr. Christopher. I told him I started to get floaters and drew a picture of them for him. I received letters that kept telling me I was doing fine, even after ten weeks, and they recommended I continue the Eyebright. I kept telling them my eyes were getting worse and I kept getting the same answers (I have all the letters)

During December, I started to see flashes of blue and this scared me terribly. I could not watch a color TV anymore it was so bothersome

I went to an ophthalmologist in early February of this year and another one in March. I found out that I had vitreous floaters and the last doctor said the flashes would get better and not to put anything in my eyes. I followed his advice but 1 still took the Eyebright internally. I know today I should not have done this since I have read your guidance in Healthful Living. But Eyebright was supposed to be good for the eyes

Since I stopped taking Eyebright in March the blue flashes bother me less, even if I watch color TV. But the floaters go so bad they were all over my eyes. My right eye is worse than my left eye. So I took stronger doses in that eye. The right eye got even worse. But I was afraid of cataracts. Both eye doctors had told me I had no cataracts. Since I've seen these doctors I've been drinking carrot juice, celery juice, and some parsley. My floaters seem to be improving a little now.

> Yours is a classic case of active "prevention" that causes disease. You are poisoning yourself wholesale! Almost everything you're taking is synthetic and/or inorganic even if the prominent markings on the labels say natural. Your body is poisoned, not nurtured, by non-metabolizable synthetic vitamins and toxic minerals in supplements. The minerals are the same as in soil, rocks, and ores. Selenium, iodine, and chromium are trace minerals that are essential to the body but, in inorganic form, are very toxic. They bear the skull-and-crossbones on commercial preparations. But, as elaborated by plant life, we can readily use them
>
> The grand plan of nature is to leave the body alone. It is fully self-operating and self-sufficient if its needs are furnished. These needs basically, are pure air, pure water, adequate sleep and rest, vigorous activity, sunshine, recreation and play, emotional poise, security of life, and foods which we are biologically and physiologically equipped to utilize. This means we should put into our bodies only water, air, sunlight, and a diet of mostly fruits with a small amount of vegetables, nuts and seeds. Humans are frugivores (fruit-eaters), and in nature we ate fruits, only and exclusively (according to scientific research). Our anatomy has not changed from this in the few thousand years that we've been eating grains, animal products, and plant fare other than fruits
>
> Floaters are caused by toxic materials that destroy and coagulate the protein component of the eye's lens. This causes their opacity. The toxic materials, together with coagulated or

indurated protein tissue, move around in the vitreous fluids of the lens, thus giving the illusion of indistinct objects floating before the eyes

The way to overcome this is to stop those practices that are causing it. Eyebright is a toxic herbal formula containing several virulent compounds. Capsicum is a highly toxic and irritating alkaloid found in cayenne peppers which is in Eyebright. This and other toxins as found in herbs can cause much harm but they have no possibility to help the body. They cannot troubleshoot body problems and correct them. Their only character with relation to the body is as a poison. The body rejects them and tries desperately to protect itself from their destructive factors. We humans have been deluded into believing that we will be helped by supplements, drugs (medicines), and preparations, even if we continue to get worse under their administration

There is only one way back to good health—healthful living. Living healthfully means observing our physiological needs. What you are dosing yourself with is contrary to everything we nourished ourselves with in nature. Instead, you are giving your body drug problems that only further intoxicate and ruin your health. Your eye problems are only a symptom of overall body conditions

I suggest that you consider a fast of a week or more. Then put into your body only fruits as your primary dietary fare with occasional vegetable fruits such as tomatoes, peppers, cucumbers, salads, eaten with nuts, seeds, or an avocado, etc.

Should I let my dentist take X rays? Isn't the radiation worse then the decay itself?

Many times X rays can be avoided. A dentist can examine your teeth visually for signs of decay which may appear on the surface. Unfortunately, most dental decay occurs from the inside out of the tooth, so that by the time it appears on the surface, it may already be quite advanced. An X ray can detect early decay and it can be fixed before more serious problems develop

Nobody likes X rays, and the medical profession overuses them. What you might consider is to have just one set of X rays done of all your teeth for one time only. This initial set will help your dentist evaluate the overall condition of your teeth and the supporting bone beneath them. This will allow correction of any old problems you might have. After these X rays, you should probably never need any more if you stay on a wholesome diet

Should you have this one set of X rays taken, insist on having the X ray technician give you a "lead apron" to protect you from incidental radiation

You don't have to allow X rays at all; that is your right, and you should always refuse "routine" X rays done casually. Sometimes, however, you just might need that one set to get your past problems straightened out.

I've got some cavities and decay from before I started a good diet. Should I get these filled or can I fast or let my new diet take care of them?

While early small cavities may be arrested by proper diet, dental decay should probably be cleaned out and the cavity filled once it reaches a certain size. A cavity does not heal; it is a permanent injury done to the body. Although you can remineralize your teeth with a proper diet and prevent the pain from decay by fasting, you're not going to be able to make that hole in your tooth go away. Sorry

If you have these cavities filled, and you probably should, insist that your dentist does not use silver amalgam fillings. This is the most common type of filing (usually called "silver" filling). Actually, it should be called a "mercury filling" because it is 45% pure mercury which is a potent poison. The saliva in your mouth will interact with silver amalgam fillings and dissolve them so that the mercury enters your bloodstream. Even the FDA recognizes the dangers of "silver" fillings, and had they been developed recently, they probably would never have had a chance for approval

You can have your dentist use gold as an alternative Jilting. While expensive, gold is the most compatible metal with the fluids of your mouth. You might also be able to use a quartz or porcelain filling for cavities in the front teeth or for small areas. Porcelain used to chip easily on large surfaces, but recently has been improved and is worth investigating as a substitute for the common silver filling.

What about novacaine shots and pain killers? Should I take them?

Although injections are objectionable, it may prove impossible to avoid them under some circumstances. With some dental work, you would jump around from the pains so much that the dentist could not do his or her work, unless the nerve is first deadened

My own recommendations for "pain killers" is to first see if your dentist can use the services of an acupuncturist to deaden the nerve area. Acupuncture involves no drugs or injections, but it may be very difficult to find a dentist that can use this in his practice. The second choice is nitrous oxide ("laughing gas"). Nitrous oxide is taken in by the lungs, introduces no foreign substances to the bloodstream (except for extra nitrogen), and wears off in about five minutes. Some people find it mildly pleasurable and I've noticed no harmful after effects. Finally, if you do have to have a local anesthetic (such as for a root canal or an extraction), ask the dentist for something else besides novacaine. Novacaine has some undesirable after effects and there are other drugs that can be used instead

Understand that we do not encourage the use of any pain killer or injection. Philosophically, all injections and drugs are a compromise in your Hygienic lifestyle; practically, you may have to compromise in this area unless you have an exceptionally high pain threshold. Afterall, you probably wouldn't be getting these injections in the first place if you had followed the laws of Natural Hygiene all your life.

What toothpaste should I use?

Cleaning the teeth, like cleaning the body, is a *mechanical* not a *chemical* process. In other words, your primary concern in cleaning and brushing the teeth is to physically remove the plaque—not to apply some chemical to them than may be included in the toothpaste. In fact, toothpaste is not even necessary. A water-moistened brush is sufficient

Many commercial toothpastes contain sugar (!), fluoride (harmful) and various abrasives. In fact, those glamour toothpastes that promise "whiter white" do their work with harsh abrasive compounds that may actually strip the enamel off the teeth. You'll wonder where the yellow went, and you'll also wonder where your teeth went after a few years of scraping them down

Also be cautious of so-called organic toothpastes. Often they contain sea salt and various herbs which are absorbed through the mouth when you brush your teeth. In general, don't use any toothpaste you wouldn't feel comfortable eating because that's actually what you are doing when you put it in your mouth

One trick for whitening the teeth, is to brush your teeth with strawberries! Rubbing strawberries over the teeth and gums helps remove plaque and yellowing, and then you can eat the strawberries afterwards. Now that's a "toothpaste" I can heartily recommend! Regardless if you use toothpaste or not, a gentle brushing of the teeth and gums is just good hygiene—just like removing the dirt and grime that collects on the skin of the body. Of course, if you eat a predominantly raw diet, less "dirt"' will collect around the teeth anyway.

What causes cavities?

A common opinion is that cavities are caused by bacterial formations of acids in the mouth from sugars

The only thing correct about this assumption is that sugars, more particularly, refined sugars, are the culprits

Bacterial fermentation of sugars does result in acids. Milk sugar is fermented to form lactic acid. That is, the acids found in clabber milk, yogurts, buttermilk, scoured milk, cheese, etc. It will not crack enamel. Sucrose is converted to acetic acid and alcohol. Alcohol will not chip teeth. Should any acetic acid form in the mouth (acetic acid is vinegar) it is instantly neutralized by a constantly alkaline saliva

We agree that sucrose is a cause of cavities in those who eat it, but not by the modus operandi popularly ascribed

The eating of sucrose causes osteoporosis of every bone in the body including the teeth. This is so because the body must borrow from its bones the minerals, especially calcium, with which to metabolize the sugar. The sugar of commerce has no mineral or vitamin complement, that having been destroyed by heat and removed by several refining processes

Other causes of cavities are the ingestion of acid-forming foods (such as grains, legumes, etc.) which also cause the body to draw from its alkaline teeth and bone materials as a recourse in neutralizing the acids and maintaining an alkaline pH

Cavities are caused primarily from improper dietary habits. Eating our natural diet of raw foods consisting of mostly fruits with some vegetables, nuts and seeds will not cause cavities.

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Article #1: The Eyes

The eyes are the principle organs of experience of the material world and should be cared for with great diligence. However, dietary abuses result in direct and indirect impairment of vision, and the eyes are often further abused by the placing in them of irritating substances which purportedly wash them and relieve them of being "bloodshot."

The eyes are humankind's main organ of life's experiences. Vibrations are the source of vision as they are for all of the other senses. The light vibrations of a "perceived" object pass through the transparent cornea and an opening, the pupil. They are then transmitted through the crystalline lens and semi-fluid content of the inner eye chamber and onto the retina. The retina consists of a thin membrane constructed of optic nerve axons and optic neurons (cells), bipolar cells, and receptor cells (rods and cones) at the back of the retina. Light vibrations pass through the outer two cellular layers onto the rods and cones which convert the vibrations into electrical impulses. These impulses are then transmitted through the bipolar cells to the optic neurons and then to the brain where all of the impulses are consolidated, picked up by the astral brain and relayed to the mind for interpretation and "experience."

Care of the eyes is most important to proper vision. The lacrimal (tear) glands "normally" secrete pure water to lubricate and cleanse the eyeball but in the modern human diet so many contaminants (particularly salt) are consumed and find their way into all body tissues, these glands and all other exocrine glands are forced to continually excrete salt and other contaminating wastes in their fluids. The salt in the tears produces a constant, never-ending irritation to the delicate eye membranes. This results in a perpetual state of some degree of inflammation of the eyeball (bloodshot) and the conjunctiva of the eyelids which grows chronic as people grow older. This weakens the membrane so that any additional irritant will produce severe inflammation.

A salt-free diet leads to clear (whites) bright eyes and improved vision.

In the event of dust or other external irritants entering the eyes, the only suitable eyewash solution is *pure distilled water*. All commercial eyedrops and eyewashes contain substances which are detrimental to tissue by forcing abnormal withdrawal and contraction of cells to "make the eyes clear" and "refresh" them by deadening nerve response to the irritation. These should always be carefully avoided in proper eye care.

Proper eye care also includes daily gentle massage of the eyeballs with the lids closed and exercises to stretch and relax the eye muscles (looking up, down, sideways, crosseyed, etc.).

Good vision is normal and natural. When body contamination and genetic defects combine to distort the vision, the only intelligent solution is to eliminate the cause and restore the vision to normal. The ridiculous practice of using glasses to "compensate" for poor vision is another of the unfortunate "advancements" of a primitive science. Good vision can be restored without glasses by simply observing the rules of proper eye care—proper diet, fasting, daily massage, and exercise.

Glasses for eyes provide the same disservice as perpetual use of crutches. In the case of the eyes, they atrophy and function (vision) becomes constantly progressively impaired. In the case of a weak leg, the muscles atrophy, and function becomes constantly progressively impaired until finally the limb is shriveled and useless.

Excerpt from "Goldot"

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Article #2: Natural Hygiene - Your Key to Dental Health by Mike Benton

Over 98% of the U.S. population suffers from dental diseases.

By the age of sixty, nine out of ten people will not have any teeth of their own. Already more than 32 million Americans are toothless.

Over one *billion* cavities need filling in this country alone each year.

The total amount of money spent by Americans on dental problems is staggering. We have over 140,000 dentists in this country, pay them over six billion dollars a year, and yet 24 out of 25 American children suffer from dental diseases before they are six years old.

Is this normal? Is this natural?

In a region of the world known as Hunzaland, dental disease doesn't exist. Not a single dentist lives there. The people there use no toothpaste, no toothbrushes, and receive no Fluoride treatments. The old folks keep their teeth all their life. Dentures are a curiosity. The children have perfect teeth and healthy gums. The babies suffer no pain or irritation when teething. Sweets, candy, ice cream, and soft drinks are not ingested. Their diet is chiefly fresh raw fruits and vegetables.

Is there a connection? What do you think?

The Whole Tooth and Nothing But. . .

"Teeth are vital parts of the human body," wrote Dr. Fred D. Miller, a dentist of over fifty years, "and they are nourished by the same bloodstream that nourishes the rest of the body. Good dental health is dependent upon good bodily health and vice versa. The mouth is the barometer of the body's general well-being."

Degenerative diseases, poor living habits, improper diet—all are reflected in the health of the teeth and the gums.

An amazing study was done by Dr. Weston Price about fifty years ago. He was a dentist who traveled the world over to investigate the relationship between diet and dental health. What he discovered was that as long as people ate their natural diet of unprocessed and unrefined foods, they enjoyed sound teeth and healthy gums.

Whenever the modern foods of civilization—refined grains, sugars, junk foods, preserved foods, etc.—were introduced, the teeth of the people rotted, their gums became diseased and the actual shape of their mouths changed.

Diet Does It!

"I believe the ideal diet, guaranteed not to cause decay," wrote Dr. Thomas McGuire, a dental researcher, "consists of raw vegetables and fruits." Dental problems do not occur on such a diet for three reasons:

1. When foods are eaten raw, unprocessed and unrefined, food particles that may remain in the mouth do not undergo fermentation. This fermentation, while not actually contributing to tooth decay, can lead to a buildup of harmful materials around the teeth and gums. Living foods—raw foods—do not ferment; dead foods—cooked foods—quickly decay when left in the mouth.
2. Raw foods are naturally fibrous. The fiber in raw foods require chewing and thereby give the teeth and gums beneficial exercise. Circulation is improved around the mouth area when naturally fibrous foods are chewed. The fiber also aids in the removal of food particles from the teeth and gums. After all, if the teeth and gums are not exercised by working on fibrous foods, the result is the same as when any part of the body is denied exercise. For a child, this loss of jaw exercise contributes to a crowded, underdeveloped mouth and crooked teeth.
3. Most importantly, minerals and other nutrients required by the body for healthy teeth (and health in general!) coexist in balanced amounts within natural, raw foods. Processed and refined foods, cooked foods, "junk" foods—all are minerally unbalanced and this is the principle reason for tooth decay: a mineral unbalance.

The Important Mineral Balance

Tooth decay does not occur if the calcium and phosphorus minerals are in proper balance in the body, along with other needed nutrients. The teeth are made primarily of calcium, and phosphorus is needed in specific amounts to help use this calcium. If too much phosphorus is present in the diet, or if the foods eaten are high in acidic residues, then a calcium loss can occur in the body and weaken the teeth.

Some of the worst high phosphorus foods are meat and grains. People on a grain-based diet or a high-meat diet often exhibit a large amount of dental decay. Carnivores who eat both the organ meat and bone marrow of their prey get a correct balance of phosphorus and calcium since the bones are high in calcium. Humans, however, eat only the minerally-poor muscle meats which disrupt the calcium-phosphorus ratio.

Grains, and especially refined grains, can lead to rapid dental decay. They are soft and sticky, are always cooked and remain on the teeth for bacteria to digest, unless supplemented by high-calcium fresh greens, grains lead to an excessive phosphorus and acid level in the body.

Seeds and nuts, two foods commonly eaten by Hygienists, are also phosphorus-rich. Fortunately, these foods are usually somewhat balanced in calcium as well, but there is an inherent wisdom in eating these foods with leafy greens or citrus fruits—both good sources of calcium.

When a diet high in acid-forming foods (such as meat, legumes, grains, refined foods, etc.) is eaten, the calcium ratio is also disturbed because the acid residue of these foods require the base mineral calcium to neutralize them. When this occurs, calcium is shunted from the body's reconstruction and maintenance activities and is used instead to balance the harmful effects of the acid-forming foods.

We can insure ourselves of the proper mineral balance by eating foods only in their whole, raw state.

Once a food as been tampered with in any way, a nutrient loss occurs. An alkaline diet of fresh fruits and vegetables keeps the calcium in the teeth instead of having it used to neutralize harmful acid wastes that are created by processed foods, cooked foods and foods not suitable to the human dietary (meat, grains, legumes, etc.).

By the Skin of Our Teeth

Tooth decay is the most familiar dental disease, yet it is the degeneration of the gums that is the most serious problem. Most tooth loss in this country occurs not from decayed teeth, but from poor gum health and bone loss.

Bleeding from the gums after brushing or flossing is the first sign of potential gum trouble. Healthy gums do not bleed. They should be a healthy pink, not a bright red, and they should hold the teeth firmly in place with no signs of recession.

Bleeding occurs because the gums have become irritated by a buildup of a substance called *plague*. What is plaque? Well, if you look closely around the base of your teeth where they join the gum line, you might find a white chalky deposit or perhaps a yellow band. That is plaque and that is what causes most dental troubles in this country.

Plaque is the acid-waste products of bacterial colonies that live in your mouth. As these bacteria eat, they excrete an acid substance which forms the chalky plaque that coats your teeth.

When this plaque is fresh (about one to two days old), it can usually be removed by simply brushing or flossing. If the plaque is left on the teeth, it becomes mineralized into a rock-hard substance called *calculus*.

Calculus is a hardened mineral deposit that forms at the base of the tooth and under the gum line. Eventually it can cover the entire tooth. As it hardens and creeps beneath the gum line, it becomes razor-sharp. The calculus deposits irritate, injure and eventually destroy gum tissue. It's quite simple, usually even quite painless and sometimes quite permanent.

The removal of plaque before it turns into calculus is the main reason for brushing and flossing the teeth. If the plaque has already turned to calculus, your only alternative is to have your teeth professionally cleaned and scraped (or scaled). This is usually painless, involves no drugs and is inexpensive ($20 to

$30). If the tartar is already deep below the gums, it may be considerably more expensive, but is worth it if a careful and thorough job is done. It may just save all your teeth.

But why does this plaque occur in the first place? Is plaque buildup "natural?" What did man do before the invention of the toothbrush or of dental floss or of the dental hygienist?

Well, he rarely suffered from this plaque buildup because he ate foods that do not cause this condition. Raw foods do not decay in the mouth—they are still "alive." Only when dead foods, such as cooked foods, are eaten does this decay occur. This is why we are always told to brush after every meal. And this is good advice, especially if our mouths have been turned into cesspools of decay by junk foods, meat, white sugar and so on.

On the occasions that I eat cooked foods, I can hardly wait to brush my teeth. You can almost feel the decay starting immediately. Cooked food particles left in the mouth cause bad breath and a pasty feeling to the teeth. When fruit fibers are left in the mouth, no decay occurs. You can remove a piece of pineapple that may have been lodged between the teeth for hours and it is still fresh. Try doing that with a piece of roast beef and you'll see an obvious difference.

What Can You Do?

To have a healthy mouth, put healthy food into it. An optimum diet can prevent over 95% of all dental problems, and a regular cleansing program (brushing, flossing and scraping, if necessary) can just about solve the rest.

Unfortunately, many of us begin healthy practices and a good diet *after* dental problems have already started. It takes about 25 years or so to grow a healthy tooth. If we ate poor foods during that time period, it's probably going to show up in our teen and gums at a later age.

So you see, even if you are now eating only the best foods and engaging in all sorts of health-promoting activity, you still might suffer from dental problems created by poor eating habits in your earlier years.

Such serious problems as missing teeth, severe gum disease, poor eruption of the teeth or large decayed areas are going to require some professional attention. Minor dental problems can definitely be arrested by a good Hygienic diet and may even be reversed. If you are already experiencing pain, however, it may indicate that the condition has progressed too far to be remedied by diet alone.

What you need to do is to correct all the old dental problems, stay on a good diet, and clean your teeth regularly and you'll never have any pain or problems again.

If you are currently in pain, have tooth sensitivity, or have some sort of gum disease, find a good dentist who is sympathetic to your healthy lifestyle.

After you find a dentist you can trust, have the major repair work done that you need. A cavity won't heal itself; a broken tooth won't grow back—you just have to have these things repaired as best as possible and then make sure it never happens again. Also, insist on quality materials and quality workmanship from your dentist. Poorly and cheaply done dental work can cause more harm than the conditions they attempt to correct. One dentist said that most of his work comes from "fixing up" other dentists' mistakes and shortcut attempts. Don't compromise or "economize" when you're having permanent corrective work done; after all, you want it to last a lifetime.

After you get your teeth back in shape, stay on a good diet and practice regular dental hygiene. Once these old dental problems are corrected and you eat only wholesome foods, you'll never be bothered by tooth decay, gum disease, or mouth sensitivity again.

After all, good health should be something you can really sink your teeth into!

Article #3: How To Conduct A Dental Self-Examination

1. Start when relaxed and you have at least one hour of free time. Sit at a table that offers a solid arm rest. If you can, purchase a small dental mirror at a drugstore, or use me smallest face mirror that you have. A flashlight or bright overhead light will help you in this examination.
2. Begin your examination with the last tooth on your left side on the lower jaw. Gently pull your cheek away from the back teeth, and with the other hand shine a light on your back teeth. Use the mirror to see the teeth reflected in it. Now starling with this lower left tooth, look for the following things:
3. Dental Checklist:
    a. Is the tooth broken or does it have a filling?
    b. Is there a noticeable hole, or a small black spot on the tooth? (This indicates a cavity.) Be sure and look on the back of the tooth as well as between the teeth.
    c. Is the tooth stained?
    d. Is there tartar or heavy yellow buildup on the teeth?
    e. Is the tooth crooked?
    f. Is the tooth chipped, cracked, or is there an old filling that is cracked or missing?
4. Go slowly all around the mouth, top and bottom, and look at each tooth individually—front, back and in between. For many people, this will be the first time in their lives that they have actually seen the inside of the mouth. Go slowly, and inspect each tooth carefully and critically.
5. Specifically, you should be able to determine the following from this self-examination:
    a. Hew many teeth do you have? With all four wisdom teeth, you should have 32. People without wisdom teeth will have 28 teeth. If you have any missing teeth, see if the teeth to the side of the gap are slanted inward.
    b. Look at the spaces between the teeth. If there are gaps or crooked teeth, then be sure that you are careful about removing food panicles that can easily get wedged in these areas.
    c. See if your teeth are stained. Teeth do become more yellow with ago simply because the white enamel of the teeth is gradually worn away by age and abrasive toothpastes. Yellow teeth are not necessarily bad. but you may want to check with a dentist. You may see brown stains on the teeth. This usually indicates smoking. Other stains and colors may appear. If the color of a tooth has changed rapidly, then it may indicate a more serious dental problem.
    d. Notice if there Is some son of sticky or hard build up around the teeth, particularly at the bottom. This pasty stuff is called tartar and it may eventually harden into a substance called calculus which is sharp and rough. You may want to have your teeth professionally cleaned to remove this buildup. After a cleaning, you should never need another one if you follow a raw diet.
    e. If you see any holes or black "pinpoints" on the teeth, then you have a cavity. If the tooth is sensitive at all, you may want to have it filled with a harmless substance (do not use silver fillings!). To test for cavity sensitivity, hold ice-colt1 water in the mouth. If you feel any pain, you have a potential cavity, or perhaps an old or cracked filling.
    f. The final report of your examination should be around the gums of the teeth themselves. Are the gums red, swollen, or puffy? They shouldn't be. Do they bleed after brushing? They shouldn't. Healthy gums are a pleasant pink, and they cover the base of the tooth without any receding. Now your self-examination is over. What's next? If you are currently experiencing dental pain or discomfort, then you may need professional help. If your teeth appear fine and you are not suffering, then a healthy diet and lifestyle should keep your teeth fit for the rest of your life.

Article #4: Eye Exercises

To strengthen the eye muscles, do these exercises once or more every day:

1. Without moving your head at all, use your eyes to follow an imaginary diagonal line, from the upper left of your vision field and down to the lower right. Feel your eye muscles stretch as you look diagonally upward and then downward. Do this five times, and then repeat from the upper right to the lower left.
2. Now move the eyes to the top and then to the bottom as far as you can without moving the head. Make the eyeball muscles stretch! Do this up and down, down and up movement five times each way.
3. Now blink the eyes rapidly until tears form. Close the eyes in a relaxed manner, then squeeze them, then relax. Place the palms lightly over the eyes.
4. At first repeal these exercises only once. Later, do them twice, and finally three times. Do not strain, and at the end of each exercise part, relax and rest them. Combine these exercises with alternate focusing on far and near Objects.

You may also wish to read other books on eye exercise. The best one is still Better Eyesight Without Glasses by Dr. W.H. Bates (Pyramid Books).

Lesson 63 - Nutrition And The Hair

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- 2. Structure Of The Hair
- 3. Some Common Disorders
- 4. How To Care For The Hair
- 5. Establishing The Client-Practitioner Relationship
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- Article #1: Baldness By Dr. Herbert M. Shelton
- Article #2: Your Probing Mind By Dr. Vivian V. Vetrano
- Article #3: Cutaneous Medicine
- Article #4: The Body Beautiful By Max Warmbrand, N.D., D.O.
- Article #5: The Hair By J.J. Tilden, M.D.
- Article #6: Hygiene of Beauty By Tosca Mariani

1. Introduction

Just the other day, while driving across Tucson, we were listening to the comments of Dr. Tony Grant, Ph.D., a well-known psychologist. Dr. Grant remarked that she often gets quite disturbed because medical doctors so often try to advise their patients on matters that rightfully should be referred to a trained psychologist. She went on to say that medical doctors receive little or no training in psychology and that, therefore, they are really not competent to offer advice in that very specialized discipline.

We Hygienists have that complaint, too. Medical doctors, as a group, have little or no training in nutrition. They know nothing of the real nature of disease, nor of how to activate the powerful healing forces resident within the living body. In fact, they have an untrue and totally unscientific foundation for their whole methodology.

In the treatment of diseases of the hair and scalp, we feel especially frustrated because, as a group, persons experiencing diseases in these areas are often subjected to years of senseless tinkering at great expense without any improvement in health of either the localized disorder or within the total body structure. On the other hand, when these same patients are once introduced to the principles of Natural Hygiene and begin faithfully to apply them in their own lives, they often are amazed to find healing taking place, often within a very few weeks.

All persons are much aware of how important it is to possess a fine head of healthy hair. An abundant crop of hair possessing body and sheen is a mark of health and beauty which sets members of both sexes and both the old and the young apart from the crowd. In this lesson we will learn the beauty secrets of the ages. We will learn how to care for the hair the only truly scientific way, the Hygienic way.

2. Structure Of The Hair

All mammals possess hair of some kind. Like the nails and the many sudoriferous (sweat) and sebaceous (oil-secreting) glands, the hair is considered to be an appendage of the skin (something which is considered a proper part of a greater whole). Some animals have smooth hair, some stiff bristle-like outgrowths; still others, pointed spines.

Individual hairs are composed chiefly of a rather horny substance, a sclero-protein, a simple protein known as keratin. The amino acids of which keratin is composed are strung together in a more or less straight line, one after another. These lines of amino acids are called polypeptides. Keratin is a fibrous protein and fibrous proteins are strong, sturdy, and tough. This same kind of protein is also found in the fingernails and toenails.

In humans the hair consists of a cylinder 1/400th inch in diameter. At the base of the cylinder, which consists of a shaft and a point, there is a "root" which is embedded in the skin in a kind of pouch-like depression called the hair follicle. Beneath this depression is the papilla, a kind of nipple which fosters the hair and builds new hair cells. The papilla might be called the "connecting link" between the hair, the blood, and the nerves which service it.

The shaft or outer part is pithy (called medullary substance). It is surrounded by a fibrous part containing pigment and this portion is, in turn, covered by a layer of epithelium scaly cells. Near the point, the pith begins to taper off to form the penetrating point of the hair shaft.

In humans the hair begins to develop in the fetal period. By the sixth month, the tiny fetus is literally covered with fine hair which is termed the *lanugo*. Following birth, the lanugo is rapidly shed and is replaced by hair in all the familiar places and in rather precise forms: coarse hair over the cranium and eyebrows and fine, downy-like hair over the rest of the body, the latter often being so fine as to be almost invisible to the naked eye:

At puberty certain changes are evidenced. Coarse hair begins to develop in the armpits and over the pubic or groin area in both males and females. In males the hair begins to grow more coarse over the upper lip and about the lower portion of the face and, if unshaved, quickly forms a beard.

The rate of growth of the hair varies according to age, health of the individual, and the length of the hair. When hair is cut short, for example, it can grow as much as 3/4ths of an inch and even more in a month but by the time it is 12 inches in length, its rate of growth can be reduced by as much as one-half, all other things being equal, of course.

The hair of young people grows faster than that of older people, with the fastest growth being found in women, especially from 16 to 24 years of age, this latter age being about the time when most humans are said to reach full maturity.

The type of follicle determines the identifying characteristics of the hair in different races. The black woolly hair of Blacks, Papuans, and Melanesians grows from a curved follicle which imparts a spiral twist to the hair. This kind of hair growth appears flat or tapelike when cross-sectioned and viewed microscopically.

The characteristic straight, coarse, long, and almost always black hair of the Chinese, Japanese, Eskimo, and American Indian grows from a straight follicle and this type of hair is round in cross section and possesses a plainly visible pithy center.

The hair of other group types, including those of European ancestry, is often wavy and somewhat intermediate in texture between the straight and woolly types. This latter kind of hair also grows from a straight follicle, but it is oval in cross section, this shape giving it a greater or lesser tendency to curl.

Variations in pigmentation among this last group causes the hair to exhibit a wide range of color from light blonde to various shades of red to black.

Hair grows on the human body where protection is needed. It serves to protect the head area where is housed the control center for all metabolic activity within the entire organic community. It protects the individual from the heat of the sun and from the cold of nights and frigid winters. Body hair helps to retain the heat of the body. When located in ingress passageways as, for example, in the nose and ears, the hair prevents the entrance of foreign matter into the nose, lungs, ears, and other possibly accessible parts.

The hair on the head helps to preserve the brain and nerve centers from shocks, injuries, and irritation from harmful external influences; from blows, for instance. The hair is an organ of touch. It is extremely sensitive and responds quickly to danger. Hair has been observed to stand on end from fear, anger, or when the head has been dealt a blow.

Extremes of heat are believed to induce more rapid growth of the hair than moderate temperatures. This may be due to a kind of incubating effect.

Dr. St. Louis A. Estes, in his book Raw Food and Health, gives the following analysis of hair substance:

Carbon	50%
Oxygen	20.85%
Hydrogen	6.36%
Nitrogen	17.14%
Sulphur	5%

and goes on to point out that blonde hair contains lesser amounts of carbon and hydrogen and greater amounts of oxygen and sulphur.

Brown hair, on the other hand, has more carbon and a small amount of oxygen and sulphur, interestingly enough white hair contains high quantities of calcium phosphate. In white hair the pigment ratio is reduced and the pigment replaced by tiny air bubbles.

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3. Some Common Disorders

Disorders of the shaft or follicle can cause either of two extremes: abnormal growth of the hair or abnormal or premature falling out of the hair. The latter is often incorrectly, we believe, attributed to the aging process and should, more properly, be attributed to a failure to nourish and take care of the hair.

Sometimes fungi which imbed themselves in and around the mouth of the follicle, can give rise to a variety of hair diseases. Small crusts can form which slough off; or lesions, as in ringworm, can develop and become annoying and very itchy.

Minute insects and mites can take up residence, not only in the hair on the scalp, but also in pubic hair.

Dull or dry hair can be caused by malnutrition, but also by physical or chemical agents. Chemicals used in permanent waving, or in many shampoos and lotions, especially those which contain alcohol or free alkalies, can cause these conditions and can also give rise to itchy rashes and pimples, some even with pus. Alcohol is an offensive agent to all skin surfaces. It can penetrate the outer membranes of the cells very easily and destroy them.

When the body becomes excessively hairy, it is often, but not always a response to a need for protection from the elements. Carl H. typifies the latter. Carl loved the outdoor life. Years of playing, scantily attired, in and around the waters of the Pacific Ocean at all seasons and for hours on end had caused abnormal hair growth all over Carl's body. The hair on his chest was fully four to six inches long and as much as two inches on his legs and thighs. Carl, now approaching sixty years of age, has so much hair on his body that he finds it most uncomfortable to stay indoors even in the cold of winter and rarely feels the need to wear any clothing except for a pair of scanty shorts. In fact, he is visibly uncomfortable if required to put on a light cotton shirt!

In a few cases excessive hair growth has been traced to a tumor on an adrenal gland or to some malfunctioning of another of the endocrine glands, specifically, the pituitary, the thyroid and/or the ovary. However, medical researchers tend to leave the problem-solving there without tracing the actual cause of such malfunctioning: namely, a toxic condition of the body.

3.1 Baldness

It would appear that young men are increasingly bald. Few males seem to reach maturity without some hair loss. In fact, implants and the fitting of toupees is a growing and lucrative business and appears to be a phenomenon of our times. A normal head of hair, thick and luxurious, is indicative of a sound body. The appearance of baldness is believed to be indicative of systemic deterioration being manifested in the cranial area.

Just as clinical study of most individuals suffering from major chronic (vertical) diseases, such as rheumatoid arthritis and cancer, reveals a past history of evolving pathology which begins with acute afflictions characteristic of the very young and ends in progressive chronicity, so does a general decline in the appearance of the hair seem to reveal a similar developing pathology.

Among the more common signs of a progressively serious hair and scalp pathology we can include the following:

1. Persistent dryness of the hair and scalp.
2. Dandruff.
3. Scaling.
4. Tenderness to the touch in certain areas.
5. Itchiness.
6. Falling hair with increasing thinning of the hair.
7. Receding hair line.
8. A bald spot appearing on the top of the head in a limited area (*Stedman's Medical Dictionary* lists over 20 different types of baldness according to precise location and/or its suspected origin.) Alopecia is a general term with prefix or suffix being attached for a more precise identification as, for example, *alopecia liminaris frontalis*, which identifies a loss of hair restricted to the hair line, a condition most commonly seen in members of the black race; or *alopecia universalis*, or total baldness.
9. Excessive oiliness.
10. Discoloration of the hair; streaking, etc.
11. Small bumps or concretions.

Dryness and dandruff appear to be early symptoms of more serious trouble ahead. Itching, of course, provokes excessive scratching with the possible wounding of follicles. Bad combs, brushes made of synthetic fibers, teasing of the hair, burning with caustics and chemicals—all can cause gradual and even permanent hair loss by damaging the hair roots beyond repair.

Some fifteen years ago Dr. Elizabeth's hair was perfectly straight and very coarse. She decided to have a permanent wave. The beauty operator failed to apply a neutralizing agent to counter the chemicals used in the waving lotion. On the following day, her scalp was covered with a fiery red rash which extended into the ears and down the back of her neck. The hair itself was curled so tightly that it seemed to consist of tiny reddish gray corkscrews! Her condition became so serious that it eventually ended up in the courts with a settlement after considerable testimony offered by the attending physician to the effect that Elizabeth's hair and scalp condition was due to the chemical action of the waving lotions.

As a result of this abuse the hair in the front part of the (head became very thin and a tiny bald spot appeared on the top of the head. It is interesting in this discussion to note, however, that hair has regrown to a remarkable extent in this area and the bald spot is no longer there due, without a doubt, to the fact that the hair cells were not permanently destroyed.

It is interesting to note, too, that during the intervening years during which time Elizabeth's health and general vitality have grown enormously due to incorporating the principles of Natural Hygiene into our living and eating practices, her new crop of hair has changed from its former coarse, bristle-like, straight texture to a much finer texture and it is also now softly curly. Dr. Elizabeth no longer bothers patronizing expensive beauty shops except for an occasional haircut!

We have observed one other case where almost straight hair has become so much more curly and changed in texture that it has attracted the comments of friends and associates. This woman is an athletic instructor in an elementary school. She keeps her hair cut quite short since she has to take frequent showers because of the nature of her work. After a year or so following a greatly-improved dietary intake, her hair is noticeably improved in texture and possesses a lovely natural curl.

Persons who lose their hair, however, more often than not exhibit a past history of catarrhal troubles, nervousness, diseases of other areas of the skin. Their past medical hhistory often shows that they experienced many of the common childhood diseases; some have venereal diseases. Then there are others who may have suffered blows and bruises during childhood. For example, the cuffing of children on the side of the head may lead to baldness in later life. Many participate during the formative teen years in such physical contact sports as football where multiple blows are often sustained.

Dyes, bleaches, excessive shampooing with soaps, the application of chemical poisons in the form of salves, tonics, and various cure-alls advertised for dandruff and itchy scalp—all can be factors leading to falling out of the hair and baldness.

Certain drugs, for example, those used in chemotherapy, especially drugs containing mercury and iodine and most particularly cytoxan (cyclophosphamide) commonly used to treat lymphomas and certain types of leukemia, lead to hair loss, often to complete baldness. Many of these are capable of membrane simple diffusion or can be actively transported to cause cell death. Interestingly, too, is the fact that cytoxan and some of the other drugs also cause nausea, malfunctioning of the liver and drastic reduction in the number of leucocytes (hypoleucocytosis—the loss of white blood cells).

And yet, the vast majority of people, like little lambs following the bellweather lamb to the slaughter, just apply the most widely and glamorously advertised lotions and creams to their hair and scalp and pop all manner of poison pills like children popping "M and M's," and never question their effectiveness or suspect the dangers that may lie waiting in the wings.

It appears that most people who suffer from chronic diseases of the hair and scalp have been constipated for years and, more often than not, the solid-fluid ratio within the body has become deranged to the extent that their bodies lack suppleness and flexibility and the body channel routes have become clogged with abnormal amounts of solid debris accumulated through wrong living and eating habits to such an extent that the circulatory powers of the body have been greatly curtailed. Obviously, such systemic deterioration does not occur overnight. It is one that takes time; such conditions are, no doubt, like all chronic diseases, years in the making.

Normal sexual activity stimulates the flow of the sebaceous glands of the scalp. It is possible that overstimulation of these glands, however, causes them, in lime, to produce less and may exhaust the vitality of the hair itself.

Wounds, burns, and excessive heat which again accelerates the action of the sebaceous glands, can cause death of the hair cells and subsequent hair loss.

In all baldness that remains on-going, there has been death, death of the hair cell. As noted, hair cells can die from numerous causes, but all hair loss (barring, of course, loss from some milder external cause) can be traced, in the final analysis, to insufficient or total lack of circulation of the blood to the papilla which houses and feeds the root (the papilla is often called the "mother" of the hair since it is through this organ that the hair is fed).

Most overweight people show pronounced hair loss. People who eat a preponderance of cooked food rarely have healthy-looking hair and often exhibit thin straggly-looking hair. We have noted that persons who are heavy meat eaters quite often have very thin sickly-looking hair.

Overnutrition and the eating of cooked foods "inflate" the body and build toxic-laden adipose tissue.

Nutrients which should be directed to hair follicles do not arrive due to increased blood viscosity (thick blood), a condition which impedes the circulatory powers of the body. The body then stores the available nutrients wherever it can and they are usually used to build fatty tissue which is, in its turn, used to store uneliminated and ever-accumulating toxic debris. Excess fat, therefore, becomes a toxic vault and the possibility is ever present that, under stress, this "vault" can open wide and throw its death-dealing contents into the mainstream to impede and destroy life.

A diseased scalp is an indication of the presence of impurities, toxic metabolites, in the bloodstream. The hair, like every other part of the body is nourished by the blood. Dr. Shelton points out that until the general health is such as to "guarantee to the hair adequate nutrition, through the blood, the hair cannot be improved."

To keep the beauty of the hair throughout life, it must be protected from violence and it must also obtain adequate amounts of all nutrient factors day after day throughout life. For example, a lack of vitamin A in the diet may cause the hair to be coarse and ugly. It is believed also that a lack of some of the B vitamins or of iron, copper, and/or iodine may cause the hair to fall out and that lack of other vitamins, especially pantothenic acid; para-aminobenzoic acid, or PABA; and inositol, may cause the hair to gray prematurely.

Some forms of eczema of the scalp may be due to a lack of essential fatty acids in the diet. All three anti-gray hair vitamins can be produced in the intestinal tract by bacteria that normally, in healthy people, reside there. When the food intake is correct and well-adapted to human needs, there seems to be no deficiency in any of these vitamins.

It is interesting also to learn that experiments at the Good Housekeeping Institute (according to Gayelord Hauser) showed that factors other than vitamin presence also influenced graying of the hair as, for example, a low red blood cell count and other abnormalities in the blood. It is worthy of note here to observe that females more often than men complain of falling hair and many who do so have menstruated copiously for years, a condition demonstrated to be a result of unhygienic living and eating practices. Falling hair is a companion disorder to anemia. Copious menstruation, when prolonged, can result in severe anemia and many women thus afflicted develop gray hair very early in life.

In animal experimentation a lack of even one of the B vitamins can cause animals to lose their hair.

When the food intake is again made optimal, the hair quickly grows in and becomes luxuriant. It is interesting here to note that male animals lose their hair about twice as fast as female animals do and it has been suggested that perhaps baldness in males may have an unexplained sex linkage.

Our own research in this area with our two dogs, one a Doberman and the other a Collie, casts some doubt on this thesis. Both animals were "rescued," one from the pound and one from a family whose children were abusing the puppy. The fur of both was in terrible condition, thin and very short and dull looking. For a time the animals were fed on ordinary dog food plus scraps obtained from a local slaughterhouse. The Collie was a sad-looking specimen. About three years ago we decided to try a vegetarian diet on the dogs. We fed them sweet fruits in the morning and a combination of cooked and raw vegetables in the late afternoon. We did give them a raw egg every other day.

The results were amazing. In a comparatively short time the Doberman had a shiny soft coat and the Collie was a raving beauty! We lost the Doberman, unfortunately, through an accidental injury, but the Collie's coat of fur is thick, very shiny and of a beautiful tri-color.

It would appear most likely that baldheadedness in both men and women is the result of years of malnutrition, and in using the term "nutrition," we include all phases of nutrition: absorption, assimilation, elimination, etc., as well as the feeding of appropriate food in a correct amount and manner; plus, associate influencing factors, such as the obtaining of sufficient sunlight, etc.

We have already observed that when the diet is improved in humans, new growth can often be observed but again we should point out that such growth would be possible only when the hair cells are still viable and not dead.

Many researchers suggest using isolated vitamins to stimulate the scalp and thus improve the condition of the hair and its growth. Dale Alexander comments how Dr. Herman Goodman, a leading dermatologist, recommends foods which are rich in vitamin A, foods such as carrots. Hygienists, however, know that there are no "target" foods, that we must have the whole spectrum and that this is provided by eating a variety of foods, but eating them in suitable combinations so as to maximize availability to the bioprocesses of the body.

It seems that most dermatologists have little understanding of the fact that we must supply the "whole" of food, not bits and pieces. Dr. Richard W. Muller who practices in several European capitols including Paris and Vienna, recommends foods high in sulfur content but then notes that iron and calcium are also important hair components. We recently had an inquiry via the mails from an individual who had a problem related to nutrition. She said that she was sitting with a box of unopened pills and tablets bearing a total price tag of $300.00 which had been prescribed for her. These consisted of all manner of vitamin and mineral supplements. She had great doubt that dosing herself this way was the proper approach. We advised her to return the whole batch unopened and begin to eat the Hygienic way.

Certainly, impaired digestion and poor eating habits can cause all manner of body troubles including disorders of the scalp and hair; especially abnormal hair loss, eczema, carbuncles and, no doubt, complete baldness, too. Most people eat too fast and do not chew their food. In excess of 90 to 95% of the foods they do eat are cooked and even these foods are poorly chosen. It is no wonder a minimum of nutrient wealth passes through the cells of the membranes lining the intestinal canal prior to entering the bloodstream for transport to hair cells and all other body cells. The average person pays for food, he eats "food," but the body cells fail to receive the nutrients of life in sufficient quantity and in their original symbiotic proportions to do more than sustain life and this for but a brief span!

It is little wonder that the body begins to sag and that the hair becomes lifeless and lacks suitable pigmentation, or that scalps flake and itch and that eventually the hair falls out.

We recently did a bionutritional analysis and profile for a mother and son. The results were most revealing. The mother has been a faithful follower of Natural Hygiene for almost three years now, the son a faithful follower of his peer group diet of hamburgers, french fries, and coke and, is no doubt, like the vast majority of his age group, "into" drugs and alcohol, also. While the mother's test revealed almost all readings within optimal (not "average") lines, the 17-year-old son's readings were largely either above or below the optimal with a number of them registering in the "dangerous" area. While other facts may account, no doubt, for some deviations, the contrasts in these two instances can rightfully, we believe, be attributed to the differences in nutritional practices noted.

Dr. Lucien Jacques of Paris worked with 71 patients who suffered with disorders of the G.I. tract, all of whom complained of rapidly falling hair. Many of these patients also drank excessive amounts of tea, coffee, and alcoholic beverages. Simply by changing the diet of his patients, Dr. Jacques not only was able to observe better digestion in his patients, but also remarkable changes in the health of the hair, including the coloring.

White sugar, all manufactured sweets such as ice cream, pastries, candy, soft drinks, processed foods of all kinds are acid-producing and nerve-destroying. If we wish to possess a head covered with thick, shiny beautiful hair, we must pay attention to the food and drink. We must drink only the purest of water and eat of those foods to which we humans are adapted: luscious ripe sweet fruits plus limited amounts of young leafy greens and fruit vegetables (non-sweet fruits), sprouts, nuts and edible seeds.

Iron is required for a thick crop of hair. Raisins, lettuce, strawberries, apples, cherries, and many other luscious fruits are well endowed with iron.

Sulphur, an essential food element, is found abundantly in members of the cabbage family, in cucumbers, in potatoes, and figs.

Silicon for strong filaments is found in leafy varieties of green lettuce, especially in romaine; it is also present in strawberries, in cucumbers, and cherries as well as in the skins of apples and other fruits.

Healthy hair requires carbohydrates to supply carbon and hydrogen for composition and the carbon for fuel. Ripe, sweet fruits furnish the finest kind of predigested energy-conserving carbohydrates to be found. This is especially true of the sweet, sweet fruits, the banana being a prime example of an almost perfect food.

Adequate protein and all the essential amino acids are found in many fruits and vegetables. The proteins found in many plant foods are biologically of optimum value.

The Law of the Minimum about which we learned earlier tells us that the absence or short supply of even a single nutrient for any extended period of time can lead to general health debilitation regardless of how well supplied we may be in all other nutrients. Tests on both animals and humans have shown that deficiencies can also reduce the hair quality and health. It would appear that there is a grand pact in nature wherein correct proportions and adequacy of all nutrients are the basic requirements of maximum health. Eating cooked foods, eating foods lacking in nutritional content, failing to chew properly, eating to excess and eating too often, the taking of isolated vitamin and mineral supplements, a lack of exercise or sunshine, long continued emotional stress exposure, indeed, a lack of any of the requisites of organic existence can lead inevitably to diminished health, and any lack of health will be reflected in a lusterless, sick-looking hair which soon starts to lose its color, to thin and fall out in ever increasing amounts. No single food factor or any combination of food factors put together by man and taken in isolation can work hair and scalp magic. The body is a unitized functioning entity. The health of the hair reflects the health status of the totality.

Many excuses are offered from time to time and by many "authorities" for thinning of the hair, for loss of color and sheen, for baldness, excuses like inherited bad genes, wearing hats which are too tight and wearing them too often, shampooing too frequently, and many others. But, these are only excuses. None are based on the known realities which define and limit the life process.

More primitive men and woman have abundant crops of hair. Whole nations of people who have lived for thousands of years on simple diets have thick healthy growths of hair. It is only "civilized" men and women who partake of poor devitalized heterogeneous messes of food in quantities far in excess of body need who suffer hair and scalp problems associated with malnutrition. It is civilized people who show meager crops of hair and damaged scalps.

Dr. Art Mollen, a Phoenix osteopathic physician and a firm believer in the benefits to be derived from regular paced jogging, does not see much prospect of extending the human life span. Pottenger's experiments with cats at Yale showed that it takes several generations to witness the results of good eating as well as of poor eating. The goal of Hygienists should be to share their knowledge with all peoples so that, generation by generation, the human population can grow into a state of health which we presently can only envisage. Then perhaps we can prove that the Dr. Mollens of this world are wrong. As practitioners we see too many miracles resulting from following after the principles of Natural Hygiene not to believe that we can extend the life span in full health and perhaps more than double its present length.

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4. How To Care For The Hair

The first and primary requirement for improving the condition of the hair and scalp is to cleanse the body fluids, the blood and lymph, of their toxic load, preferably by fasting or, more slowly, by the McCarter Extended Detoxification Method as detailed later in this lesson or by some similar method.

Next, it is essential to begin a new life, to adopt a new way of eating and living: begin to eat and enjoy a fruitarian diet and a lifestyle which provides for all body needs including sunshine, pure water, and so on. Especially important is the cultivation of emotional poise. Remember that constant worry, fear, anger, jealousy can turn the most beautiful hair into a drab-looking gray. It can also make it fall out.

Exercise the scalp daily by manipulating it lightly with the tips of the fingers or the palms of the hand, always in a rotary movement. Press the palms of the hands against the sides of the head and move the scalp gently so as to push it together in folds. Always work gently so as not to irritate the scalp or injure the hair follicles or place stress on delicate nerve endings.

DO wash your hair frequently. However, as a rule we do not recommend using soap or shampoos unless, for one reason or another, the hair has become extraordinarily dirty. Hereward Carrington, in his marvelous book *Vitality, Fasting and Nutrition*, writes as follows, "It has been repeatedly shown, moreover, that frequent washing and extreme cleanliness are as essential to the scalp as to any other part of the body—the effect of water upon the hair being beneficial and strengthening, however frequently applied, provided the hair is thoroughly dried."

Dr. Elizabeth rinses her hair under the shower almost every other day and often every day. Mary Martin, who sang, "I'm Gonna Wash That Man Right Out of My Hair" on Broadway in Rogers and Hammerstein's South Pacific is said to have washed her hair on stage in 1,694 consecutive performances and reportedly observed no adverse effects. Today she displays a beautiful head of hair.

Make frequent rinsing of the hair a part of your personal daintiness program. It is the simple Hygienic physical habits that add up, in time, to major health benefits. Adopt a daily routine of cleanliness and begin to reap its rewards. As Margery Wilson once wrote, "Everyone knows that youth and strength depend on water, vegetables, fruit, exercise, and a high heart and mind." The best beauty treatment for the hair that makes real scientific sense is a combination of a lifestyle and eating regimen best suited to human wellness; in other words, full application of what is presented in this course of study. The discipline of Natural Hygiene is the only discipline that recognizes the fact that nutrition represents the sum total of ALL body processes and cannot accept any attempt to separate or isolate any part of the life process as anything other than foolishness. And, it must be emphasized that proper care of the hair and scalp, just as with the entire body, should begin with the first meal and the life routines of the first day after birth. If these be optimal and continue to be day after day and throughout life, then life itself can be no less.

5. Establishing The Client-Practitioner Relationship

Even though the disorder of immediate concern to the client may be limited to the skin, scalp, or hair, the knowledgeable practitioner well understands that any diseased state affecting these areas indicates an eliminative effort of some dimension. He also understands that the entire system is burdened with a degree of toxicosis which is, at present, unknown and that it is this toxic condition which must first be addressed before the disorder which has brought the client to your office and which is localized outwardly, can be controlled.

At first meeting, the client will probably have no understanding of Natural Hygiene or autointoxication. He must be led to an understanding of life's basic requirements, the requisites of organic existence, because, upon these, full health, including that of the hair and scalp, depends. He must gradually learn that you have a plan for health that works regardless of age, sex, or income! A plan that he can carry out in his own home without the aid of pills, lotions, or doctors. A plan that will not only save him money but will provide superb health for all of life. A plan that has worked for hundreds of thousands of persons, many just like himself, suffering from even the most horrible lesions. And, finally, that it is a plan that may require more time than he now anticipates because how well it works for him will depend on how faithfully he follows your guidance and directions.

It will, of course, be impossible to impart to every client all the knowledge the Hygienic practitioner has garnered as he has studied this course and the many lessons yet to follow, about body detoxification and how this may be achieved. However, we find that a good initial briefing of methodology usually is well received.

We recommend that, on first meeting, the client be given an understanding of the fact that as you work with him you will, in general, proceed with four specific goals in mind, all bearing directly on his present condition.

5.1 The Hygienist's and Life's Four-Fold Program for Superior Health!

1. To discontinue all things, habits, foods, etc., which are acknowledged by the scientific community to be harmful to the human life process; to reduce or completely remove all undue stressors.
2. To improve the lifestyle so that it includes only those practices which are acknowledged by the scientific community to be health-promoting, such requisites of organic existence as:
    - Exercise
    - Pure Air
    - Pure Water
    - Suitable exposure to sunlight
    - Sufficient rest, sleep, and relaxation
    - Protection from violence
    - Emotional Poise
    - The "Pluses of Life," such as friendships, love, etc.
3. To modify the diet slowly or rapidly as the individual client can adapt so that it eventually includes only those foods that are known to be biologically acceptable to humans and to instruct by means of educational materials written in lay terms so that the client will learn how to combine his foods correctly so as to maximize nutrient acceptance and utilization.
4. To detoxify the body; that is, to eliminate from the body any existing abnormal amounts of toxic metabolites (wastes) so that the fluids of the body, including the blood, will again flow free and clean, able to collect, transport, and remove all excess acid waste debris because it itself is no longer so saturated with "sludge" that it lacks the ability to transport waste matter to the

> eliminating depots; or because the liver and kidneys are presently so overloaded that they cannot adequately perform their normal filtering and other life-preserving duties.

Dr. Lester Breslow, dean of the School of Public Health at the University of California at Los Angeles, stated in 1975, as follows: "I firmly believe the American people are depending far too much on their doctors to stay healthy." He went on to comment that "all of us must take more responsibility for our own health—the choices we make in our daily life with regard to certain personal habits."

It is this concept that the Hygienic practitioner must convey to his new clients; that the client is now embarking on a wonderful adventure that will not only correct his present annoying symptoms but one that will also open countless numbers of doors and joys to him and provide a future in which he can enjoy a hitherto undreamed of new dimension of health.

We have found that having the four-fold program printed and then given to the client helps him to stay on course. We suggest to our clients that they paste the list on a bathroom mirror or perhaps, even better, on the refrigerator door or some other place where they cannot help but be reminded day by day that they have begun a new way of life, one that has untold promise.

The World Health Organization defines health as "physical, mental, social well-being, not merely the absence of disease or infirmity." We can add that our goal is inner peace and really this is the ultimate goal!

Rarely are diseases of the scalp and hair life-threatening. Perhaps it is for this reason that presentation of the fourfold action plan is so important. It helps clients to understand that their present condition is remedial, not by outwardly or inwardly applied substances, but rather a condition in which the body can constructively redirect its energies and faculties to restoring high-level health. The plan teaches how to provide the tools.

5.2 The Consultation

When the client makes his first contact and requests a consultation, he should be asked to provide you with a diet profile which covers a minimum period of one week plus a personal and medical history. An office form may be mailed to him which he can fill out prior to his appointment. These may then be brought to the office for your consideration.

5.2.1 Inquiry

The first meeting should open with the *inquiry.*

This part of the consultation offers an opportunity for the client to express himself, to present his evaluation of his condition. If the lesions or other conditions are not visible, he can describe them and give his reaction both to them and to past treatments.

The client should have time to express himself, how he is feeling, to give an evaluation of himself, dietetically and perhaps otherwise. Clients have a need to relieve themselves verbally of concerns, to express emotional and other specific needs.

The first meeting is critical. It is at this time that the Hygienic practitioner must impart to the client, both by action and by deed, the fact that he empathizes with the client and also that he has a solution to offer. However, let us point out at this juncture that, while the Hygienic practitioner should listen, should empathize, and then give of his best advice, he must also learn that, once the client leaves his office, the responsibility from that point on rests with the client to put all recommendations into practice; in other words, to carry the ball. If the practitioner does not learn to do this, he will soon "burn out" emotionally.

5.2.2 Visual Examination

Following the inquiry comes the visual examination.

Initial visual examination can be done along gross lines, of course, during the inquiry part of this session. However, psychologically speaking, it is well to take a closer look at all affected parts and note the extent of the afflicted area or areas. Notes should be taken. These will assist the practitioner in noting progress from one meeting to the next.

We recommend that a good quality magnifying glass with a handle be used for this close examination. Notes should be made as to size of pustules, if any, the precise location of any affected areas, and the size of the area affected, not for diagnostic purposes, but rather to assist you in evaluating the on-going improvement in the condition as the client responds to Hygienic measures correctly applied. Such records are also important in the event that you are called upon to explain procedure.

5.3 Kinds of Clients

Clients who consult you regarding diseases of the hair and scalp, generally fall into two types:

1. Those who willingly and cheerfully carry out all suggestions made by you because they have full confidence in your advice. This group is further subdivided into two groups:
    A. Those who have endured the torments of itching, flaking, or the oozing of pus and watery secretions for so long that they have almost despaired of ever finding relief and are now willing to try even what they may consider as being bizarre and strange suggestions.
    B. Those who have explicit confidence in you because they have previously witnessed positive results in a similar case under your supervision or have been referred to you by someone in whom they have much confidence.
2. Those who seek your advice with a certain amount of skepticism and/or fear. This group can also be divided into two subgroups:
    A. The elderly who have long been accustomed to doing things in a certain way. These individuals have well etched habit nerve pathways and require careful handling if success is to be achieved.
    B. Persons who consider their condition remedial by the use of "medicines," even though they may have met with repeated failures. These individuals are still searching for a "cure." They must be deprogrammed and reeducated in the true ways of health and healing.

Through experience one learns to evaluate the particular category in which a client belongs. Once this has been accomplished, it is possible to proceed in a planned orderly way.

5.3.1 Group One

All diseases are serious, of course. Milder hair and scalp disorders often represent a beginning, a foretaste of more involved pathologies that will most certainly arise if remedial steps are not instigated. The present condition, mild or serious, represents an attempt by the body to cleanse itself of a burden which is too great for the body to handle by usual eliminating procedures.

Fortunately members of this group have confidence in you and will follow your instructions. For these clients we immediately recommend a prolonged fast, the time suggested depending upon client response, emotionally and physically, to this procedure. We particularly recommend a prolonged fast in cases of psoriasis and chronic eczema and especially when these conditions have seated themselves on the scalp and are accompanied by severe itching and/or flaking. Remedial fasting will do what topical applications can never do, get at the cause of the trouble, whether it be in the constitution of the individual, in a deranged metabolic inner state, simply a state of hypersensitiveness, an injury of some kind, or the presence of imbedded fungus spores. Fasting represents do-it-yourself surgery: cutting out the cause.

According to Otto H. F. Buchinger, M.D., fasting is always the remedy of choice in cases of eczema and psoriasis and that most persons will respond favorably provided that they have not had recourse to many of such heroic treatments as the constant application of highly-irritating substances over a prolonged period of time or to radiological procedures as, for example, X rays.

Buchinger points out, and we have also observed this same fact, that quite often even following a prolonged fast, patches of eczema and psoriasis will persist, these representing "safety-valves," to quote him, the means whereby the body leaves a way open for exudation of wastes should the need arise. These small patches serve as a reminder to the afflicted person not to relax in the ways of health.

We are reminded of one client whose face and scalp were covered with psoriatic patches before fasting. After several short fasts, the scalp entirely cleared but a minute patch remained behind each car. This particular person enjoyed golfing and meeting with friends after a match at the "19th hole" to talk about common subjects of interest and to have a beer. Invariably, a day or so later, these patches would enlarge, a silent reminder that obtaining health represents a commitment to a lifetime of correct living.

Most clients who experience the flaking of psoriasis or the extreme itching of eczematous conditions are more than willing to listen to accounts of the benefits that may accrue to them should they decide to undertake an extended fast. However, there are exceptions.

Years ago a close friend who was afflicted with psoriasis came to visit us for a few weeks. Whenever she combed and brushed her hair, the flakes would fly in all directions. Her condition was so bad that we finally resorted to covering the furniture with sheets which we then periodically took outside for a good shaking. We were compelled to vacuum the floor in her bedroom every morning.

For over forty years this woman has tried every "remedy" on the market and every poison that hundreds of medical "authorities" have prescribed. She has tried kinds of diets: with and without fat, with and without salt, she has tried high-protein and low-protein diets, high carbohydrate and low-carbohydrate diets. She has constently refused to fast. She still has her psoriasis.

Her scalp still sloughs off the sick and wounded cells, do the many patches that cover various parts of her body. In spite of all her futile attempts to find "relief," she still retains faith in "medicines." She still believes that medical "science" will be able to provide the magic "cure." She still refuses to try the one positive step which has been demonstrated in hundreds of cases to be capable of permitting the body to heal the hurt—the simple fast. Contrast this experience with that of John given in Lesson 61!

Clients should be instructed in the merits of the fast an be encouraged to convince themselves of its possible benefits by reading the literature on the subject. If the practitioner himself is qualified to supervise a fast and has the facilities to house fasting clients, he may properly do so. Otherwise, he should encourage his clients to go to an institution where the fast can be professionally supervised by an experienced practitioner and where the client can be isolated from the concerned but unfortunately often uninformed and discouraging comments of relatives and friends.

We presently have a man who is very seriously afflicted with a painful inflammatory condition. He has been placed on a very restricted diet and instructed to take short fasts. He has no family and is dependent upon the services of a paid housekeeper. This woman who weighs well over 200 pounds and is herself under the care of a physician for innumerable ailments, rants and raves at her employer because she is "worried" about his loss of weight and the fact that he is depressed so much of the time! He has finally given in to her, but only temporarily. He has given her notice to leave and in her place has hired someone else. Within a few weeks he expects to make a new beginning under happier circumstances.

However, not all persons have this man's determination. Many unfortunately succumb to the wishes of their misguided relatives and friends and lose their one chance to find a higher plateau of health.

When Money Is a Matter of Concern

In instances where the client is willing to fast but is, for the moment at least, financially embarassed, it is often possible for the practicing Hygienist to advance credit for a specified time with a contract being signed for future payment of a specified sum; or supervision of the fast can be undertaken in exchange for services rendered by the client to the practitioner as, for example, typing, addressing envelopes for mailings, yard work, serving in some useful capacity at meetings and lectures, etc. Contracts can work out especially well with those clients who have hair and scalp disorders and especially when visible lesions are present. Photographs of the same may be taken at the onset of the fast and/or other services. When all lesions disappear, payment is due. Such contracts, it goes without saying, are best drawn up by an attorney.

The Fast and Apheresis

The medical community is more and more coming 10 accept the fact that a toxic condition of the body can cause multitudinous numbers of diverse conditions according to individual tendencies as they may occur in any one person due to his peculiar collection of weak and strong parts, these varying by the very nature of human differentiation. This is why apheresis, the mechanical cleansing of the blood, is being given serious attention by the AMA and insurance companies who can visualize a veritable bonanza if the practice becomes widely accepted.

Apheresis admittedly does "not cure disease, it simply treats the symptoms of illness, and it hasn't been around long enough for scientists to determine how effective it really is," this according to an article by Edward Edelson in the October 1982, issue of *Science Magazine*.

In apheresis a technician taps into the patient's vein, and "blood flows into a machine where the spinning components settle into bands: the heavy red cells first, then the white cells, then the platelets that help blood to clot, and finally the plasma and all the valuable proteins it contains." Components suspected of "harboring the damaging substances associated with the patient's illness are discarded and, in the case of plasma, often replaced with an equal amount of saline solution. The rest of the blood is then returned to the body," supposedly now in a pristine state.

The technique has been used with varying success in such diseases as macroglobulinemia, a condition in which certain plasma components have an unusually high molecular weight, for example, as much as 1,000,000 compared to water with a molecular weight of only 18; multiple myeloma, aplastic anemia, systemic lupus erythematosis, rheumatoid arthritis, multiple sclerosis and myasthenia gravis, to name a few. There have been successes and failures, as well as a few deaths primarily because technicians do not as yet know just what to remove and what to put back! In spite of its acknowledged drawbacks, momentum seems to be accelerating for its use even though a series of "treatments" can cost as much as $32,000.00, and even more, depending upon the number of "treatments" judged necessary in any particular instance.

We are inclined to suggest fasting as a much simpler procedure, one more in keeping with systemic reality, to say nothing of its relative cheapness and the exactitude of the process, carried out as it is under the watchful and precise guidance of the body's own intelligence, every move being dictated by the body's primary concern for perfect performance on the part of all cells and systems. Unlike manmade machines, the human body does not make errors. We make errors in eating and living and in so doing we may place impediments in the road of perfect performance but the inner workings of the body, the control mechanisms, always turn in a precise and perfect performance.

While medical science waits for controlled experiments to give a stamp of approval to this new medical marvel, fasting has already received its accolades from millions of humans throughout all of history and in all cultures and by other lesser animals who have also benefitted by the cleansing it enables the body to realize. It is little wonder that fasting is so universally recognized as being the almost perfect "cure." However, let us point out here that its benefits accrue best to those persons who are emotionally and mentally prepared and willing to fast. The results to be observed even in severe disorders of the hair and scalp are often no less than spectacular.

Following the First Fast

If the first fast has been extended for a minimum of ten days, the client should, after the initial recovery period, be immediately placed on the fruitarian diet. This is the ideal time for him to adopt a physiologically sound way of eating, the perfect diet, because his system has been cleansed of its former burden of toxic metabolic debris. He should be advised that this is the way humans are intended to eat and that he should follow the fruitarian, diet for a lifetime of health and superb wellness.

Less severe diseases of the scalp and hair will often respond to shorter fasts, often with the scalp becoming quite clean within a matter of three to five days. However, should these persons be immediately placed on the fruitarian diet, it is possible for them to suffer healing crises as the morbid debris, now placed in a state of flux by the short fast, continues to try to find its way to the exit points.

When such healing crises occur, clients often become discouraged because they find that the terrible itching, flaking, falling out of the hair, etc., all seem to intensify instead of improving, as expected: At this early stage in their education in the principles of Natural Hygiene, they fail to understand that this is an entirely normal happening, one that is fully in accord with responsive healing.

With those clients who elect to fast initially for just a few days, it is often advisable to follow the first fast by introducing a planned graduated program, one adjusted to individual differences, especially those of an emotional kind. We suggest the McCarter Extended Detoxification Plan which follows. Such a program may be continued until such time as complete healing has taken place; it may be speeded up or slowed down as circumstances warrant.

The clearing of the scalp and absence of all annoying symptoms will indicate that the toxic load has once again fallen within the toleration level with the usual channels being able to cope successfully with their elimination chores. At this time the client may be encouraged to begin the fruitarian diet. If symptoms should again present themselves too violently, it may be necessary to reduce the fruit intake and place more emphasis on vegetables. Regardless, with improved nutrition, cleanliness, etc., the client will be inspired to continue his Hygienic ways because he will feel and look better than he did at the first meeting.

How Exercise Helps to Nourish the Scalp and Hair

Have you ever noted the beautiful skin and hair of very active, hard-working, healthy people? This is because, when we exercise, the blood rushes to the surface of the skin causing it to lake in more oxygen and available nutrients and, in return, give off more of the body's morbific waste metabolites.

Also, exercise makes us warm. In fact, the temperature of the skin may rise from 86 to 90 and even up to 94 while we are engaged in a really vigorous workout. In Lesson 61 it was shown that one function of the skin is to dissipate heat. The blood acts somewhat as a coolant. The more heat is to be dispersed, the more blood is called up to the skin carrying with it valuable nutrients.

Dr. Albert M. Kligman, professor of dermatology at the University of Pennsylvania School of Medicine says that "the thickness of the skin—the rate at which collagen is synthesized—is probably temperature dependent. So exercise actually may replenish the skin in some way." Hygienists know that nutrients are required for all body synthesis.

According to an article in *Today's Living* of December 1982, Dr. James White, exercise physiologist and coordinator of physical fitness at the University of California in San Diego, says that a study in Finland showed that their daily exercise had beneficial effects on the skin of middle-aged athletes.

"Actual snips of skin from these athletes were found to be denser, stronger, and thicker than skin from sendentary people the same age. The elasticity of the skin was also much better preserved in the athletes."

We have often observed great improvement in the texture of the hair of clients and in its more abundant growth after relatively short periods of Hygienically correct living and eating. When the body has ample supplies of all required nutrients, healing and replenishment follow. Exercise increases fluid transport of nutrients.

One of our clients, after beginning a greatly improved dietary regimen, found that he began to develop small lumps in several places on his scalp. We suggested he increase his exercise periods and also to include more aerobic exercises. He did so and, within six months, the lumps disappeared. No other changes were made. We believe that the more consistent influx of nutrients to cells and removal of wastes accomplished by consistent and vigorous exercise periods has much to do with improving the condition of the scalp and the texture of the hair. The fruitarian diet, of course, has been shown to provide all the nutrients required by humans for maximum health.

5.3.2 Group Two

In the practical arena of dealing with individuals long accustomed to following after demographically programmed and controlled masses, the new Hygienist will often find many who will seek his services with mental and emotional reservations. Many will have been given false impressions of fasting and relate it to starving. Many of these individuals will have reached their present sorry state after years of medical dependency and mismanagement but, nevertheless, they are literally afraid to undertake a fast and should they try would only do so with great trepidation and fear, a condition which could lead to emotional disturbances which, in turn, could negate the benefits which might accrue to the fasting client if s/he were only better prepared for the experience. In such cases, a more extended approach should be thoughtfully considered and, in many cases, adopted. Such a slower method will accomplish its purpose, detoxification, the cleansing of the body fluids, albeit more slowly. The McCarter Extended Detoxification Regimen represents such a method.

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6. The McCarter Extended Detoxification Regimen

As the name implies, the McCarter Extended Detoxification Regimen is a procedural method which we have found so valuable in leading emotionally hesitant, the more skeptical of our clients, and others who may, for one reason or another, be unable to undertake a fast at this time, on a step-by-step planned program for a body cleansing, but at a slower rate, that we include it for the student's consideration. The regimen may be used to good advantage in all diseased states, as well as with clients who may suffer from skin, hair, and/or scalp disorders. It is especially applicable to new practitioners but useful to all.

This extended action plan tends to lead the client by gradual habits of their past to a Hygienically-correct dietary and living regimen, one intended for immediate remedial purposes but also for lifetime maintenance. In its final stages it provides the client with a state of health previously unknown. It goes without saying that total freedom is achieved from whatever distressing condition presently troubles him and eventually from all diseases of any consequence.

The extended regimen makes important health-promoting changes, but makes them slowly. By so doing, the client's body can accommodate itself in gentle steps to new ways of eating and living without the client having to experience many of the perhaps disconcerting and even painful, and, to some, discouraging symptoms which are sometimes manifested during a prolonged fast or when changes are made too rapidly.

The elderly and the more timid among your clients will appreciate your concern in this area and will, more often than not, willingly accept the simple changes where they might become frightened and even totally estranged from you by symptoms which might arise with too rapid elimination, losing thereby perhaps their one chance of ever again regaining their health. This bleak prospect is unacceptable to us.

For example, we have one male client in his late seventies who has had an annoying eczema almost all of his adult life. He has taken course after course under our guidance and has attended lecture after lecture. He attends every potluck we have and freely speaks of the benefits of Natural Hygiene. He is now free of his former ailment.

But, let this man partake too freely of some food, especially grapefruit, he almost always begins to experience an annoying twinge somewhere, not unusual in persons who have lived incorrectly, Hygienically speaking, all their lives. At such limes, he usually telephones Dr. Elizabeth with panic in his voice to inquire "why am I having this pain?" He is truly frightened by these experiences. At such times, Dr. Elizabeth must explain again how toxins may remain hidden for years, even after several prolonged fasts, and how they can make their presence known even years after the main ailment has been corrected and that the very presence of a symptom shows increased vitality and body power, that the healing going on within is ongoing.

After such assurance, our client remains content—until the next time! In spite of his advanced years, this man's whole body has grown in health. His hair is thick and luxuriant, his skin smooth as a baby's, and his moustache glory to behold! Our satisfaction lies in knowing that by following the extended detoxification regimen this gentleman looks better now than most men twenty or more years younger than he, even though he did not take his first timid steps into Hygienic living and eating until he was well over 70 years of age!

Beginners at practice frequently become discouraged because they tend to lose clients who become disenchanted for one reason or another with whatever program has been devised for them. For example, they may find a recommended food unfamiliar to them and attribute whatever symptoms that may arise to the fact that this food "disagrees with them."

When carefully studied and modified to meet individual differences, the McCarter Extended Detoxification Regimen tends to lessen client loss chiefly because it reduces the number of healing crises experienced and the few experienced are generally less severe.

With too rapid change, on the other hand, the more timid will question why symptoms occur and why they often appear to be getting worse when, in fact, the very symptoms they are experiencing are proof that the new way of eating and living is actually producing curative changes which will prove beneficial in the long run. But, they do not understand this and thus fail to keep their next appointment.

However, once people are persuaded that the easy ways, the painless "remedies," will not solve their problem, then and only then will they consider a long-term program such as we are presently suggesting. You see, most people are content to look on the outside for solutions and do not want to accept responsibility for their present dilemma. Most belong to the "Discounters of Society." Some will insist that no such problem as you may present to them exists as, for example, that they have been eating poor food and must improve their dietary program. Some will say, "Yes, that may be true, but the problem isn't as important as you say it is!"

A splendid example of this last named group is a young girl, age 17, who was brought to us suffering from acne, scoliosis, and a host of other ailments including thin drab-looking hair. Privately, she admitted to "bombing out" on cocaine and other drugs; to excessive sexual indulgence; to using alcoholic beverages; and to the use of the customary teenage diet of sweets, hamburgers, soft drinks, and french fries. Her blood test, on bionutritional analysis, revealed several problem areas of considerable importance. When confronted with these results, she refused to admit that any major problem existed because she "was no different from anyone else!" She refused to accept any negative messages.

Sad to say this same attitude exists with most of our young people. We are told that two-thirds of our high school students try using illicit drugs and that, indeed, the U.S. has the highest use among this age group than any of the nations of the civilized world!

Other discounters will be so discouraged by repeated previous failures that they will admit the problem, the disease, willingly enough but they will, at the same time, believe that you can't help them to solve it because it is unsolvable! Only the more intelligent will recognize that, indeed, the problem exists, that it is vitally important to find solution of the same, that the principles of Natural Hygiene make sense and are fully in accord with all known facts of life and, finally, that only the full application of the same in their own lives will provide the best chance to solve the existing problem even though all other methods and "remedies" may have hitherto failed.

6.1 How to Proceed

6.1.1 Phase One

In Phase One the diet remains basically the same with no major changes being suggested. However, certain harmful accessory dietary practices are brought to the client's attention and the suggestion made that these may properly be eliminated or the amounts used reduced. These are determined by the practitioner following study of the client's past eating habits.

Obviously, there are multitudinous numbers of possible habitual dietary indiscretions and harmful practices which should be avoided and it would be impossible to list all of them. The practitioner must use his knowledge and good judgment in selecting for first consideration those he considers most critical.

Among the harmful practices which most commonly appear on our diet profiles, we find the following: Drinking beverages with and in-between meals: such beverages as soft drinks, coffee, tea, cocoa, canned chemicalized juices, etc. Some of these drinks contain harmful alkaloids, caffeine, sugar, and other chemicals capable of tissue erosion.

Others lack nutritive substance. To illustrate how some juice products presently marketed are concocted we include a quotation from *Science 82 Magazine* for October 1982 (official publication of The American Association for the Advancement of Science), relative to a product sold by a leading supermarket chain: "Orange juice" on the label means that what's inside is supposed to be pure and unadulterated. Federal standards are clear on the subject.

"But that's not always the case. Consumers unknowingly pay for a product that's often been stretched with a variety of substances from corn or beet sugar to spices to add coloring to spent pulp. Added to pure juice, these adulterants usually aren't harmful, and the resulting drink can be sold—but not as orange juice."

Natural Hygienists would disagree that such products are not harmful if only in that they are substituted for more nourishing foods. Persons in the business of manufacturing fake orange juice used to dilute their product with water, then add extra sugar and citric acid to give their product the taste of citrus fruits. But it seemed that it was fairly easy to detect the diluted product and the fact that it contained sucrose.

In late years it seems that these purveyors of fake orange juice have turned to beet sugar and pulpwash, both somewhat harder to detect. Beet sugar is cheap and when a bad freeze in Florida pushes up the price of oranges, these manufacturers simply take the washed and spent solids left after oranges are squeezed and use these—the pulpwash, as it is called in the trade. The U.S. Food and Drug Administration has seized hundreds of thousands of barrels, cans, and jars of juice made chiefly from pulpwash, extra sugars, and turmeric, a rather pungent spice which just happens to impart the color of orange! It seems that it is difficult to make a positive identification of the pulp and sugars contained in real orange juice, namely fructose and glucose. Since the product tastes remarkably like real orange juice, the public—to save a few cents—buys it because it tastes good, little realizing that when they use this product, they shortchange their own bodies. There are, no doubt, many such products in common use. In fact, we received a long distance call a few days ago from a beginning student of Natural

Hygiene who is about to enter a marathon run asking if it would be "all right" for him to use a product quite frequently used by athletes to impart quick energy. Since it is made almost entirely from chemicals, we told him to "read the label!"'

Another harmful dietary practice is the drinking of alcoholic beverages including beer, wine, straight and mixed drinks of all kinds.

Smoking, chewing, sniffing of tobacco and/or other substances of similar nature are known to have a health-destroying effect as, for example, the practice of sniffing glue.

Overeating, probably the most common error of our times, and also, the most harmful.

Using food enhancers such as condiments and spices, especially salt, pepper, sugar, mustard, ketchup, mayonnaise, but also including other less familiar substances, both singly and in combinations, is both unnecessary and unhealthful.

Using packaged processed cereals and bread and products made from wheat and/or other grains is harmful.

The inclusion of flesh meats and/or products derived from animals in the daily food intake, often at every meal, is detrimental to our health.

Using cooked foods, especially fried, barbecued, and boiled, are harmful, and so on.

It is in his initial choice of items to be eliminated that the Hygienic practitioner can alienate the "timid" client, even though the practices selected as being erroneous may have directly contributed to his present scalp and/or hair disorder. For this reason it may be best to make the initial changes minor in kind, gradually encouraging your client to make further constructive changes as he goes along. We are often able to avoid upsetting an emotionally unsure client by assuring him/her that even small changes (which, by the way, may appear major to him/her!) will be curative in kind.

We find, for the most part, that many clients who approach us with hair and scalp disorders (and often, too, with other skin problems) have little understanding of the fact that the immediate problem is simply a reflection of a greater problem, a general systemic toxemia. He will reach this understanding, of course, with careful guidance and education by you in the ways of health. Many clients appear somewhat uneasy about deserting established medical procedure and with such, we proceed with simple changes.

A client who has been accustomed to drinking two or more cups of coffee with every meal understands that this can be harmful and might be a causative agent for whatever ailment now troubles him. With such a person, we might suggest that, for the next two weeks, he reduce his coffee drinking to one cup at the noon and evening meals and permit him his usual two or more cups in the morning to "get him going." In so doing, he will be reducing his coffee intake (or whatever other beverage he is accustomed to drinking) by one-third, a substantial improvement but not one that, might overwhelm him by the appearance of that "all-gone" feeling so often characteristic of the withdrawal from coffee addiction. It goes without saying that clients who are coffee addicts should be made aware of the dangers to health involved in the use of this drug.

Also, if a client has been accustomed to taking two teaspoonsful of sugar with his coffee or tea, he should be advised to reduce his intake by one-half, to one teaspoon per serving, a reduction of fifty percent. If accustomed to having a soft drink as a mid-meal snack, we advise the substitution of a diluted fruit juice of good quality and freshly made if possible; or that he eat a piece of fresh fruit in place of the drink.

Initial changes in lifestyle

Again, the changes which can be advised initially with regard to the lifestyle can be many in kind and number. Among the first that we always recommend are the following:

1. Frequent bathing of affected parts. An easy way to wash the hair and scalp is simply to get under the shower and let the tepid water run through and over the hair. When the scalp is irritated, the fingers should not "dig into" the scalp. A simple striking with the tips of the fingers is sufficient accompanied by a gentle lifting of the hair by running the fingers through it. No soap, medicated or otherwise, should be used. By following this procedure, the natural oils and waxes will be retained but liquid acid wastes will be removed. The hair should be allowed to dry naturally and, depending on the condition of the scalp, it may then be gently combed or brushed with a natural-bristle brush.
2. Sunbathing, the amount of time designated for this purpose to depend on past sun exposure, the texture of the skin, etc.

   We find that these few simple changes in the dietary and lifestyle habits of a client are well accepted by him, both emotionally and physically. These are positive health-promoting steps which will not overwhelm the beginning Hygienist and ones which he will recognize as being conducive to better health. Now he is paying you to tell him so and to show him how he can adapt to these changes. We find that most clients are overwhelmed at the simplicity of your advice and cheerfully agree to follow the instructions given. We always advise our clients, however, that this is only the first step and that other instructions will be forthcoming at our next meeting. We recommend that, at this first meeting, whenever possible, that front and side views of the client be photographed for comparison at future meetings. We instruct the client to return for his next appointment in two weeks at which time he will be expected to make a verbal report on how well he has complied with your recommendations.

6.1.2 Phase Two

The client should make his report. Irritated areas should be examined and further changes now suggested, either orally or, preferably in typewritten form. Changes to be suggested might be as follows:

1. No further reduction in beverage or sugar intake at this time. However, the client is now instructed to drink his beverage of choice15 to 30 minutes prior to his eating and to refrain from drinking even water during the meal or directly after eating. The physiological reasons for this restriction should, of course, be carefully explained.
2. The client should perhaps be instructed at this meeting to eliminate table salt from his diet. The client may be helped to overcome this pernicious habit by suggesting that he substitute Vegebase or some similar product for table salt. However, he should be advised that using substitutes is not to be recommended and that total abstinence from all food enhancers would be a commendable procedure to follow at this time so as to permit recovery of normal taste sensations as well as to prevent further membrane, kidney, and cellular damage.
3. If, according to his diet profile, the client has been accustomed to taking two or more slices of bread with his meals, he should now be restricted to not more than one slice. Most persons find it extremely difficult to eliminate all bread immediately. They seem to crave it. Hygienists know that breads are not only acid-forming but that they also present certain digestive problems. Incomplete digestion of the starch in bread leads to certain fermentative processes which produce alcohol in the system, a fact which possibly explains why it is sometimes harder for the novice Hygienist to give up the bread-eating habit than the use of meat! Unbeknownst to him, he has actually become a victim of vicarious alcoholism! Nervous people are, almost without exception, heavy bread eaters.
4. Introduce distilled water. The client should be instructed to use distilled water for drinking and cooking purposes in place of tap water. He should be informed that he will not be drinking as much water as formerly because he will now be receiving a greater amount of the purest kind of water as contained in uncooked, fresh fruits and vegetables.
5. Change the customary breakfast to one of fresh fruit accompanied by lettuce and/or celery. At first, it may be better accepted by your client if this meal is a rather substantial one. It will tend to

eliminate that "empty" feeling that so often comes on the initial changeover from the popular cereal or bacon and egg breakfast. Remember that clients with hair and skin disorders rarely attribute their condition to malfeeding or to a malfunctioning digestive system, but rather to some unknown "allergy." Therefore, while we certainly must make certain constructive changes as early as possible, it is often advisable to continue the "hearty breakfast" for the time being until the body can accommodate itself to the changes in progress, these being healing in kind
Individual appetites will, at this point, determine just how much food may be desired. We suggest that the first fruit breakfasts be patterned somewhat as follows:

Breakfast No. One
Two bananas, very ripe
10-12 dates
1 apple or pear
Lettuce and/or celeryy

Breakfast No. Two
Two oranges peeled and segmented
1/2 grapefruit, peeled and seg.
Lettuce and/or celery, 1/2 avocado

Breakfast No. Three
1/2 pound grapes
2 pears
Lettuce and/or celery

Breakfast No. Four
Large dish of fresh or soaked apricots
Dish of berries
Lettuce and/or celery

Breakfast No. Five
One or two apples served with date sauce made by blending a few pitted dates with distilled water

Breakfast No. Six
Fruits in season as, for example: 2 peaches
10-12 dates
Lettuce and/or celery

Breakfast No. Seven
1 whole papaya
2 nectarines
Lettuce and/or celery

Other suggestions: Berry compote served with peach "cream" made by blending peaches and dates (or peaches and banana) in the blender; raw applesauce made by blending apples and raisins (or dates) with celery; or pear sauce made similarly.
This is the proper time to introduce correct food and fruit combining. We suggest that you use the charts supplied in this course. No other dietary changes are required at this time.

6. When practiceable, a simple exercise program should be presented. It should be well within the present capacity of the client to perform. We suggest walking plus, perhaps, simple stretching and flexibility exercises as an excellent first step toward improved physical development.

All previous changes are to be continued. The client should be provided with a typewritten list of his new program and should be instructed to keep a diary of his new breakfasts and also of how much time he has allotted to exercising and the kind of exercise done.

The client is handed an appointment card which specifies the time and date of his next appointment, this to be in four weeks.

6.1.3 Phase Three

With most clients who have consulted you with rather minor hair, skin and/or scalp disorders, it is now possible to make changes somewhat faster. A minimum of six weeks has passed during which time he has become more attuned emotionally to change and perhaps even physically in that he has begun to see some improvement in his overall condition. Therefore, all previous instructions are to be continued and the following new changes introduced as individual differences indicate and/or allow:

1. Luncheons - In the conventional way of eating, luncheons more often than not consist of soup and a sandwich or of a hamburger, french fries, and a "coke." It is time now to introduce the salad plus, perhaps, a simple vegetable broth or soup. A list of possible salads should be given to your client since, with many of them, the salad world is unexplored territory. For salad suggestions, we refer to our book *The Exciting World of Healthful Cookery* which has over two hundred salads to choose from, both vegetable and fruit.
2. Those clients who formerly drank alcoholic beverages should now be instructed regarding the harmful effects of such indulgence. They are either to refrain entirely from any further indulgence (preferable) or to reduce by at least one-half the number of drinks consumed. If the client is accustomed to mixed drinks, he should be encouraged to switch to drinks with a lesser alcoholic content, such as wine and beer. It should be made absolutely clear to the client that by making this suggestion that you are in no way giving your approval to the use of alcohol in any form and that further use by him will only retard and even prevent full recovery.
3. Clients who have been accustomed to using nicotine in any of its forms should be similarly instructed either to reduce or to forego future use. From experience we can say that the easiest and best way to stop this pernicious habit is simply to stop!
4. The number of cups of coffee, tea, or other beverage should now be reduced to no more than three cups per day taken 15 to 30 minutes before the meal with total elimination of the habit now being suggested.
5. Two meat meals per week should now be eliminated. If necessary, the client may be permitted either cottage cheese or eggs in their place. The practitioner should specify the exact day for elimination of meat as, for example, on Friday and Tuesday. Otherwise, certain reluctant clients have a tendency to postpone their meatless days. Where clients are open to total elimination on these two days, they may elect to substitute a baked potato or baked brown rice.
6. Request that your client keep a Diet Diary for the next four weeks. Keeping the diary will help him to adhere more closely to your suggestions since he knows that he will be expected to present the diary to you. A sample report form may be xeroxed and given to the client for this purpose. These forms may be kept on file for distribution.

The alert student will have noted that within a 10-week period, that the client, if he has followed your instructions precisely, will have accomplished the following constructive changes:

1. Reduced his coffee or other beverage intake by 50% or more.
2. Eliminated all fried food.
3. Eliminated all packaged cereals and the traditional ham and egg, bacon and egg, cereal, or pancake breakfast in favor of fresh fruits served usually, with lettuce and/or celery.
4. Has eliminated most condiments and especially salt from his diet.
5. Has drastically reduced or eliminated entirely all alcoholic beverage intake.
6. Has reduced or totally eliminated his former nicotine dependence.

7. Has consistently reduced his protein intake and increased his consumption of simple carbohydrates in the form of sweet fruits.
8. Has increased his consumption of raw foods to approximately 50% or more of his total nutritive package where, prior to his first meeting with you, if his diet was typical of the average American, it probably amounted to less than 4%.
9. Decreased his consumption of flesh food by at least one-third because he no longer has any flesh foods at either breakfast or luncheon and has omitted it from two dinners per week. He has either substituted eggs or cottage cheese or potatoes or baked rice for these two meatless meals.

This has been a period of change during which lime the client's body was required to accommodate itself to new practices. The new exercise program has caused more stagnant lazy transport fluids to enter into the mainstream of activity for cleansing by the liver and kidney-filtering mechanisms.

Restorative changes have been silently going on as a result of the improved nutritional intake. These have usually proceeded slowly and quietly, rarely violently. The client has not been emotionally disturbed by rapid elimination of wastes, a process which might and often does intensify already existing symptoms and/or new ones, often to the client's dismay.

Sometimes, of course, even this carefully phased program can lead to minor unsettling symptoms in which case, and especially with nervous clients, it may be well to reassess your client's emotional poise and decide whether to back off and resume an earlier phase or to extend this third phase for another month.

Detached appraisal is often necessary with clients who have diseases of the hair, scalp, and/or skin simply because rarely are these afflictions life threatening. It is difficult sometimes to impart to your client the knowledge you have regarding the methodology of body detoxification. We suggest that with difficult clients that they be given a printout of the procedural method being employed.

6.1.4 Phase Four

By this time your client should have noted considerable improvement, not only in his overall wellness, but also in the condition for which he sought your help, assuming, of course, that he has faithfully followed all instructions.

Consequently, he will, more often than not, enthusiastically welcome further instructions. If improvement has been slow it may be best to continue Phase Three for another four-week period. Phase Four changes could proceed as follows:

1. The 24-hour fast, usually a major step for most persons. We have found that most clients will adapt well to this short fast if they are instructed to refrain from eating starting after the evening meal of Day One and then not eating again until the evening of Day Two; as follows:

   Day One - Eat breakfast, luncheon, and evening meals.
   Day Two - Breakfast - none Luncheon – none
   Dinner - A light vegetable salad with nuts; or a simple subacid fruit salad served with 1/2 medium avocado.
   Throughout the fasting day, distilled water may be used to quench thirst, as needed.
2. Intake of flesh meats is now reduced to three times per week. Baked potato, baked brown rice, nuts, or sunflower seeds may be used in place of the meat. One or two steamed vegetables may be added to this meal, if desired.

   This is the perfect time to introduce the subject of correct food combining. The client should be given a food-combining chart for his home use. If you hold regular public classes on nutrition, your client should now be encouraged to enroll in these. The client should now formulate his own meals using the food-combining chart.

3. Introduce aerobic exercises when possible. We suggest to our own clients that they either purchase some good country western music records or turn on their radios to a station which features music with a good "beat." We tell them to encourage other members of the family to join them in free-style movement dancing. This is fun and contributes positively to increased family support. If clients live alone, they should be encouraged to join a Jazzercise class at the "Y" or elsewhere.

The client is again requested to keep a food and exercise diary. Since he is now formulating his own meals, it is important that he present it to you, at the next meeting, for your constructive criticism and suggestions. The intervening period will have been a learning period for him and it is always interesting to see how each client has fared. The client should return for his next appointment in four weeks, or sooner, as circumstances may warrant.

6.1.5 Phase Five

By the time the Phase Five Consultation arrives, some three or four months will have passed. If your client has faithfully followed instructions, he will have accomplished the following steps in his four-fold action plan:

1. Totally eliminated or substantially reduced all major health-destroying habits, including but not limited to: nicotine and alcohol use.
2. Adopted many health-promoting ways of eating and living although he may not have become emotionally or physically fully adapted to them. His mind may tell him that what you suggest in the way of change is sound, that it is scientifically correct but, since his habits have become firmly etched due to the passage of years, they are therefore difficult to modify and/or correct. The practitioner should always be aware of the fact that habit is "a formidable adversary." The Hygienic practitioner should, therefore, be patient but also firm and consistent in his instructions. He must be kind and always encouraging.
3. The client's dietary intake is now approaching an intake of 80% raw food.
4. Your client should be consistently exercising aerobically for from five to fifteen minutes per day and, if he is on target, he should also be walking every day, depending, of course, upon individual capabilities.

At the Phase Five meeting the practitioner should, as the first order of business, examine the food diary for errors and shortcomings, if any. Improvement in condition should be noted in the client's record.

The 36-hour fast may now be introduced and the client instructed to proceed with this longer fast once during this phase, as follows:

Day One - Eat breakfast, luncheon, and the evening meal.
Day Two - Nothing is to be eaten on this day. Distilled water may be used as required to quench thirst.
Day Three - The client now eats a breakfast which consists of a single fruit, preferably a subacid fruit as, for example, two or three peaches or pears. Luncheon - a fruit salad consisting of either subacid, acid or sweet fruits. Dinner - a vegetable salad with nuts, if desired.

All other previous suggestions are to be incorporated in the client's regimen for the next four weeks with steady reductions being made in all remaining harmful practices. For example, all meat eating should now be discontinued with cottage cheese, sunflower seeds, or nuts used as substitutes. The use of cottage cheese should be restricted to no more than one meal per week. (Cottage cheese is not a good food and therefore the client is best persuaded to eat nuts or seeds.)

All coffee and tea should now be totally eliminated with no beverages permitted during or immediately after the meal. Distilled water may be taken 15 to 30 minutes prior to a meal but only if required to quench thirst. The client should have noted by this time a lessening of need for liquids.

A food and exercise diary should again be kept and the client should be advised to return, this time, in six weeks.

6.1.6 Phase Six

The client's diary should be reviewed. A visual examination may be made and improvements noted. The assessment of condition should be made cooperatively by both the client and the practitioner. All improvements should be emphasized and, if not known to the client, they should be pointed out to him. Small changes for the better may not be noted by the client on a day-by-day basis but they will be observed by the practitioner at the end of extended intervals. A six-week interval may possibly have greatly enhanced the client's condition. All improvements should, of course, be duly recorded in the client's file.

Phase Six is often graduation time! The fruitarian diet should now be introduced. A complete set of suggested menus for a period to encompass at least three weeks should be presented to the client. All cooked food should now be eliminated with a 100% raw food diet adopted.

When possible, the exercise regimen should be expanded to include aerobic, stretching, and flexibility and resistance exercises. We test clients on various weights, starting with five pounds, and suggest that he either purchase whatever weight is most suitable for his present capacity or that he enroll in a physical fitness gym program. We often present clients with a typed list of possible exercises or ask him to purchase a suitable book on exercises.

The weekly 24-hour fast is to be continued with two 36-hour lasts also undertaken in place of two 24-hour fasts as, for example:

Week One - 24-hour fast starting Friday evening after dinner.
Week Two - A 36-hour fast starting after dinner on Friday night and continuing until Sunday morning breakfast.
Week Three - A 24-hour fast as above in Week One.
Week Four - A 24-hour fast.
Week Five - A 36-hour fast as in Week Two.
Week Six - A 24-hour fast.

Most clients will respond favorably to the above regimen. If not, they are requested to return in four weeks having had three 24-hour fasts and ONE 36-hour fast. Most will give their new way of eating and exercising and perhaps the whole fasting schedule a fair trial. If not, then they must continue with Phase Five for another four weeks.

Phase Six should extend for a period of six weeks at which time the condition and response of the client must be carefully evaluated. If all has gone well and if the client has made a satisfactory adjustment to his new way of life, both emotionally and physically, then he should at the discretion of the practitioner, be advised to continue his program as before and to return in three months. When clients feel comfortable on the fruitarian diet, we then have them "check in" with us at three-month intervals, at which time a record of progress, any shortcomings, regressions, symptoms, etc., are recorded.

We find it interesting that many will have fasted for five to seven days. A few will have gone on a prolonged fast at a spa. Some will feel they have made so much progress that they no longer require your services and elect to try to proceed on their own. To others, the practitioner assumes the father or mother role and the regular visit becomes an anchor to hold on to. Regardless, all clients are encouraged to attend lectures, classes, parties, especially potlucks so that they can be reinforced in their new way of life by meeting with other persons of like interest.

We have made no mention other than in passing of the taking of prescribed and over-the-counter drugs, or of vitamin and mineral supplements. These have all been well discussed in other lessons. However, we constantly encourage our clients to discontinue the use of all drugs. By the time a client adopts the fruitarian diet, he has usually come to understand that he is now receiving hundreds of times more nutrients than formerly. He will also be witnessing in his improved condition the fruits of natural living and eating and will, of himself, realize that he has no further need of chemical crutches. In fact, most will be completely convinced1 of the merits of their new way of life and Will willingly and enthusiastically refer their relatives and friends to you because you are now "their doctor!"

6.2 Case Study—Marie

Marie, a woman aged 39 at her first visit, was troubled with severe itching of the scalp. A rash covered the surface and extended behind the ears and, down the back of the neck and across both shoulders. This condition existed for some time. Numerous prescribed products had been applied with no lessening of symptoms; in fact, they seemed to worsen.

Because of an allied condition (multiple sclerosis), and also for other reasons, it was thought best to put Marie on the Extended Detoxification Plan. It was followed pretty much as detailed in this lesson. No medications were prescribed but Marie was instructed to rinse her hair and scalp with tepid water several times a day and to begin exercising with the assistance of her husband. In this early stage, Marie had a tendency to fall easily.

Marie adapted to the simple changes. A year has passed. The scalp has cleared as have the neck and upper back. She has had other remarkable improvements. She no longer has a tendency to fall. Her hair is much more luxurious. Her energy flow is so great that she now cares for her family and does all her own housework where she once had difficulty crawling out of bed in the morning. She goes every other day now to the spa for a workout. Marie has no doubts that she will eventually recover totally from the multiple sclerosis. It is interesting that from this one success we have had at least 10 other clients referred to us. Throughout the whole year Marie experienced no undue healing crises that might have discouraged her from continuing on with her new way of living. She is now a fruitarian.

The one outstanding drawback to using the Extended Detoxification Plan, that of discouragement because of slow improvement, has been previously pointed out by Mike Benton in Lesson 21. However, we have often found it a useful procedure and especially so with the elderly, the neurotic and in cases where finances prove to be a major consideration. To illustrate:

6.3 Case Study—Ellen

Ellen's story illustrates how it is sometimes advisable to combine techniques when working with certain clients. Ellen was much concerned about the possibility of her becoming completely bald. At only 42, her hair was very skimpy and just seemed to hang lifeless on her head—what there was of it! There were other problems, too, such as a tendency to sweat profusely. During the night, she had to get up at least once to change her night, clothes and often, too, the bedding. She had lumps behind both knees which made walking difficult.

There were other problems too which told us that Ellen's body was saturated with toxic debris. It was obvious that Ellen should be referred to a Hygienic institution at once for fasting but we soon realized that this was impossible. In the first place, Ellen was the neurotic type, high-strung and nervous; and, in the second place, she had spent so much money on medical treatments, on drugs, and all manner of vitamin and mineral supplements, as well as on various kinds of "courses" to, as she phrased it, "get her head on straight," that she just couldn't afford to spend any more money.

So, for a whole year, we resorted to the Extended Detoxification Plan. Gradually, we, introduced Ellen to Hygienic principles and, little by little, she improved both her eating and her living habits. It wasn't long before she was fasting one day a week and soon as long as three days at a time. Her improvement, while not dramatic, was steady. She became less jumpy for one thing and gradually the night sweating lessened and finally became a matter of history.

Then, the time came when Ellen was ready both financially and mentally to go for a prolonged fast. The first time she fasted for 14 days and then spent another 10 days recuperating. She lost considerable weight and had a difficult time during this first fast, experiencing stomach cramps, chills, nausea, and extreme weakness. In six months, however, she again repaired to an institution and fasted for a similar period. This time, she did not lose so much weight and experienced no unpleasant symptoms other than a coated tongue, bad breath, and a few minor chills.

After three years Ellen has greatly improved. Her hair is much thicker and has luster and sheen to it. Her complexion is beautiful. The lumps behind her knees have long since gone. She is still somewhat neurotic but even this condition has improved. Ellen still checks in about every three months for counseling and is proud of the fact that she has made a new life for herself. She still has her own very private goal: to become the perfect woman, one sound in body and in mind. With her determination, we are sure she will make it.

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7. Questions & Answers

I have a breaking out on my scalp and behind my ears. At times it is so itchy that I have to wear gloves to restrain myself from scratching my scalp and making the condition worse. My doctor has prescribed one medication after another but nothing seems to do any good. He said he's going to refer me to a specialist if it doesn't respond to treatment soon. What would you advise me to do?

> By this time you should know that externally applied medications will not help your condition. Your system is so saturated with toxins that it has taken this extraordinary route to relieve itself of its burden. You need to fast. Your body will then take over and cleanse itself. You should be rid of your trouble in a very short time, perhaps even in a week.

I'm only 19 and already I'm getting bald. What can I do?

> The medical community correlates balding with aging. At only 19 years of age you have obviously just begun your life. Another theory associates balding with inheritance, that one's genes foretell that a person will become bald. Personally, we don't buy this. One thing that makes us hold that balding is related to the overall wellness of a person is that balding has increased in about the same way as man's dietary habits have deteriorated. It will probably take several generations to restore to human males their birthright—a heavy head of beautiful hair—but I am confident it can be done by improving the health of each new generation. As for you, fast, get the accumulated metabolic wastes out of your system, turn over a new leaf, as they say, and live hygienically. If the hair cells are dead, you probably can't revive them, but surely you can prevent further loss.

My hair is thick enough but it is dull and lifeless-looking. It just hangs. Do you have any suggestions?

> Again we come back to the unity of the body. How is your energy flow? I'm willing to hazard a guess that you probably drink "Cokes" or coffee or tea several times a day to keep going. I see you nodding your head. You, too, need to fast and then to begin eating a human diet, not swallowing messes of chemicals. There is a beautiful black mare in the pasture below us. Her coat glistens in the sun and she runs with great speed around the pasture, her nostrils flaring and every muscle showing its strength. This is a race horse and I can bet my bottom dollar that Bob, the owner, doesn't feed that horse on lollipops and swill. It gets the

> finest kind of horse food. You need to feed yourself people food, to get out of doors and walk, to make friends and begin to learn about life and what it takes to live in health. If you'll do this, your body will take care of your hair and it will truly become your crowning glory.

I'm 67 years of age. As you can see, my hair is thin and it's almost white. I guess, at my age, about all I can do is to buy a wig and wear it, do you agree?

> No way! Dr. Vetrano once noted that many women with wigs can see improvement in their hair's condition, since they are no longer always fussing with it, putting on creams and lotions, teasing, curling and perming it, etc. I would advise you to fast perhaps initially for 24 hours every week, to learn how to combine your food properly, to adopt the hygienic way of eating, to rinse your hair frequently and just let it alone. We ourselves have observed how our hair has darkened. Twenty years ago my hair was a dirty yellow white. As you can see it is now a rather darkish gray and no one can say that I don't have a thick head of hair, can they?

My hair smells sour. In fact, sometimes it smells so bad that my husband complains about it. What would cause this?

> One of the first things we do when clients come to us with scalp or hair problems is to smell the hair. A foul, sour odor is indicative of a foul, sour body. Your fluids are filled with acid wastes. You need to fast for an extended time; if possible, until the return of hunger. I would advise you to consider going to a spa as soon as possible to undertake a fast. That should end your sour hair problem for good if, thereafter, you adopt a more Hygienic way of living and eating.

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Article #1: Baldness by Dr. Herbert M. Shelton

Baldness is far more common in men than in women, but it is estimated that there are more than five hundred thousand baldheaded women in the United States, the condition being far more prevalent than is commonly realized. Worse yet, the condition is apparently increasing. Among women who are not bald and who do not become so, the hair is often thin and short, lacking in both vigor and lustre. To compensate for such defects, women buy and wear hair pieces—switches, wigs, braids, chignons, pony tails, clusters, figure eights, etc. Although there is nothing half so becoming to the female face as thick, beautiful hair, fine, luxurious hair is a rarity. Doubtless most men would be astounded to know that many of the tastily arranged tresses worn by the women they see on the streets or that they go out with, originally grew on the head of another. As some wit has said:

"The golden hair that Gallus wears
Is hers—who would have thought it?
She swears 'tis hers! and true she swears,
For I know where she bought it."

Medical men talk learnedly about "normal male baldness" and regard it as due to heredity, old age, and an excess of male hormones. The "remedy" is *philosophy.* There is no way to prevent it. Women will continue to resort to wigs and switches, for they cannot prevent it either. Works on beauty often provide their readers with "remedies" for baldness, although no such remedy is known to man. Hair tonics will neither prevent the development of baldness nor restore hair once it has been lost. Massaging the scalp, pulling the hair, the use of vacuum cups and ultraviolet rays do not save nor do they restore the hair.

In the days when beards were in style it was not uncommon to see luxuriant beards and bald heads. Even today, (Note—published in 1958) men who have bald heads are not bald-faced. Every man would prefer to lose the hair on his face, thus removing the necessity for the daily shave, than to lose that of his head. But no means of saving the hair of the head has yet been found. No means will be found until the genuine causes of baldness are discovered. No preparation will grow hair. Hair tonics and hair foods are frauds.

What, then, is the answer? Shall we accept the hypothesis of the "bad gene" that is alleged to be responsible for baldness; is baldness hereditary? Is the case against baldness and premature graying as hopeless as this indicates?" I doubt the existence of "bad genes" of all kinds. Howard T. Behrman, M.D., a leading medical dermatologist, and author of a five-hundred page medical textbook (1952) on the scalp, says that "there is an evolutionary tendency in the human race to grow less hair—women as well as men.

In 200 years, perhaps more—it may be high fashion in both sexes to have no hair." He declares that "hair is only a vestigial ornament that no longer serves a real purpose. It used to have a protective function. But once we moved out of the trees we no longer needed it." While thus exposing his ignorance and posing as a prophet, this loose-tongued member of the Homo Sapiens stood up on his hind legs and relieved himself of the following bit of cerebral excrement about the future of man: "The eventual human being, man and woman, will have no hair, a longer head, large abdomen and short arms and legs."

Returning to Lamark and the inheritance of acquired characters and re-asserting the outmoded nonsense of use-heredity, he backs up his prediction that man will evolve into a caricature of his present self by saying: "It's what you'd expect as man becomes more of an indoor animal, sitting on his rear more and spending more time pushing buttons." This is the "easy method" of solving problems. It is that of the arm-chair philosopher, not that of the scientist who would approach the problem directly instead of deducing an explanation from a pet hypothesis. When the cause of the loss of hair is finally discovered, and it will be, it will be found that pathology and not evolution is at the bottom of the loss. Hereditary baldness will go out the window where a lot of other "hereditary diseases" went when their causes were discovered.

Behrman sees the increasing baldness among women today as an evolutionary change, aggravated, he thinks, by lack of proper care. He says that "women who have a tendency to baldness often find it increased after childbirth, because of a temporary loss of female hormones. Treatment with female hormones may bring back the hair, but not necessarily." His thesis is that female hormones grow scalp hair and hinder body hair, while male hormones work just the opposite; they are supposed to be responsible for the growth of body hair and loss of head hair. Strange, if this is so, that head hair in the male is most abundant in youth, when the sex functions are at their highest, and absent after middle life, when the functions of the male sex glands are commonly less efficient. At any rate, the use of hormones to grow hair did not prove satisfactory.

Behrman says of women and their hair, that "they don't brush it vigorously, or wash it as frequently as they did in the old days. Now they dye it, weave it, bleach it—and let it fall into a set pattern. They are afraid to disturb it until their next trip to the beauty parlor." Besides being a gross exaggeration, this view of the need for washing and brushing the hair disregards the fact that washing and brushing the hair is not done among many savage tribes amongst whom baldness is unknown. Important as are these elements of hair care, their lack is not the cause of baldness. Waving, dying, and bleaching may help to produce baldness.

Brushing the hair, although it does cleanse the hair and distribute the oil through it, will not save the hair nor cause it to grow. The solution of our hair problems must be sought in some other and more fundamental direction Perhaps diet may hold a large part of the solution, but certainly not all of it.

Article #2: Your Probing Mind By Dr. Vivian V. Vetrano

Will Fasting Make Your Hair and Nails Grow?

Both hair, and nails grow well during a fast. Many times people who had brittle nails happily discover that while fasting they become more pliable and less easily broken. Long fasting, in those having disproportionate reserves, may cause the hair follicle to involute while fasting and about a month to two months after the fast these experience a great falling-out of hair. This often frightens them and they think that they are becoming bald. Fasting does not produce baldness. Their hair begins to grow again until they have as many as they had before. It is common physiological process for hair follicles to involute; the hair falls out and subsequently grows again. When a hair reaches its normal potential length, then the follicle shuts down the manufacture of hair for a while and the hair falls out. For the follicles to do so all at once is a conservative process. The same thing happens during acute diseases accompanied with prolonged high fever. The body is conserving its nutritive stores for more important functions.

If this occurs after a fast, no special preparations or dietary changes are necessary unless one has been eating wrongly. Continue eating the Hygienic diet, especially concentrating on eating the nuts and salads, and the hair follicles will begin again to manufacture hair as they normally do. No diet can compare to a diet of nuts, fruits, and green vegetables for luxuriant growth of hair.

Are There Any Safe Shampoos? Is Water Alone Sufficient For Washing One's Hair?

Yes. water alone is sufficient for keeping one's hair clean. In a polluted city, you may have to wash your hair three or four times a week but plain water will suffice. Shampoos have been indicted for causing baldness, excessive oiliness, and excessive dryness of the scalp and hair.

Many women feel that their hair is dirty if they don't use a shampoo of some kind. When I first learned of the effects of shampoos and soaps, I was also fearful that my hair would be dirty without them.

However, once you get used to the new feeling of your hair with its natural oils in it, then you begin to like that feeling better than the flyaway unmanageable hair just after shampooing. Actually, when using water alone plus regular brushing, your hair is much cleaner than when using shampoos. Besides being able to wash it more than once or twice a week, you learn a whole new way of caring for your hair that makes it more beautiful, healthier and cleaner.

To wash your hair without shampoo, scrub the scalp with your fingertips under running water (the shower is best) for about ten minutes. Towel dry it or blow dry it. After it is dry, brush it with a natural bristle brush. The brushing will remove all the loosened dirt and exfoliated scalp tissues while at the same time it distributes the oils evenly throughout the hair. Your hair will shine beautifully and be very manageable. Those with excessively oily hair may wash their hair daily without shampoos without harming it, whereas using shampoos two to three times weekly is extremely hazardous.

When I comb my hair I pull out about one fourth of a comb of hair. Is this normal or abnormal?

It is quite normal for some hair to fall out when being combed. Hair grows to its potential length, then the hair follicles involute, that is, cease to produce hair for a while, and the hair shaft falls out. Then the hair follicle begins growing a new hair in its place. This is normal. It is abnormal when hair falls out daily by the brushful. This occurs occasionally after long febrile conditions, and in some people after a long fast. In each case the hair grows back.

Just how harmful is the repeated use of chlorinated swimming pools?

Chlorine gas was the gas used in World War I that was so deadly to the Allied soldiers. In hot weather when evaporation occurs, you can smell the chlorine vapors around a pool, which means that you are breathing some chlorine gas. Chlorine is a protoplasmic poison and is damaging to the skin, eyes, hair and mucous membranes. The chlorinated water may accidently be swallowed and contribute to internal toxemia. If all you have to swim in is a chlorinated swimming pool, make your dips infrequent and stay in the water for no more than ten to fifteen minutes and try not to swallow the water. Don't open your eyes under the water without goggles.

Any amount of chlorine in drinking water is harmful but when more than the prescribed amount is put in, it has been known to cause epidemics of diarrhea. Small amounts can do the same thing in extremely sensitive people, and may even cause colitis. Many so-called allergic symptoms result from the use of chlorinated drinking water. Hives and asthma have disappeared almost overnight in some people when they ceased drinking chlorinated water.. Colitis has spontaneously cleared up in many people when they quit drinking chlorinated water. Chlorine has been shown to destroy Vitamins A, B, C, E, and one essential amino acid that is especially important in young children, called tryptophan.

When you add swimming pool water to all the other sources of inorganic chlorine in modern life, it amounts to a pretty high dosage and an increased frequency of disease.

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Article #3: Cutaneous Medicine

As quoted by Dr. Vetrano in *Dr. Shelton's Review*, June, 1979. Other comments by Dr. Vetrano.

Substances can pass through a hair follicle, when they can't get through other areas of the skin. Soaps, chemicals, and harsh rubbing makes this occur easily. You can demonstrate absorption through a hair follicle by just placing a five percent aqueous solution of histamine or norepinephrine on the hairy forearm. Very soon you will see little blanched bumps around the hair follicles, called wheals, with the hair standing on end. "Washing the skin first with soap and water, or prior defatting with ether or chloroform, somewhat enhances penetrability of the above agents from aqueous solution."

The reason we so often have bad reactions to deodorants, especially while fasting is probably because they are rubbed into a hairy region, such as the axilla; also because the axillary skin is weakened by shaving and soap and water washing. Shaving weakens the skin's protective ability by loosening and disrupting the stratum corneum (for definition see Lesson 61), or the layer of the horn, and soaps wash away our protective oils and other secretions.

Actually there are only two ways that substances can enter the skin. One is by passing directly through the epidermis, the transepidermal route. Certain substances can get into the body via this route but not many. The other way that substances get through the skin is through the orifices of the hair follicles as I have shown. This is the pilosebaceous route. More substances get into the body through the follicular holes than can pass through the skin itself. This is why you are always cautioned, when using permanent wave solutions or hair dyes, to make a test curl first, because applying chemicals to hair regions can be hazardous to your health. If there were no hair follicles the skin would be even more impermeable than it is presently.

..."By entering the follicular orifices, substances can bypass the epidermal barrier altogether. If miscible or soluble in fat, they can seep down into the sebaceous duct and pass through the sebaceous gland, fanning out from here into the dermis. The pilosebaceous route is the chief means of transit through the skin. Penetration is, therefore, best in densely hairy areas. Conversely, absence of follicles in atrophic or senile skin lowers permeability."

Home > Lesson 63 - Nutrition And The Hair > Article #4: The Body Beautiful by Max Warmbrand, N.D., D.O.

Article #4: The Body Beautiful by Max Warmbrand, N.D., D.O.

If you are concerned with your physical appearance., it is important to know that it is only through intelligent living that you can mold a beautiful body and a charming personality.

The sheen of your hair, the smoothness of your skin, unblemished teeth, sparkling eyes, shapely ankles, a buoyant, youthful step—how easily they can be attained when you follow a healthful way of life.

Blotchy aging skin, tired eyes, coarse stringy hair, premature aging, and the weary step are not the inevitable marks of passing years; they are the deteriorating effects of wrong food, bad habits, emotional excesses, abuses of one sort or another.

You can be a charming, vivacious, radiant, and vital person at 70, or dull, bloated, worn out, and depleted at 30. It all depends on how alert you are to the needs of your body and how well you go about taking care of yourself.

The first step toward attaining the body beautiful is to turn to a good wholesome diet. The most valuable foods to help melt away fat or increase weight, smooth out wrinkles, beautify the skin, put life and lustre in the eyes and hair, are the raw fruits and the raw vegetables. These foods should be number one on your diet list.

Excerpted from *The Encyclopedia of Natural Health*

Home > Lesson 63 - Nutrition And The Hair > Article #5: The Hair by J.J. Tilden, M.D.

Article #5: The Hair by J.J. Tilden, M.D.

The various pastes, or liquids, on the market for removing hairs are made of arsenic, or calcium sulphate or barium salts, or quick-lime (unslaked lime), or some combination of same.

They remove the hairs by burning them off. No depilatory gets into the roots to prevent more hair coming.

The electric needle is often used to remove hairs by destroying the roots, but it is a dangerous procedure at its best, for every point that the needle enters must leave a scar. It is a painful operation and leaves many regrets for the operator as well as for the patient.

There is another method of hair-removing that is not fully understood by the public. As it is the public that furnishes the patients, or victims, for any system of treatment or mistreatment, the public should be informed.

This "newer system" is known under many fancy names, but it has for its remover a form of electrical energy or "ray" that destroys the tissues gradually. Many repeat treatments have to be taken, when slowly the hairs wither and dry up and fall off.

As I have had several of these unfortunate victims to treat, I must give a word of warning, for this "unknown-ray" system leaves the skin, so it gradually dries and takes on the appearance of a "raisin skin." (The ray is a form of X-ray.)

In London, England, the authorities have forbidden the use of this "unknown ray" for hair removing. One of the London medical officials claims that cancers are appearing on the faces of many who have had this "unknown ray" system of hair-removing used.

When used under the arms, the "unknown ray" often makes cripples by destroying the blood vessels and withering the nerves.

Other tissues must be destroyed to destroy a hair root.

Home > Lesson 63 - Nutrition And The Hair > Article #6: Hygiene of Beauty by Tosca Mariani

Article #6: Hygiene of Beauty by Tosca Mariani

If a child, or anyone for that matter, has dandruff, it is generally because they are on too high a refined carbohydrate diet—too many sweets, too many sugars. It is first necessary to get them off the denatured sugars and high carbohydrate diet to clear up the condition. Let them eat more fresh fruits, less dried fruits, more fresh vegetables and the proper nuts for the protein. They will gradually cease having dandruff. Now, what you can do while you have this condition, is to wash your hair with plain water, because the soaps and shampoos that are said to eliminate dandruff only cause more dandruff. All that's needed is to wash it daily. If the dandruff is very, very bad, wash the head daily and brush with a boar bristle brush. Push the brush in deeply, and then scrub in that spot. Then brush it out. In other areas, just brush out the dandruff. You can get all the dandruff out that way.

A man's hair can be washed just like a woman's hair, and brushed with a boar bristle brush. You can find brushes for males, as you can for females, that are made out of boar bristles. Men can keep their hair nice without using a lot of hair oils or hair preparations. You really don't need them. In fact they aren't too popular any more with most men. Just wash the hair in plain water, let it dry then brush your hair vigorously.

Hair is fed from within, not from without. Whether you get Protein 21 shampoo or any of the other protein preparations, they do not feed the hair, because these cells are nourished by blood only. Hair cells, which are part of the outer layer of the skin, harden in the process of growth. After they are hardened they no longer receive nutrition. They are dead cells. They are kept pliable and soft by the oil secreted by the oil glands. Hair automatically is lost. Every person has a growing span or a particular length or potential length which the hair may reach before the follicle turns under to take a short rest. A hair follicle will turn under every so often and this involution is a natural process.

There are some things that can occasion premature turning under of the hair follicle and a loss of hair.

This is malnutrition and some severe febrile diseases such as typhoid fever, scarlet fever, malaria, etc., and sometimes after a very long fast. This is because the body begins to conserve its reserves and ceases to secrete a lot of oils. The skin becomes a little drier while fasting, and it ceases to grow the hair follicle. They involute or turn under and a month after your fast they may fall out. A new follicle will replace it. This kind of hair loss is only temporary and all of the hair does not fall out. Only some of the follicles involute and you are not completely bald. You are just thin haired for a while. The hair will begin to grow after it has involuted for a while, and you will have a head of beautiful new hair. In some people, believe it or not, their hair has grown back curly instead of straight. Some people think that curly hair is the normal, and straight hair is a loss or an abnormality, but this is a debatable issue.

People almost always want to know what causes graying. When a hair becomes gray, it is because the pigment-producing cells in the follicles have ceased to function and as a general rule, this is an aging process from which there is no return. In some cases, people may turn gray very early, and their hair color has been known to return. This is unusual, and is due to a great fright or some extreme emotional upheaval. These types have been known to regrow the natural color.

It should always be remembered that the care of every part of the body comes from within. It is your total way of life that makes these parts beautiful. Whether it's your skin, or your hair, or your eyes or your teeth, they are all nourished from within. You need sunshine, you need exercise, rest, proper diet and emotional poise, in other words, you need all the requisites of normal physiology. These things are just as "necessary for various parts of the body as they are for your general health. When your general health is good, then nine times out of ten, your hair and your skin will be normal. They will be fed properly because they are fed by the bloodstream. All of the cells use about the same nutriments.

There's not any special nutriment for hair, or special nutriment for teeth, and so forth, but protein is essential in your diet; that is protein supplied from within, not applied on the surface.

From *The Review*, June 1975

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Lesson 64 - Stress Management: The Life Science Approach

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Home > Lesson 64 - Stress Management: The Life Science Approach > 1. Introduction

1. Introduction

The man was berserk. He drove his car through the front doors of an office building, and then leapt out with a shotgun in his hands. He took aim at the picture of the company president in the building lobby, and shot it full of holes before he was wrestled away by the police.

The man was an ex-employee of the company. He had been fired that morning by the man whose picture he blasted away that afternoon. The man was a victim of stress, and he was reacting in a way that let off the anger, frustration, and helplessness he felt.

Stress—it affects us all, and it can kill us as surely as any illness or disease.

We all experience stress every day of our lives. How we handle stress depends upon our current state of health. If we are healthy, we can manage stressful situations in a positive, productive way. If we are sick, depressed, or simply "out of sorts," then stress can trigger the berserk reaction of the man above, or it can send us into a helpless, destructive state of fear.

Stress, however, can be effectively managed by applying the principles of Life Science and Natural Hygiene in these areas: diet, exercise, relaxation, and sleep.

Before we learn how to deal with stress, we need to recognize it in our own lives. If we can identify stressful situations, we can either learn to avoid them or to handle them so that they do not trigger a more serious and harmful reaction.

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2. The Problem Of Stress

2.1 What Is Stress?

Hold a wooden pencil between your hands. Slowly apply pressure as you try to bend the pencil. Increase your pressure, and the pencil snaps and breaks. That's an example of mechanical stress. Stress is simply a pressure or a strain that tends to distort a body—whether it be a pencil or a person.

Up to a point, we can all take pressure and strain. At some time, however, the stress can become so great that just like the pencil, we "snap." If and when we "snap" depends on the ways we handle stressful situations.

And, to make it more interesting, all stress is not the same. To handle the stress in your life, you need to understand what type of stresses can be made upon you.

2.2 The Types of Stress

Most stress used to be *physical and short-term*. Now in modern times, stress is usually *emotional and long-term*. What does this mean?

All living creatures experience short-term, physical stress almost continuously. Finding food, adapting to weather changes, reproducing, and growth are examples of common, short-term stress situations. As soon as we find our food, or adapt to the season, or reproduce, then the physical stress brought on by these states is eliminated—it was temporary and for a short-term.

This type of stress is normal, natural, and perhaps even beneficial. Without a certain amount of stress, no change, progress, or growth would ever take place. We would be in continuous state of stagnation unless we experienced temporary feelings of stress.

When these stressful situations become long-term, however, then harm results. Also, when the stress becomes more emotional or mental and less physical, we have a harder time of dealing with it. Why? Because the responses to physical stress, such as intense hunger, are already learned. The body has its own way of handling physical stress, and it knows how to best compensate for the temporary demands placed on it.

On the other hand, emotional stress brought about by uncertainties, or feelings of helplessness are difficult to handle. We haven't learned yet how to deal with the type of stress produced by overdue bills or individual shortcomings. And, unlike physical stress, these long-term, stressful emotional states and fears can last for weeks, months, or even years.

2.3 The Effects of Stress

You already know how stress affects you personally, perhaps it makes you feel tired, fatigued, nervous, or depressed. Stress may make you feel as if the weight of the world was on your shoulders. Emotionally, stress may make us prone to anger, irritability, or even tears. No matter how you personally react to stress, however, the physiological effects of stress are the same for all living creatures. What happens to your body when you experience stress?

What are the physiological responses by the body to physical stress:

- An increase in arterial pressure.
- An increased blood flow to the muscles with a decreased blood flow to the organs.
- An increased rate of cellular metabolism throughout the body.
- An increase in blood glucose.
- An increase in glycolysis in the muscles.
- Increased muscular strength.
- Increased mental activity.

The overall effect of these responses is to let you perform far more strenuous physical activity than would otherwise be possible. Why is this? Because if a stressful, threatening, situation is present, then you would probably need to flee from it or fight it. This is called the *fight flight reaction* because an animal in a physically stress-state decides almost instantly to stand and fight or to n and run.

Here's an example of how extreme physical stress can activate the energy reserves of the body: In the national newspapers this week is an account of a 80-year-old grandmother who had been on crutches continuously for the last two years. A fire broke out in her neighbor's house and she heard the cries of a trapped child. Immediately she ran into the house and carried the child to freedom before she realized she had thrown her crutches aside. She then collapsed and had to be removed by ambulance. During a time of great crisis, or stress, her body responded so vigorously that she forgot she was an invalid.

So far, stress doesn't seem to have that destructive an effect, and it doesn't—if it is *short-term, physical stress*. When stress becomes prolonged and internalized, however, it has decidedly negative results upon the person's health.

2.4 What Is the Stress Reaction?

It is amazing that almost any type of stress can cause the same reaction in the body. Scientists often refer to two kinds of stress: *physical* and *neurogenic*.

An example of physical stress is being exposed to extreme cold. An example of neurogenic stress is the worry that you won't be able to pay your winter heating bill. A vital body can quickly adapt to physical stress. Neurogenic stress, worry or tension, however, may take their toll.

Regardless if the stress is in the body or in the mind, *the same physiological reaction takes place in the body*. The most noticeable effect of any type of stress is a marked increase of hormone secretion in the body.

The hormone known as ACTH (or adrenocorticotropic hormone) is released in large quantities whenever stress is present. This ACTH substance activates the secretion of cortisol. Cortisol, in turn, enhances the production of adrenal androgens in the adrenal cortex. The net effect of all these secretions caused by stress is to provide a sharp and immediate stimulus to the adrenal glands.

The adrenal glands sit right above the kidneys, and control many functions. Perhaps you've heard of athletes or other people speak of the "adrenalin rush." Adrenalin is the most powerful stimulant known. Stress causes adrenalin to be released, and we consequently feel "stimulated." If we are constantly overstimulated by stress, we become burnt-out and incapable of responding to true stress situations.

When some people drive in heavy city traffic or experience other intensely stressful situations, their adrenal glands may actually "ache" or hurt from the constant stimulation being received. An older gentleman who complained of lower backaches while commuting in rush-hour traffic believed he had kidney problems. In reality, his adrenal glands were just being overworked by the stress of commuter traffic.

This is the danger in the stress reaction. You can be under stress or overstimulated almost continuously. No one can run on "high' speed all the time, and the body eventually suffers.

The type of stress that can provoke this adrenal reaction is widely varied. Researchers have discovered, however, that the following situations are sufficiently "stressful" to spark a high ACTH release, which means the body becomes highly stimulated.

2.5 The Types of Stress That Cause Physiological Reactions

1. Intense heat or cold.
2. Injections of any sort.
3. Surgical operations.
4. Trauma of any type (physical or emotional).
5. Pain.
6. Any debilitating body crisis.
7. Emotional outbursts or anxiety attacks.

It seems as if stress is all around us, and its sustained effects can wear us down and make us vulnerable to negative thoughts and poor living habits. But there is hope.

The Life Science program, which is based entirely upon our natural adaptations, provides the correct basis for living that allows us to withstand stress far better than if we transgress our own biological requirements and nature.

The Life Science approach to stress management, even long-term and emotional stress, is three-fold: *Exercise, Diet, and Relaxation*. These are three of the essentials of health and well-being. Let's see how they help us overcome stress in our daily life.

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3. The Life Science Stress-Management Program

3.1 Sweating Away Stress: Exercise!

Exercise is your best friend in combating stress. The value of exercise as a stress reducer is well documented by many researchers. Why should exercise, which is a vigorous activity, have the power to *relax* us and eliminate stress? The answer is this:

Exercise channels the excess energy created by stress into a natural and positive outlet. As you learned earlier, stress causes the sympathetic nervous system to prepare for immediate physical action. The muscles become charged with fuel and the entire metabolism quickens. Unless this excess energy is released through exercise, it can overload and "burn out" the body's nervous system.

If stress becomes habitual and no exercise is taken, then the excess energy is internalized as tension within the muscles. When this occurs, the muscles and tendons themselves shorten and thicken. Excessive connective tissue is deposited, and a general consolidation of all the tissues occur. In other words, holding in the stress and tension has destructive effects on the muscles of the body.

When you exercise vigorously, you dispel this muscular energy in a natural and beneficial way. After all, stress produces the "fight-or-flight" reaction. If we can quite literally "run away" from stress by jogging or other forms of exercise, then we use the energy created by stress in a constructive manner.

A young man of my acquaintance was an aspiring body builder who went away to college. He was afraid that the time demands of college study would mean an end to his body-building program. After a year of school, he returned with an amazing physique. I told him that it certainly looked like college agreed with his exercise routine after all.

He smiled, and said: "You know it's funny. I found out that the best way to get rid of tension and anxiety about my college studies and tests was to lift weights. The more anxious I got about my courses, the better it felt to work out with weights. It helped me burn up nervous energy that would have driven me crazy otherwise."

Exercise does reduce stress and aid relaxation. In his book, *Learn To Relax*, C. Eugene Walker concludes that exercise has the specific ability to reduce anxiety and tension. People on regular exercise programs tend to be more healthy, have better vital capacity, and in general, can cope with life in a more satisfactory way.

Regular exercise not only makes you feel better, but also makes you become more optimistic, and have a better self image. So not only does exercise reduce anxiety, it seems to be a good preventive for developing future fears and stress problems.

Some people have downplayed the importance of exercise in stress reduction. They say that stress is "all in the mind" and the only effective way to combat stress is through mental or emotional avenues. Not true.

In research conducted by Richard Driscoll, groups of people who were suffering from high anxiety and personal stress were given four types of treatment. One group simply used visual imagery and imagined themselves relaxed, happy, and free from stress. Another group used only exercise. A third group used only physical relaxation techniques, and the last group combined exercise with a positive program of mental optimism.

The group which used exercise in addition to positive thinking had the highest success rate in reducing stress. The groups which did not use exercise programs with their other stress-reducing techniques had a much lower rate of success.

The evidence is in: to reduce stress, you must exercise.

3.2 Stress Management Through Diet

"Sure, I use diet to take care of stress. When I get tense, I just stuff my face!" The young man laughed, but his overweight figure showed the truth behind his joking.

Unfortunately, many people respond to stress by overeating or by indulging in drugs or other destructive habits. To make things worse, the types of foods usually favored under stress—ice cream, candy, soft drinks, coffee, alcohol, junk foods—have the effect of making us more susceptible to stress and illness.

Diet and nutrition play an important role in stress management. By simply avoiding destructive foods and following a wholesome diet, you can withstand normal stressful situations in a cheerful and optimistic fashion. A junk food diet, on the other hand, can make us crumble under the slightest bit of tension. Why is this?

3.3 How Diet Affects the Stress Response

A strong and healthy nervous system is our first defense line against stress. Good nerves and a steady disposition allow you to shake away stress and handle tension effectively. Although many factors ensure a healthy nervous system, most nutritionists believe that B vitamins play the vital role in good nerve health.

If you follow the natural Life Science diet of fresh fruits, vegetables, nuts, seeds, and sprouts, you will have a super abundance of all needed nutrients—including B vitamins as well as important minerals and trace elements that build strong nerves.

On the other hand, junk foods, refined sugars and starches, processed foods, nonfoods like alcohol and coffee, and many of the other substandard foods commonly eaten deplete the body of B vitamins during the metabolism of these foods. These types of foods are nutrient destroyers. In this case, the nutrients being destroyed and depleted by junk foods are the exact same nutrients that your body needs to withstand stress.

Perhaps now you can see how the stress junk food cycle gets started. A person feels stressed and insecure; he or she then reaches for a sugary "reward" food, such as ice cream or candy. After the food is eaten, additional B vitamins and other nutrients are depleted. This nutrient loss predisposes the nervous system to more stress attacks, and more junk food is eaten, and so on.

Why do people use food as a refuge from stress? First of food is a very reassuring substance. Our earliest memory of security go back to being fed by our mother. Feeding or eating, then represents a way back to security.

Food or digestion, is also used to deaden the feelings of stress.When the body is loaded down with a mess of food to digest, the mind becomes cloudy, dull, and desensitized. Food is used as a drug to obliterate feelings of tension, obsession, despondency, or stress.

Eating while under stress is actually one of the worst things you can do. Under any type of stress—physical or mental—the digestive faculties are inhibited and digestion ways suspended. What this means is that if you eat when suffering from stress, indigestion will surely result.

A favorite quote from Dr. Herbert M. Shelton is: "Whenever you are uncomfortable in body or mind, skip the next meal." If you ever suffer from feelings of stress or fear, resist the temptation to eat. Fast for awhile. A short fast will do much to dispel feelings of delusion, insecurity, and stress. At the same time, the fast allows the body to rebuild itself and strengthen the nervous system. The result of proper diet and occasional fasting is you receive immediate "stress relief".

The wholesome Life Science diet provides all the nutrients we need to build body and mind that can cope with stress. No foods are included which disrupt the body's balance or deplete the vital nutrients that we need to withstand stress. A proper diet, coupled with exercise can be your best partner in stress management. But there is another important factor in effective stress mangement, and that is: relaxation.

3.4 Relaxation

Rest, sleep, relaxation, poise, equanimity—whatever want to call it—is absolutely essential to the continued health of the organism. In fact, the opposite of stress is recreation. Every muscle, cell, and portion of the body is in a continually alternating state of stress and relaxation. s long as we alternate periods of stress with periods of relaxation, then all is fine. At times, however, stress gets upper hand and relaxation—true and total rest—never occurs, even while asleep.

A young woman who had just accepted a top executive position with one of the nation's leading banks was sitting in a dentist's chair. She had a strange problem, but one this dentist had already seen in dozens of his patients: When she was asleep at night, the woman ground her teeth continually. She had so much tension and was going through so much stress with her new job that she actually ground her teeth down through a gold crown covering, and now grinding away at the tooth underneath.

"It's a common problem of the last ten years," the dentist told me. "People have so much stress in their daily lives that the only way they can release it is by grinding their teeth in their sleep. Some patients have to wear plastic in their mouth when they go to bed so they won't grind the teeth down to the bone."

Just because you get seven or eight hours of sleep does not mean that you are getting adequate rest and relaxation. No, relaxation is different from sleep and strangely enough, you may have to *learn* how to relax in order to offset stress.

Dr. Herbert M. Shelton wrote in his book *Human Beauty: Its Culture and Hygiene*: "Worry, strain, and stress exhaust the nervous system more rapidly than physical activity, producing such danger signals as tension, irritability, and a tendency to worry over trifles. If we neglect the necessity for adequate relaxation and repose, we have no chance to replenish our energies or repair our worn tissues."

Dr. Shelton then concludes that "relaxation is an essential condition of continued healthy existence. Without it, the most vital and necessary processes of life are not carried on or they are conducted with much lowered efficiency."

But how can we relax if we are feeling stress? The trick is to relax *before* stress develops and tension sets in. After all, doesn't it make more sense to use relaxation as a preventive treatment for stress instead of as a "curative?"

Just like regular exercise and a sustained good diet, relaxation and rest should be a normal daily activity that you engage in—whether you need it or not! Modern life can sometimes fool us that we have no time or no need to relax. We feel that we can handle anything, and we take on more projects, more work, and more responsibility. Eventually, the body that has been continually deprived of rest, and relaxation will rebel, and illness may result.

Rest and relaxation must become a daily part of your activities. Give up an hour a day to constructive rest and contemplation. You may engage in some restful hobby or activity that makes no mental or physical demands. You may take a walk by yourself or listen to some music. There are many ways to relax, but don't fool yourself that you are relaxing when actually you are just doing some other type of work or watching television.

Many people are worried about the "right" way to relax. Some people have been told that meditation is essential, and others believe that relaxation can only come by taking some course or by reading a book.

As far as stress reduction goes, it makes absolutely *no* difference which relaxation method you use. The important thing is that the relaxation be total: both body and mind must be free from tension and stress.

3.5 Relaxing the Mind

Much stress and tension is in the mind, but as we saw, that does not make it any less "real." The mind can also be relaxed in a manner similar to the body. First of all, the mind must be used constructively—"exercised" if you will. Mental laziness breeds anxiety and a lack of self-worth. These feelings lead to stress.

If you diligently apply your mind to new tasks and learning, it will be more eager to relax and let go of the petty worries that sometimes occupy the thoughts.

Along with working or exercising the mind, you must give it time to relax, wonder, and dream. Daydreaming is not bad at all, if it doesn't interfere with our daily lives. Giving the mind free reign to explore and visualize can do much to dispel the mundane worries that can dominate our thoughts.

Listening to fine music, painting, reading inspiring books, and just quietly sitting in contemplation are excellent mind relaxers. Whichever way is best suited for your temperament, find a way to relax your mind and leave your worries behind for at least a small time every single day.

Simply relaxing and "doing nothing" may be very hard at first, but if you give yourself the scheduled time to do it every day, you will eventually look forward eagerly to your "relaxation period."

3.6 A Case History

The man before me should have been at the prime of his life. Forty-five years old, the man had started his own computer company three years ago and was now earning over a hundred thousand dollars a year. Yet he looked distinctly unhappy.

I can't enjoy life anymore. Food I eat doesn't agree with my acid stomach. I worry I'm getting ulcers. After a day of work and dealing with problems, I don't want to even talk to my wife—much less make love to her. I've got everything I want except peace of mind, so I guess I really don't have much at all." The man folded and unfolded a piece of paper in his lap. His hands shook, and he couldn't meet my eyes.

After talking some more, I discovered that his diet was typical for business executives: a breakfast of coffee and orange juice and toast, a fast-food lunch, and a supper of beef and potatoes. His only exercise was taking his sailboat to the lake on summer weekends, and he had no other interests outside of his work.

The first thing we worked on was his diet. He wasn't about to give up meat or some of his "favorite" foods, but he did agree to practice the rules of food combining. He lived about a-mile-and-a-half from his office, and he decided that he would walk there and back at least three times a week, weather permitting. Finally, he renewed an old interest in music, and told me that he was going to start practicing on the piano he had bought for his children.

Two months passed. I met the man again, and noticed his relaxed and smiling expression. "No more ulcers or acid stomach" he told me. "I don't know if I believe that food combining stuff or not, but something sure worked on that diet. And I also realized how much I missed being outside as I walked to my office. Now I'm riding a bicycle to and from work about every day."

And his new hobby? "Ah yes, music. It sure is soothing my savage beast after a day of work. I gave up on the piano," he confided, "but I got an excellent classical music library now, and I'm taking a music appreciation course."

It all seemed so simple. Just a consciousness about the diet, minimal daily exercise, and a relaxing outside interest were all that was needed to turn the man's stress-filled life around. The Life Science approach to stress management is simple. Only a small amount of commitment and personal effort is required. And the reward? The greatest of all—a stress-free, healthy, happy, and productive life.

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4. Questions & Answers

What are the early warning signs of stress?

> Irritability and fatigue. If you continually feel tired or short-tempered, then you are experiencing stress. If small annoyances make you angry, or if you become upset for no apparent reason, then you are experiencing stress. In other words, if you even suspect you are under stress, then you most certainly probably are. Stress can "sneak" up on you. Often, people brush aside the early warning signs of stress and continue to push themselves on. Finally, the demands made by stressful situations become so great that the body becomes ill at ease, or "diseased."
>
> The final outcome of stress is a breakdown of the healthy functioning of the body. Be very sensitive to emotional changes and your reactions to your job, family, and surroundings. These types of things can warn us when the stress load is becoming too great.

Can we "eat" stress away? I mean, is a good diet the main thing you need to avoid stress?

> Unless you are following a good diet and a regular exercise regimen and a satisfying relaxation program, then you will be adversely affected by stress. Without an excellent diet, however, all the exercise and relaxation in the world will not overcome stress. Until you are well-established on the optimum Life Science diet, then at least make sure that none of the "stress-promoting" foods, such as junk foods, white sugar, white flour, alcohol, and caffeine, are forever eliminated
>
> You cannot, however, "eat" away stress, "run" away stress, or "sleep away stress. You must combine all three, along with a positive and cheerful mental outlook, to curtail the harmful effects of stress.

Stress can often come about because of changes in your lifestyle—like getting a new job, moving, becoming married, death of a spouse, and so on. In light of this, wouldn't it be ill-advised for a person suffering from stress to make the types of changes in diet and exercise as you propose?

> Most stress that comes from changes in our lifestyle comes about because these changes were made for us. In other words, stress usually arises because we perceive ourselves as "helpless" in face of these changes
>
> Now, if we make positive changes in our life, as a result of a conscious decision, then we

feel that we are in charge of our lives. We no longer feel helpless. We assume control of our destinies. This is one of the greatest values of the Life Science Stress-Management Program. It consists entirely of positive steps that may be undertaken by anyone at any point in their lives

Not only will these changes reduce stress, they will also increase our overall level of health. If you feel overwhelmed by stress in your life, immediately take a positive, constructive step to improving your life. Start an exercise program. Give yourself a time and place to relax. Improve your diet. As soon as you decide to do one or more of these things, you will immediately lower your stress level. Try it. It works!

If stress is not properly managed, illness, disease, depression, and despondency may result. Because of the many mental and emotional demands made upon us by modern life, all of us are susceptible to stress and its negative effects

The best defense against stress is a healthy lifestyle and positive outlook on life. The requirements for effective stress management, are basically the same, as those for health and well-being: a sensible exercise program, wholesome and natural diet, and regular relaxation.

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Article #1: Stress/Unstress by Ken Pelletier, Ph.D.

No one can achieve optimum health so long as they allow stress to dominate their lives. Much of peoples' physical sickness is a result of allowing the autonomic nervous system to get out of control.

Yogis and meditators learn to control their pulse, brain waves, blood pressure, heart rate, skin conductance, muscle tension, peripheral circulation, and respiratory pattern and rate. The subjects' patterns are very coherent—when one goes up they all go up. When one goes down, they all go down.

There are two kinds of stress: short-term and long-term. The short-term we can take. That's the kind we share with every other biological organism. We react in a certain way when we're in a threatening situation.

When there is a long-term stress such as money difficulties, family stress, job stress, emotional conflicts, all bodily functions accelerate as though your life was in danger, and they stay elevated, without release. They continue at a rate of high excitation. This is the kind of biological stress pattern that leads to disease, heart attack or stroke.

Yogis learn to let go of these excess levels and simply quiet themselves down.

You can think of your bodies as being naive. They can't tell if your life is really in danger, or if you're just thinking as if your life is in danger. The fear of losing your job might feel just as threatening as if a speeding truck were coming at you. You might react this way to a nagging creditor or to your income tax coming due.

In someone with a real chronic stress pattern, one thing that may break the cycle is a serious problem or illness such as a nervous breakdown, a heart attack, a stroke, a debilitating headache, or one of any number of such things. During or after a serious illness, a very different set of demands is placed upon you. It's now okay to stay in bed and take it easy.

The same stress that may produce a heart attack in one person might produce only a headache in another. Certain families, both genetically and behaviorally, will predispose to certain illnesses. Your environment will predispose you one way or another. So will your lifestyle.

The most exciting thing about research work in the field of thinking is that once people get moving in the direction of health, they don't want to stop at just being "normal." They keep going toward becoming healthier than the average.

The main ways to break the chronic stress pattern are stress management, diet, and exercise. Exercise breaks up both physical and mental tension.

The physiological effects of light exercise for high blood pressure are comparable if not greater than those brought about by drugs. The information is in medical literature but is not taught in medical schools. How often does a doctor put a hypertensive patient on an exercise program?

Post heart attack victims often undergo a conceptual shift in thinking, so that afterward, things that were considered highly stressful are no longer perceived as so potentially perilous. This process is something like, "I just looked at all the things that used to bug me, and I said to heck with it."

This is the change all patients should strive to produce in themselves—to learn to decide whether a given event is life-threatening or not.

It's a mistake then, to think that all stress is bad. There are times when the stimulus of stress can save your life. The error comes in when you start interpreting relatively nonthreatening situations—like balancing your checkbook or dealing with a certain person—as though they were life threatening. Then you are creating the crisis in that life event. All the same responses take place as if a car was coming at you at 80 miles per hour.

You can achieve the conceptual shift in any number of ways, one of which is the painful, involuntary way through severe illness that forces you to look at your values. Illness can be a very creative experience—a potential source of regeneration and renewal instead of just a breakdown.

There are many symptoms before actual illness strikes. You're being told that you've pushed yourself beyond a level of healthy functioning. Too many people miss the early signals and get the opportunity to examine their lives—perhaps for the first time—at the cost of a serious illness.

Many people recognize a physical symptom and instead of realizing this calls for a change to correct it, they say, "This is something to worry about." This further adds anxiety, and gets them deeper into a chronic stress cycle. You can run from a snarling dog and be attacked or stand your ground, stay relaxed, and relate to the dog.

What can people do to minimize the feeling of stress in their lives? Any activity that you have in your life can be used as a meditation. Prayer, walking, sex, running, singing, listening to Bach—it can be anything. An activity that you invest with prolonged and focused attention can be a form of meditation.

Self care is paying attention to a beneficial way of living your life so that your exchanges and interactions with other people are loving and caring, and your attitudes toward yourself are that way, too. People come to meditation by very different roads. For some people, paying attention to nutrition leads to paying attention to other areas of their lives. Others come at it through exercise.

They realize they can't even run around the block if they're feeling tense, and they get interested in meditation. Another might start meditating and become conscious of being overweight. Meditation leads to self-discovery and self-care.

Pay attention. The unexamined life is the unlived life. Invest your life with attention. Henry James said, "Try to be someone to whom nothing is lost."

All the things we do to ourselves by eating a nonoptimal diet make us more susceptible to specific disorders so try decreasing your intake of refined sugars which are uniformly destructive; decreasing your fat consumption; diversifying your protein base away from meat into non-meat sources of protein;

and eating more fresh fruits and vegetables.

People who have a slight to extreme overweight problem eat as a form of tranquilization. That relaxed feeling after a large meal is something they seek again and again.

You can get this same feeling from meditating or running several miles a day and this changes your perspective on food. But remember—all things should be fun. Too many people are so *dour.* They're going to become healthy if it kills them.

If you drive yourself to do anything, you're sunk. There must be a spark, an element of vitality, of discovery, that makes it really exciting. You've got to follow the little messages from inside that tell you what's right for you, no matter what any expert says.

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Article #2: In Search Of Emotional Well-Being

Mental and emotional well-being is conditioned by far more influences and factors than physical well-being. While physical well-being arises from meeting the physical needs of the body correctly, this is not always enough to assure mental and emotional serenity.

In ascertaining the conditions necessary in achieving mental well-being, we must consider more than the requisites of physical health. We must take into account those elements in our ecosystem that promote mental and emotional health and, likewise, those factors and influences which undermine it.

There are many who assure us that we are responsible for how we feel and act, that we are the architects of our feelings and moods. We can control the factors that affect us or at least so rationalize our attitudes in response to external factors that we are not adversely affected.

Those who are under emotional control are said to be poised: calm, cool, and collected. They respond rationally.

Individuals who do not have strong emotional reactions to stimuli and phenomena, be it adverse or favorable, are rare. Most of us react to unexpected conditions in an involved rather than in a detached manner. This is how almost all creatures of nature react to abnormal situations or extraordinary circumstances.

If there are very few humans who can view affairs in objective fashion, there are fewer nonhumans that have this capability—perhaps porpoises (dolphins) and whales. Where there are immediate and dire threats that require timely action, even the most poised may forego their usual detachment and objectiveness.

In Natural Hygiene/Life Science we teach that every effect is the result of foregoing causes. Hence we need to explore causes—causes over which we can exert control and causes which are beyond our control—in order to improve our mental and emotional condition. Essentially we all seek mental equilibrium, poise, or stability within the context of our respective lives. Within this setting we have certain desires and expectations. Thus we become disturbed and upset when something we expect or want appears to be or is denied to us.

Whatever the causes of depression, all are within the province of our control. We can take several steps to fulfill most of the requirements necessary to live a joyous life.

Some significant areas in which we can exercise control of our emotional and mental well-being are:

1. *Our health regime.* We can adopt and closely observe our biological requirements. Though we may be subject to many of the stresses modern society imposes upon us, we will fare far better if the basics of life are correct. The Life Science/Natural Hygiene program is scientifically correct, for it is based squarely upon our natural adaptations. It is within our province to decide to live healthfully and to pursue it diligently.
2. *Our thoughts.* We can think constructive thoughts instead of destructive ones. If we harbor animosities or the disapproval of others, we injure our minds. We must psyche ourselves into thoughts that are optimistic and positive in nature, and quash our thoughts that are negative in nature. It is said, "As you thinketh, so shall you be." By focusing your thoughts and reflections upon yourself and your relationships with the world, and directing your attention to how you can improve yourself and your interaction with others, you'll be laying the foundation for mastering your own destiny and happiness. Should you feel defeated or depressed, despondent or in despair, you can refuse to indulge in those thoughts that perpetrate these mental states.
3. *Accept the world as it is.* Accept and adapt to changes and look upon them as challenges rather than trying to resist them.

When we are in rapport with the world, we can take advantage of events and conditions rather than lose out by resisting them. In doing so, we create a positive influence on *ouselves* and those around us. We must be committed to what we believe but we must be *realists* and know what we can and cannot do.

We must, finally, address ourselves *honestly* to the limit of our reach. Each personality has its limits—to extend ourselves beyond our capabilities will only lead to self-pressure and our bodies will automatically become stressful. And that mental serenity will escape us.

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Lesson 65 - There Are No Cures

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1. Introduction

Many of the methods of treatment that were often prescribed by physicians during the 19th century and before are today considered useless and life-threatening. But the physicians during that time persisted in such practices as bleeding, blistering, purging, and the use of heavy metals, especially mercury, because they witnessed that, in some patients, symptoms would disappear. This, however, was an illusion. Symptoms were suppressed but there was no recovery of health. Indeed, many people died because of the treatment but the physicians did not recognize that the "cure" itself was the direct cause of the deaths.

Since that time, there has been a constant search for that elusive "cure." Harmful results occur when people become so convinced that these "cures" will restore health that they rely upon this illusion instead of looking to their modes of living as the real cause of their ill health. You must, therefore, strive to become more independent thinkers. You must begin to question "cures" and seek the truth by seeing things from a different perspective.

If a certain drug is found particularly harmful and taken off the market, we are told that we should not doubt the effectiveness of all of these agents. However, we should not follow ourselves to be deceived by them. One may feel better for awhile after taking one of these symptom-suppressing agents, but our so-called "cure" is a deception. The "cure" will not last. By seeking the truth, we will be lead to the true cause of disease and from this we may know how to regain our health.

A good example of how the American people have been misled by this delusion of "cures" lies in the practice of immunization. People have been told that vaccines build up antibodies that protect the vaccinated from disease. This is a false claim. Disease is the result of unhealthful living and one cannot be "immunized" against his errors in living.

Any violation against physiological law always results in sickness. This would include any failure to meet sleep requirements, proper food, air, water, sunshine, exercise, or other needs The body's ability to adapt is remarkable but freedom from symptoms is a delusion when it is produced by drugs in contravention of physiological functions. Under such circumstances, the body will inevitably become exhausted and more chronic illnesses will ensue.

The adverse effects of drugs were illustrated in a previous lesson and more and more people are realizing the dangers of these poisons and are looking elsewhere for "cures." Thus, we see many drugless practitioners throughout the country promising all sorts of "cures." This lesson will review some of the more popular "cures" and it will be demonstrated that they are harmful and, at best, relatively innocuous.

You should keep in mind that there are no "cures." There is no diet, no herb, no massage therapy that will restore health if the underlying cause of sickness is not removed. As we have stated before, health will result only from healthful living.

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2. Herbal "Cures"

2.1 History

Herbs have been used throughout recorded history as "cures" for various ailments. However, the use of herbs came into the forefront more formally in the late 1700s and early 1800s. Samuel Thomson is credited for the wide spread of this practice during that time in history. During that time, the regular medical practice included harsh bleed, purge, and blister methods. The popularity of the Thomsonian sect arose not necessarily from their success in curing patients' ills but from the fact they seemed to kill fewer patients than did their entrenched competitors—the regular medical practitioners. Thomson's empirical system was based largely on the use of steam and herbs.

Many people opposed the regular profession, but they had no more knowledge of how to remedy its deficiencies than did the regular physician. They found many aspects of regular medicine repugnant but they did not know why or how they were undesirable. The public could only choose among the alternatives available at the time.

Thomson saw his mother die of measles in spite of the care of several local physicians (or was it because of their treatment?); earlier, he felt he had "cured" himself of the same disease through the use of botanies. The illusion is that what appeared to "cure" did not. At best it was less harmful than the regular mode of therapy and therefore the body was able to overcome this drug obstacle and achieved the purposes for which it instituted the healing crises. A year after his mother's death, Thomson's wife became severely ill following childbirth. Several local physicians treated her, but her condition continued to worsen. As she neared death, Thomson wisely dismissed the traditional practitioners and their poisonous treatments. He then called in the local "root doctors." One day later, his wife appeared "cured." Of course, the herbs did not "cure" but the body promptly set about the process of healing when the deadly drugs were removed.

On another occasion, Thomson badly lacerated his ankle with an axe while clearing some virgin land with his father. After a number of treatments, including soaking it in turpentine, he naturally became worse. He then ended up at the home of one Dr. Kitteridge who treated the wound with herbs and was credited with healing him. The body cannot heal if it is continually assaulted with toxins. When toxic herbs are removed, healing and repair are accelerated. Dr. Kitteridge or his herbs did not assume healing obviously. Herbs cannot help. They present less of an obstacle to the body than the harsh treatment of medical practitioners.

These incidences were enough to convince Thomson that herbs had the power to "heal" and the Thomsonian Sect began to emerge. Thomson became convinced that all disease arose from one general cause and that one remedy could effect a "cure." The cause was cold and the cure, heat. He, like the Greeks believed, "all animal bodies are formed of four elements, earth, air, fire, and water." Any imbalance among these four elements which reduced the power of the heat resulted in illness. To effect a cure, one must restore the balance. Thomson sought to restore the balance through the use of purgatives, enemas and sweat producing botanicals. The chief ingredient was lobelia, an emetic which grew wild in much of North America. To this he might add capsium, hemlock, bayberry, ginger, or pepper, and cloves to make a concoction often referred to as "Composition Tea." What Thomson did not realize is that you cannot poison anyone into health. But he killed fewer people with his method than the regular practitioners and was therefore considered successful.

Thomson patented his system and marketed it through representatives who traveled about the country selling copies of his two volume work, *New Guide to Health; or Botanic Family Physician.*

The treatment that Thomson advocated was rather harsh. As with the regular therapeutics, if the patient recovered, it was in spite of the treatment and not because of it. The following is one patient's account of treatment that he received (Frank G. Halstead, "A first-hand account of a treatment by Thomsonian medicine in the 1830's" *Bulletin of the History of Medicine* 10 (1941): 680-687.):

> "The Thomsonian treatment is a steam bath 30 minutes in duration. When the sweat rolls off as thick as your finger the body is washed with cold water and the patient is straight-way put to bed with hot bricks to bring back his heat. Then a powerful vomitive is administered, composed of bayberry, of cayenne (red pepper) and lobelia, which suffer naught impure to remain in the stomach, and all these herbs are mixed in 40 proof brandy, after which warm water is drunk until there has ensued the most extraordinary vomiting. Next, the patient rises and takes a second bath, like the first. He takes again to his bed, after having been laved with cold water and is surrounded with hot bricks and remains in bed for an hour. At the end of this time he takes two injections (enemas) of pennyroyal, cayenne pepper and lobelia and the treatment is over for the day."

The fact that this system was of no value is obvious. It is remarkable that the body could withstand such a treatment. Yet some individuals recovered to a certain extent and, as harsh as this treatment was, it was still less harmful than the heroic treatment that it supplanted.

With the death of Samuel Thomson in 1843, his organization (already split three ways) disintegrated. The principal contending factions came to be known as True Thomsonians, the Physio-pathists, the Physio-medicals, and the Eplectics.

2.2 Herbal Medicine Today

Herbal medicine is still practiced today but not on that formal basis. However, there are several misleading books, organizations, and schools that advocate and teach about herbal "cures." We condemn herbs because, first of all, they have no ability to heal arid secondly, they are very dangerous due to their toxicity.

Some authors have been known to advocate the use of the herb squill which is an ingredient often found in rat poison. Mark Bricklin lists some of the most toxic herbs in his book *Natural Healing*.

"In general, it is safe to say that you should never use the following herbs for a home remedy: Jimson weed, daffodils, spurge, arnica, wormwood, mandrake, hellebore, squill, poison hemlock, tobacco, tonka beans, aconite, white bryony, nux vomica, calabar bean, camphor, ergot, ignatius beans, bittersweet, gelsemium; henbane, celandine, belladonna, foxglove, and may flower."

Tansy is a narcotic and may result in abortion. Valerian in excessive doses may result in headache and even delusions. Goldenseal is extremely toxic if taken in stronger doses than one-quarter of a teaspoon to a cup of water. Even in this dose, the poisoning effects are present but they are not immediately noticeable.

2.3 Comfrey (Symphytum Officinale)

Comfrey root will produce a high amount of gummy substance and the root and the leaf are both high in allantoin and pyrrolizidine, substances that are claimed to help with cell proliferation. An increase of cells will occur due to an inflammatory response to the presence of this foreign agent against the skin. Comfrey has no power to heal skin wounds but will interfere with proper healing initiated by the body. When this substance is applied externally to a wound, the outside of the abrasion will close faster than it normally would. This is a response on the part of the body to protect itself so that foreign matter does not enter into the system. As a result, proper healing, from within, is impaired.

It is also claimed that comfrey will help broken bones to knit. This is impossible since healing can only take place from within the body and no agent applied externally or ingested can promote this process.

Many herbalists advocate the use of comfrey as a tea or to be used raw in salads. However, recent studies have proven that this practice may be harmful. According to Dian Dincin Buchman (*Herbal Medicine*, New York: Gramercy Publishing Company, 1979). "Comfrey is in the same plant family as several other plants (Senecio, Crotolaria, Heliotropium), and these plants, investigation now indicates, contain some natural poisons in the form of pyrrolizidine alkaloids. These plants have been implicated in various accidental human and animal poisonings.

"The young leaves of comfrey, thought to be edible and rich in chlorophyll, and used in many natural green drinks, may contain up to 0.15 percent (1,500 parts per million) of the alkaloid.

"Dr. Claude Culvenor of the Animal Health Division of the Australian Commonwealth Scientific and Industrial Research Organization has worked on this subject and studied this alkaloid in pasture weeds. He is particularly conversant with heliotrope, a weed from the same plant family as comfrey.

"He notes, 'At least four of these alkaloids are known to be carcinogens, and it is probable that the type found in comfrey is also carcinogenic. While it is unlikely that anybody eating comfrey in small quantities would suffer serious effects, its regular use as a green vegetable could cause chronic liver damage or worse. Plants in the same family, have caused human poisonings: in the USSR, Africa, India, and Afghanistan after their accidental consumption in bread over a period of one or two years. The evidence of these outbreaks, considering the amount of the alkaloid we have measured in comfrey, suggests that daily consumption of several young leaves of the plant over a similarly lengthy period will lead to serious disease.' "

There are no cures in comfrey and we should eschew this herb. It is, however, useful in the organic garden as an excellent mulch and as an addition to the compost pile as it contains a large amount of nitrogen. Its prolific blossoms also attract honey bees to the garden ensuring proper pollination to all crops.

2.4 Ginseng (Panax Schinseng)

Ginseng is an herb with a long, flesh root that is often used as a medicine. It is a low plant with three leaves on the top. Each leaf is made up of five leaflets. Ginseng has small greenish-yellow flowers. Some of these flowers later produce scarlet berries. The Chinese use ginseng to "treat" many illnesses. The name of this plant comes from Chinese words meaning *likeness of a man*, because of the shape of its root. Those shaped most like a human body are said to be the most valuable.

American ginseng is cultivated chiefly in Michigan, Minnesota, Oregon, and Wisconsin. The plant glows wild in pans of the United States and Canada.

Ginseng is a stimulant for the central nervous system. It is often taken as a tonic, a "pick me up," to sharpen the memory, suppress coughs, ward off colds, etc. This drug effect will eventually lead to extreme enervation and chronic diseases due to the constant stimulation and suppression of symptoms.

2.5 Cayenne Pepper (Capsicum Minimum)

The official name, capsicum, is derived from the Greek word "to bite," and a single taste of this substance will convince you why it was so named. This "biting" effect on the tongue and mouth will give you a clue as to what effect it has on the internal digestive tract. It is a powerful irritant and poison. It is taken for its stimulant effect which are, in reality, nature's efforts to eliminate this poison as soon as possible. Cayenne pepper should never be taken in any form, in any amount.

2.6 Peppermint (Memha Piperitu)

Peppermint is a favourite beverage all over the world. It is taken for a suppressive effect on the digestive system to control diarrhea, spasms, and relieve indigestion. Peppermint is very high in tannin which is a very astringent acid and its use results in enervation and impairment of normal metabolism.

There are many other herbs that are commonly used but we should eschew them all. They do not have any property to "cure" and they contribute to ill health due to their poisonous products.

2.7 Aloe Vera

Aloe vera is a cactus that grows outdoors in tropical and subtropical climates and indoors everywhere else. When you break open one of its leaves, you see a thick, clear liquid ooze out.It is this liquid that is claimed to be a "cure" for burns, ulcers, arthritis, diabetes, high blood pressure, psoriasis, shingles, hemorrhages, post-surgery treatment and more. It is applied topically and taken internally in a liquid form. However, instead of curing anything, it is actually a toxic substance. It contains *allontoin* which results in the same adverse effects as the alkaloid of comfrey. A cathartic, its purgative properties are due to three pentosides (barbaloin, iso-barbaloin, and beta-barbaloin) and to a resin. The resin is aloetin.

Aloe emodin occurs in the free state and as glycoside in various species of aloe and is extremely irritating to the delicate linings of the intestinal tract. The body attempts to discharge this poison quickly. Hence, its purgative effects.

But what about the claims? Many people experience that their sores, burns, and ulcers heal almost immediately after applying aloe vera, where otherwise would heal very slowly. The body is continually striving toward health and will do all it can to protect itself from any poisonous substances. When aloe vera is applied to an ulcer, the body closes off that opening as quickly as it can to block the entrance of that poisonous substance thereby protecting itself. This gives the false impression of proper healing. However, when the ulcer was an outlet for toxic materials, this vital outlet is closed off and toxins are kept inside the body. Now a new outlet must be found. Either other ulcers will form or more serious diseases will result.

If you do not interfere with bodily intelligence, healing will take place. To "intelligently do nothing" is the best advice for all ulcers, psoriasis, etc. That is, simply follow the teachings of Life Science/Natural Hygiene and your body will surely be vital enough to heal itself promptly.

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3. Acupuncture

The principles of acupuncture are based on cell paralysis. The idea on which Chinese medicine is founded is the "Doctrine of the Two Principles: Yang and Yin." According to this philosophy, everything in the universe is governed by these two principles. Yang is the masculine principle, Yin the feminine. They are opposite in all aspects. Yang stands for heaven, Yin for earth. Yang is heat, Yin is cold. Life and death, strong and weak, positive and negative, day and night, dry and wet, hard and soft, light and dark—all these are Yang-Yin—pairs of opposites. Unless these two forces are in exact balance, according to Chinese folklore, health, peace, and well-being are impossible to attain. When the relationship between Yang and Yin get out of balance within a person's body, illness results. The task of the physician, then, is to restore health by renewing the equality of Yang and Yin, according to the Chinese acupuncturist.

The Chinese regard acupuncture as a complete medical system based upon the principle that man is a part of nature. Since nature is precise, then therefore, man is precise. Predictable order reigns in nature and in man. They claim that disturbance in that order results in illness and it is the acupuncturist's work to restore that order and thereby "cure" the illness. By inserting hair-thin needles into certain points on the body, acupuncturists treat disease and malfunctions of every organ of the body. The Chinese people believe that channels of energy, called "meridians" run through the body. In acupuncture, needles are inserted at specific points along the meridians.

Illness is explained in terms of disharmony between man and nature, and in man, between Yin and Yang. Illnesses are either Yin or Yang and the therapy used to "cure" them will be either Yin or Yang.

Ch'i comes into the body at birth and leaves at death. During person's lifetime it flows in a specific and continuous pattern in the forms of Yin and Yang. Ch'i does not inhabit the body at random, although it is present throughout the organism. Instead it flows inside a system of channels called "meridians" that extend into the arms and legs and around the torso beneath the surface of the skin. These meridians are not the vessels of the circulatory system that carry blood. They are not the nerves of the central nervous system.

The Chinese contend that Yin and Yang may not be equal—one rises as the other falls—but their total amount must be properly distributed among the organs for the body to remain healthy. In any organ, Yin and Yang are delicately balanced with each other. Illness results if the balance is disrupted. At certain times of the day, the Yin or Yang "influence" will be stronger than its counterpart, but this is a normal rhythm and will not cause illness or disease. When an imbalance causes sickness, the acupuncturist tries to discover where Yin or Yang has become too strong and with his needles restore the balance, as prescribed in an ancient book called the *Nei Ching*. The illness supposedly disappears when he has done this successfully.

Such treatment based on superstition and opposed to physiology must be discarded. Acupuncturists hold no "cures" and their needles cannot possibly heal. They can do harm if they strike a nerve and damage it. Cleverly-placed needles distress the nerves, resulting in the secretion of narcotizing encephalins, but this procedure cannot possibly restore health. One is anesthesized into relative unawareness of illness.

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4. Megavitamins

Vitamins resemble enzymes in their catalytic action, producing changes without undergoing any changes in themselves. They are active in extremely minute quantities.

Vitamins are constant constituents of living tissues and they make it possible for the body to utilize proteins, carbohydrates, fats, and minerals and are essential to growth, regeneration, and maintenance of health. They must be taken in the context of whole foods since there is a distinct relation between the amount of vitamins required and the other food elements. As Dr. Shelton tells us, the efficiency of the vitamins is dependent upon the composition of the food mixture.

Adverse changes take place when an excessive amount of vitamins are taken in concentrated form, especially vitamins A, E, and D. The other vitamins can be harmful, too, but these are the fat soluble vitamins and are difficult to eliminate and oxidize when taken in excess. As a result, you have abnormal changes that take place in the cells.

If the vitamins and minerals have been separated from their natural partners or nutritive elements that stabilize them and work harmoniously with them, they become harmful. There is not an isolated nutritive component that can lead to the same kind of activity that results when nutritional elements are derived from a natural source. In an extracted form, there is some activity but if is not a normal one.

The vitamins that are contained in fruits, vegetables, and nuts are much more available than those derived from other food sources, such as flesh foods or any cooked foods. The vitamins in synthetic form are not utilizable at all.

Even those vitamins derived from raw foods may not be utilized due to certain abnormal interferences such as the inhibiting effects of tobacco upon digestion, the use of coffee, tea, and other such substances. Also, the use of vinegar and condiments inhibit digestion and thus prevent vitamin utilization.

The body uses vitamins and minerals synergistically with one another. For example, the utilization of vitamin C is better with iron and the B complex. The B complex is used better with A and D. Such minerals as zinc, manganese, and magnesium are necessary for best utilization of vitamin C and B complex. In whole raw foods, we receive the vitamins and minerals in correct proportions so that they are used appropriately.

Concerning the use of synthetic vitamins as "cures" Dr. Shelton says:

> "The use of certain vitamins is said to 'cure' certain 'diseases.' We must not permit ourselves to be misled by these claims. They have no more validity than the claims that drugs, or other such substances, 'cure' disease. There is no so-called disease that is due to a unitary cause—every disease is the complex effects of a number of correlated antecedents—and no disease is *curable* by a unitary *cure*. On the other hand, practically all of the so-called deficiency states that are said to require vitamins for their cure, will and do get well while the patient is fasting and drinking only distilled water. The wild enthusiasm caused by the discovery of vitamins will sooner or later, give way to sober reflection and it will then be recognized that the research workers and others have permitted their enthusiasm to run away with their judgment."

A study was conducted to determine the link between adequate amounts of vitamins and the ability of the liver to produce a group of enzymes that inhibits the action of carcinogens. Laboratory animals were fed an artificial diet that included sufficient quantities of all known vitamins, minerals, and other nutrients in a highly-purified form. The animals were unable to produce the important liver enzymes. When small amounts of alfalfa were added to the artificial diet, the enzyme production began almost immediately. Other fresh vegetables—cabbage, brussels sprouts, turnips, broccoli, cauliflower, dill, and celery—also enabled their systems to produce the anti-carcinogenic enzymes.

We cannot utilize inorganic vitamins and minerals. All the essential nutrients that we require are provided in abundance in a diet of raw fruits, vegetables, and nuts. If our diet is correct, we do not have to worry about deficiencies of any kind.

4.1 The Vitamin E Cure

Vitamin E is widely promoted as a preventive, a treatment, or a "cure" for literally scores of human ailments—ranging from diabetes and heart disease to infertility, ulcers, and warts.

A consumer's report cited an early experiment conducted to determine whether vitamin E was a valid therapy:

> "In 1953 M. K. Horwitt, M.D., head of the Biochemical Research Laboratory at Elgin State Hospital in Elgin, Illinois, made the first study of what happens when humans are maintained for protracted periods on low-E diets. The project spanned more than eight years —making it one of the longest as well as one of the most thorough studies of human metabolism under controlled conditions. A total of thirty-eight subjects participated in the study
>
> "The outcome of the project can be simply stated: There was no apparent physical or mental impairment caused by the restricted intake of vitamin E. Low-E patients remained in satisfactory health, despite the fact that blood levels of alpha-tocopherol were lowered by 80 percent. The survival time of their red blood cells became somewhat shorter—on the average, about 100 days instead of 123—than that of the two comparison groups (those on a low-E diet who received vitamin E supplements, and those on a standard diet). But the number of cells remained adequate and no patient became anemic. Nevertheless, the shorter survival time was considered sufficient reason for termination of the experiment. In earlier studies monkeys maintained on diets severely deficient in vitamin E had developed anemia, and Horwitt did not want to risk that possibility with the Elgin patients. In short, the study showed that human beings apparently need some vitamin E, but that the requirement is a modest one and can be easily satisfied by typical, everyday diets."

Vitamin E enthusiasts claim that millions of Americans, especially those whose intake of polyunsaturated fats is low, don't get enough vitamin E in their diet. The deficit, they insist, should be made up by vitamin E supplements. The fact is, however, as the National Research Council made clear in 1973, that vitamin E is available in adequate quantities in the ordinary diet. More than adequate supplies are in vegetables or fruits or nuts.

In a report published in March 1979, a recommendation against the over-the-counter sale of vitamin E supplements on the grounds that deficiencies of vitamin E are "practically nonexistent." Currently, the Recommended Daily Allowance of vitamin E for adults is 12 to 15 International Units, equivalent to approximately 8 to 10 milligrams of natural vitamin E in foods.

Very low levels of vitamin E have been found in patients with cystic fibrosis, celiac disease, nontropical sprue, chronic pancreatitis, and a few other diseases. These disorders are not caused by lack of vitamin E, however, nor can they be helped by vitamin E. All of these ailments have one feature in common: an impairment in the small intestine's ability to absorb fat. Consequently, the vitamin E dissolved in that fat is not absorbed either. Even if such patients eat diets with an abundant quantity of vitamin E, very little of it would reach their bloodstreams.

The doses of vitamin E specified in medicinal use commonly range from 300 to 600 milligrams a day or even higher—from thirty to sixty times the Recommended Daily Allowance. Clinical trials have failed to show any vitamin E benefits for miscarriages, sterility, menopausal disturbances, muscular dystrophies, cystic fibrosis, blood disorders, leg ulcers, diabetes, and a variety of heart and vascular diseases. No drug, including vitamin E, can "cure" these diseases because the causes for them are not dealt with. The 1973 statement by the National Research Council was also negative about the supposed value of vitamin E supplements for the wide variety of ailments for which vitamin E is promoted.

The efficacy of vitamin E in toilet soaps or cosmetics for skin care, despite advertised claims, has not been demonstrated. We know that no substance possesses any curative properties. Its proposed advantage in a deodorant was ruled out when the distribution of *Mennen E* was halted by its manufacturer because of an unexpected number of adverse reactions in unhappy users.

4.2 Vitamin C

Vitamin C has been recommended to combat cancer, atherosclerosis, every "viral" disease, every so-called bacterial disease, poisoning of all kinds, mental illness, colds, injury, temperature extremes, old age, diabetes, allergy, cataracts, kidney stones, radiation sickness, arthritis, headaches, and bee stings.

While vitamin C plays a very important role in human physiology, it does not have the ability to wipe out the effects of unhealthful living that result in numerous acute and chronic diseases.

Since Dr. Pauling declared that vitamin C was a sure "cure" for the common cold, millions of Americans have been running to their neighborhood drugstores to obtain this vitamin. The effect of this practice is really a drug effect. While the body is eliminating excesses of vitamin C, other housecleaning duties (such as debris eliminated during colds) are temporarily halted. Thus, the illusion of "prevention" or "cure."

All fresh raw fruits and vegetables contain several times over the vitamin C that we need. When cooked, however, this vitamin is readily destroyed and is, therefore, not available to us. It is important that we consume all our foods raw and as fresh as possible. Even in the winter, when freshness is lacking in many of our fruits and vegetables, we still receive a more than adequate supply.

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5. Reflexology (Zone Therapy)

Reflexology is a specialized form of massage and, among the many claims, it is said to be able to restore normalcy of function and give relief from pain to virtually any part of the body. The two basic modes of this therapy are foot reflexology and hand reflexology.

According to reflexology therapists, organs or parts on the right side of the body have their reflex areas on the right foot or hand. Organs on the left side of the body have their reflex areas on the left, foot and hand. Organs extending past the middle or center of the body will have reflex areas on both feet and hands. Where there are two like organs or parts (kidneys, ovaries, etc.), each has a reflex area on its corresponding foot and hand. The lower half of the body has its reflex areas on the lower half of the, foot, and the upper half of the body has its reflex areas on the upper half of the foot. The waistline is located approximately halfway between the base of the toes and the lower part of the heel.

It is said that reflexology stimulates the internal organs and increases circulation. It is based on the theory that if the body is in a healthy condition, with no congestion in it, no tender areas should be found on the feet. The tenderness, they say, is caused by crystalline deposits that form at the nerve endings in the feet. The purpose in doing compression foot massage is to break up these deposits (or crush them) so that they may become solvent and be carried away with the rest of the waste material in the body. Once these deposits are dissolved, the congestion is relieved, and the circulation to the body is improved.

This theory sounds reasonable, but like other therapies, it is based on symptomatic relief. It does not restore health because it does not remove the underlying cause of ill health. There can not be any "cures" through this method or any other if the causes of disease are left in force. Calcium deposits that may be deposited in the feet are the result of incorrect living habits. Simply removing these deposits does not create health.

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6. Relaxation Therapy

When the fight-or-flight response is evoked, it brings into play the sympathetic nervous system, which is part of the autonomic, or involuntary nervous system. The sympathetic nervous system acts by secreting specific hormones: adrenalin or epinephrine and noradrenalin or norepinephrine. These hormones, epinephrine and its related substances, bring about the physiologic changes of increased blood pressure, heart, rate, and body metabolism.

Dr. Herbert Benson (*The Relaxation Response*, New York: William Morrow and Company, Inc., 1975) says:

> "While the fight-or-flight response is associated with the overactivity of the sympathetic nervous system, there is another response that leads to a quieting of the same nervous system, indeed, there is evidence that hypertensive subjects can lower their blood pressure by regularly eliciting this other response. This is the Relaxation Response, an opposite, involuntary response that causes a reduction in the activity of the sympathetic nervous system. Since we cannot easily change the nature of modern life, perhaps better prevention and therapy for hyoerten:ior and other creases related to the fight-or-flight response might be achieved by actively bringing forth the Relaxation Response."

It is true that stress does affect our health and we should learn to deal with this problem. It is also true that we need rest and relaxation on a daily basis. But this aspect alone will not produce health. All the other requirements for health must also be present in one package of totally healthful living. There are no "cures" in the Relaxation Response. If blood pressure is lowered, or metabolism is lowered through this method, this does not indicate that total health has been achieved. One or two symptoms of ill health may have temporarily disappeared, but that is all.

It has been claimed that people have been "cured" from such symptoms as facial pain after a single session of this therapy. Do not be fooled by this illusion. Ill health is developed after a period of time and the body needs time to heal. It cannot accomplish this task in a few minutes or a few days, it takes time. But when the proper conditions are provided (e.g., through a fast), the body will restore health.

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7. Ultrasound Therapy

The device used for ultrasound therapy consists of a small box. On its face are a few simple dials and gauges. Attached to a cord running into the unit is a transducer similar in appearance to a small bathtub shower spray extension. This transducer emits a stream of sound waves, at a frequency so high that they are inaudible to the human ear.

When this therapy is applied, a gel is spread on the surface of the body that is to be treated. When the transducer is placed against the injured part, the gel keeps the sound waves from being lost in the air.

On the box of the ultrasound unit is a dial where the ultrasound frequency may be set. It produces heat as the sound waves rub against cell molecules and cause them to vibrate. This heat penetrates just slightly under the skin but the ultrasound can penetrate into the joint.

This therapy is often used for persons with arthritis associated with calcium Deposits. The ultrasound waves break up the calcium which then disperses. One main problem is that it can also effect healthy bone and cause destruction there. The higher the ultrasound frequency, the greater the risk of bone damage. Since this therapy is still really in experimental stages, it is unknown what is a safe frequency, if indeed, there is. a safe range and also how long to apply the treatment. Besides being risky, no real and long-lasting benefit can be achieved. Calcium deposits may be broken up but the cause for their deposition has not been removed. They will, therefore, once again accumulate. At best, it is palliative. On the other hand, it can destroy healthy tissues and bones.

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8. Radiation Therapy

Repeated surveys have shown that those physicians who have the most contact with radiation (radiologists) have a significantly higher incidence of leukemia—at least nine times greater than that among all other males of the same age and at least four times greater than that for other physicians.

8.1 Radiation Destroys Cells

As atomic radiation permeates living tissues, highly-organized units of living matter in the cell are disrupted. Fundamentally, the cell is composed of atoms and molecules which are split by radiation into electrically-charged fragments. This ionization process is completed in less than a trillionth of a second, yet it triggers off a chain reaction of subtle events within the cell leading to its damage or eventual death. Since cells are not inert blobs of matter but living, reproducing, organisms, they react to the radiation-induced injury by repair processes which lead to apparent recovery. If the radiation dose is overwhelming, immediate or only slightly delayed death of the cell ensues when the cell attempts to divide.

Radiation also harms cells by producing changes in the environment. Cells are bathed by solutions from which radiation-produced activated products can reach and damage them. Also, cells can be damaged by interference with their blood supply and the action of poisonous products released by radiation-killed cells themselves.

8.2 Tissue Damage

Since tissues are a specialized population of cells, their exposure to radiation causes damage as a consequence of injury and death of the component cells. The overall effect involves not only the direct action of the radiation on the individual cells but changes in the surroundings of the tissues.

One tissue may give an immediate response to radiation and another no apparent or detectable response. However, the seemingly unresponsive tissue may show injury at a much later date. The recovery of tissues from immediate radiation injury depends on the specific cell types, or the size of the radiation dose, and on the time between repeated irradiations. These factors have been summarized by Doctors E. G. Williams and S. C. Ingraham II in a United States Health report for 1956 (Jack Schubert, *Radiation* NY: Viking Press, 1957):

> "The blood-forming organs, the skin, the membranes lining body cavities, and the secreting glands may regenerate completely and resume their normal functions. Muscle, brain, and portions of the kidney and eye cannot regenerate; their repair results only in scar formation. Even those tissues that can regenerate may fail to respond after repeated ionization and cause conditions such as nonhealing ulcers or aplastic anemia (bone marrow destruction). Also,

> repeated regeneration may produce cancerous conditions ... These changes have all been observed in animals following radiation exposures at levels corresponding to doses only slightly above the accepted safe limits for man. There are no constant clinical symptoms which can be relied upon to warn of latent radiation injury before life-threatening changes become manifest."

8.3 Effects on Genes

No cell fully recovers from a dose of radiation. While a cell may seem to recover, there is an irreversible effect on the chromosomes and genes. According to Drs. Williams and Ingraham: "Ionizing radiation can alter the genes in the body (somatic) cells and in the reproductive (sexual) cells and cause them to grow or reproduce abnormally. If a gene change occurs in a sexual cell, a mutation will occur in later generations provided that the cell is used in reproduction. If a gene change occurs in a cell of growing or regenerating somatic tissue like skin, liver, or bone marrow, it may cause cancerous or other harmful changes in the exposed individual."

8.4 Hormonal Disturbances

The late effects of radiation are often produced in cooperation with disturbances in body function in general. One of these disturbances in particular—hormonal imbalance —can in itself aid and abet the cancer-producing effects of radiation or even delay years the appearance of the cancer. Consequently, in evaluating the changes wrought by radiation in the body we must also take into account the complex inter-relationship existing between the various organs and the hormones released by the different endocrine glands.

Dr. Schubert theorizes that since hormones influence the regeneration and growth of almost all the cells in the body, it is reasonable to assume that many of the late changes and cancers developed in the body after radiation are related to the impairment of the endocrine glands such as the pituitary, thyroid, gonads, and adrenals, either as a result of the radiation directly on the endocrine organ or, indirectly, because of damage to a distant organ which then brings forth a response from the endocrines.

Since a female child possesses at birth all the ova she will ever use, it is very important to note that exposure of the ovaries to radiation affects eggs which are to be fertilized in the future. Thus, radiation damage is preserved by the ova and may result in defective children. Even if the children appear normal, they may carry defects in their heredity (the genes) which will be manifest in later generations.

8.5 Depression of Cells

A single dose of 50 r to the whole body causes the number of lymphocytes to drop by one-half in about "two to three days. It takes about a week for it to return to the preradiation level. After higher but nonlethal doses of radiation, the lymphocyte drop is abrupt and little or no evidence of recovery may be apparent for several months. In fact, it may take years before the number of white cells returns to normal. Another significant observation is the fact that individuals previously exposed to radiation show a greater depression of cell numbers upon subsequent radiation exposure.

8.6 Brain Damage

The brain is considered to be relatively insensitive to small radiation doses, but this does not mean there is no damage—it means rather that there exists no suitable means of detecting damage, or that it has not beer, looked for, or that no cases have been followed for a long enough time. One must be suspicious of all tissues to which radiation has been given.

Relatively small doses of radiation to localized regions of the brain give immediate effects. In 1953, two volunteers were given 100 r to a localized region of the brain (diencephalon). About one and one-half hour; later they complained of ringing in the ears, generalized numbness, and apathy. Shortly thereafter they felt mentally stimulated. Sleep that night was very deep. The next morning they were very active and "high." Then they became unusually quiet. The disturbances lasted about seven to ten days. These effects were confirmed in another experiment involving 120 persons.

There have also been several reports of brain damage in persons given heavy doses of radiation for brain tumors or for scalp lesions.

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9. Laetrile

Derived from apricot pits, which contain cyanide, Laetrile was considered too toxic for human use by its discoverer, a Californian, Ernst Krebs, Sr., M.D. But years later, after his son, Ernst Krebs, Jr., claimed to have "purified" Laetrile, both father and son advocated it as an effective treatment for cancer. The Krebses patented their promising product as "Laetrile"—an acronym derived from the chemical name Laevo-mandelonitrile, the cyanide-containing substance they extracted from the crushed kernels of apricot pits.

The next step was to explain how Laetrile worked. With a little imagination, the younger Krebs came up with a "magic bullet" theory. Cancer cells, he claimed, contain an abundant amount of an enzyme that releases cyanide from Laetrile. The cyanide, in turn, kills off the tumor cells. Normal cells are low in that enzyme, the Krebs theory went, but rich in another enzyme that detoxifies the cyanide. So normal cells live while cancer cells die.

This theory was proved to be wrong. The supposedly abundant "releasing" enzyme is scarcer in cancer cells than in normal ones, and the "protective" enzyme is found in equal amounts in both kinds of cells. Moreover, cyanide does not have bullet-like precision. Because cyanide diffuses rapidly across intercellular barriers, any destructive effects would spread to both cancerous and noncancerous cells.

Its promoters then took a different course. Laetrile, the drug, was suddenly transformed in 1970 into Laetrile, the vitamin. Cancer, according to the later theory, was a vitamin-deficiency disease. Laetrile, it went on, was "vitamin B-17," the "missing vitamin" needed to prevent and treat cancer.

Besides daily injections or oral doses of Laetrile, the "total holistic metabolic nutritional" regimen includes massive doses of vitamin C and other vitamins, chelated mineral supplements, even coffee enemas. The Laetrile-centered regimen emphasizes a strictly vegetarian diet, free of all animal protein. Often another nonvitamin B-15 or "pangamic acid," is prescribed (B-15 is also the creation of the same Ernst Krebs, Jr., who christened Laetrile "B-17").

Laetrile is one of the most tested substances ever put forward as a remedy for cancer. In 1953, the Cancer Commission of the California Medical Association investigated Laetrile and found it ineffective. As part of that study, the commission discovered that all but one of forty-four patients treated with Laetrile still had an active form of cancer or were dead.

The most comprehensive series of animal tests were done at Memorial Sloan-Kettering in New York City. From 1972 to 1976 approximately thirty-seven experiments were conducted using Laetrile on mouse and rat tumors. Laetrile neither prolonged life, nor reduced tumor size, nor checked the spread of cancer.

Medical records submitted by Laetrile proponents have never substantiated the claims made. Many cancer patients who believe they had been cured by Laetrile find out later that they still have the disease.

Others never had cancer to begin with. Some cancer patients have temporary remissions—periods when symptoms lessen; if Laetrile use coincides with such a remission, the patient may think Laetrile was the cause.

The FDA's pharmacological analysis, in 1977 indicated that Laetrile smuggled or imported from Mexico in the form of oral doses and vials of injectable material under the names of "Laetrile" and "amygdalin" were potentially lethal sources of cyanide. Laboratory tests hinted that amygdalin might even be cancer-causing in its own right.

Jerry P. Lewis, M.D., chief on onncology and hematology at the University of California School of Medicine in Davis, reported late in 1977 the case of a seventeen-year-old in Los Angeles who swallowed approximately 10 1/2 grams (one-third of an ounce) of injectable Laetrile. The young woman had a convulsion ten minutes later, and died without recovering consciousness. In mid-1977, a ten-month-old girl died in an upstate New York hospital a few days after gulping down several Laetrile-tablets. Beyond these documented deaths, the FDA toxologists suggest that many cancer patients whose death after long-term, high-dose Laetrile medication was attributed to their malignancy actually succumbed to slow cyanide poisoning from Laetrile.

In addition to being deceived, the patients or their families have to pay dearly for the deception.

Laetrile therapy does not come cheap. The cost of 6 month's treatment at a Mexican clinic has been estimated at between $1,500 and $2,000. Laetrile smuggled into the United States is priced as high as $50 for a half-ounce vial for injection, compared with a $9 price tag in Tijuana. Tablets sell for nearly two dollars in this country, but cost only about three cents to manufacture.

Cancer is the end point of a lifetime of unhealthful living and the accumulated toxins that results from such a lifestyle. Adding more poisons to our body as "medicines" will not produce health.

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10. Spurious Products Sold Through The Mail

Probably the most extensive study of mail-order health advertising was done in the summer of 1977 by the quackery committee of the Pennsylvania Medical Society. The committee screened five-hundred nationally-circulated magazines and found that about a quarter of them carried ads for mail-order health products. Altogether, about one-hundred-fifty such products were offered by fifty promoters. The products included weight reducers, bust developers, blemish removers, hair-loss remedies, longevity formulas, aphrodisiacs, impotency aids, and others.

According to Postal Service estimates, mail-order fraud costs Americans at least $150 million a year.

In January 1978, some two million copies of a four-page brochure were accepted for insertion into the various editions of eighteen city newspapers from coast to coast. The brochure promoted a handbook, "Modern Solution to Age Old Physical Problems," published by the Midwest Health Research Laboratory. The handbook, it was claimed, "contained a solution or prevention for as many as forty different diseases and illnesses," including arthritis, diabetes, and hardening of the arteries. More than one thousand readers surrendered to the inviting logic of the promotion: "Our special introductory offer of $9.95 can save you unnecessary visits to the doctor, the hospital, and save you money."

Those who mailed money received a twenty-five-page booklet revealing the secret cure-all and end-all of disease —"colonic irrigation," otherwise known as an enema, preferably "two and three times a week." Coupons were available for those desiring "personal Home Treatment Kits" at $29.95 apiece.

The *Washington Post* and eleven other prominent publications carried full-page ads for *Thera-Slim-100*, the "diet aid" that supposedly "burns away more fat each 24 hours than if you ran 14 miles a day."

Research conducted by the Consumer's Union resulted in several conclusions concerning some of the more widely-publicized health "cures":

1. Wrinkle removers - No cream or liquid that's safe to put on the skin can do more than temporarily increase the water content of the skin, and then only to the point of masking the most superficial of wrinkles. 'Anti-aging' pills containing RNA, DNA, or other chemicals have no beneficial effect at all.
2. Baldness remedies - Male pattern baldness, the most common type of baldness, is considered to be hereditary. (But other factors are also involved.) Medical science knows of no pill or cream that can arrest that genetically-determined condition. In some instances, loss of hair may also be symptomatic of various emotional and physical disorders.
3. Aphrodisiacs - Most pills and powders with aphrodisiacal pretensions contain 'Spanish fly,' a legendary ingredient celebrated for its purported effect on women. Today's 'Spanish fly' consists mainly of red pepper. It causes nothing more than mild irritation of the urethra. The ginseng root, long used as an Oriental cure-all, has recently acquired a reputation in this country for improving sexual prowess. The FDA has unearthed no evidence to support the root's reputation.
4. Diet pills, protein supplements, reducing devices—there is no proof that such gimmicks are effective for weight loss. Most nonprescription diet pills contain either phenylpropanolamine or methylcellulose. Some evidence indicates phenylpropanolamine can act as an appetite suppressant, but only for short periods. Methylcellulose is a 'bulking agent,' which supposedly expands in the stomach to relieve hunger. There's no evidence that it works. Weight-loss powders are usually accompanied by instructions bidding users to follow a rigid low-calorie diet as well. The diet might very well promote a weight loss, but protein products contribute nothing. Clinical studies by the FDA have shown that 'body wraps'—devices wrapped around parts of the body for selective weight loss—are useless. Some can be harmful.
5. Megavitamins - Everyone recognizes that adequate amounts of vitamins are necessary for good health. But none has ever shown that extra large or 'megavitamin' doses produce better health. Depending on the vitamin, amounts beyond the National Academy of .Sciences/National Research Council's Recommended Daily Allowances can be dangerous or just a waste of money. Too much of the fat-soluble vitamins A and D can build up in the body to dangerous levels. Doses of water-soluble vitamins that exceed what the body can use are simply excreted in the urine.

There are many other "cures" being sold through the mail and magazine advertisements, but all are worthless. They are all dishonest attempts to make money from an uninformed or unknowing public. There are no "cures."

11. High-Fiber Diets

It is claimed that this single dietary factor plays a role in such diseases as appendicitis, diverticular disease, polyps of the large bowel, cancer of the bowel, irritable colon, hiatial hernia, gallbladder disease, diabetes, atherosclerosis, coronary artery disease, obesity, hemorrhoids, varicose veins, thrombophlebitis, and dental disease.

Dr. Benjamin H. Ershoff, a research professor of biochemistry at Loma Linda University and the

University of Southern California, points to many studies conducted during the past twenty years that he says indicate the beneficial effects of plant fiber-containing materials when administered to animals fed on low-fiber diets. But the beneficial effects are seen when this fiber is part of the natural food and not separated from it.

In 1943, two American medical investigators observed that immature mice who were being given a compound related to vitamin C—glucoascorbic acid—developed a severe condition characterized by growth failure, diarrhea, hemorrhages beneath the skin, hair loss, and death. But the condition developed only in mice who were being fed on a highly-refined ration. It did not develop at all in mice fed similar doses of glucoascorbic acid in conjunction with a natural food stock ration or in mice fed the refined diet supplemented with dried grass.

In 1954, Ershoff showed that alfalfa meal, when incorporated in the diet was similarly effective. He continued to see if any known nutrient in the alfalfa meal might account for the phenomenon. It was not a nutrient that was responsible. When juice was extracted from the alfalfa, it had no effect. But the whole alfalfa with pulp included provided beneficial results.

It turned out that various grasses—rye, orchard, wheat, fescue, and oat—were also effective. When cellulose was tried, it had a moderate effect, considerably less than that obtained with the fiber—containing alfalfa and varied grasses.

"Nearly all disease," says Denis Burkett, "has more than one causative factor. Not in any of these diseases would suggest that fiber deficiency is a sole causative factor, merely that it may be one important factor. What I would emphasize is that a fiber-depleted diet is a common factor, common to a number of characteristic Western diseases. It is a major factor, I believe, in some, a less important factor in others, but it is common to each of them and offers the only reasonable explanation put forward, I think, why these diseases are associated."

These diverse diseases are related because the underlying cause is the same in each. That is, an unhealthy and unnatural diet plus other poor living habits. A natural diet of fruits, vegetables, nuts, and seeds will provide us with all of the proper nutrients needed to ensure a state of health. The natural fiber will be there in proper amounts and we do not need to think about providing this one ingredient separately. The fiber is the undigestable part of the plant and we receive no nourishment from it anyway. It is certainly not so important as is claimed. It is not any "cure" since it is an inert substance that passes through the digestive tract unchanged. It is discarded by the body in this way because it is nonusable.

The mice fed on an unnatural and refined diet became sick not because of lack of fiber alone but because of the presence of toxins in an unnatural diet. This diet was foreign to their body and was not sufficient to promote health. When some of their natural foods were given, such as alfalfa, health was restored because their organism was once again provided with the nutriment they needed, and healing and normalization took place. This was certainly not due to the fiber present in the diet but due to the many factors in their natural diet that are essential for their particular requirements.

Many human disease conditions are associated with low-fiber diets consisting largely of refined breads, cereals, sweets, etc. However, this again is not due to the lack of fiber alone. Other aspects to take into consideration are the presence of toxic elements and lack of vitamins, minerals, and proteins in 'these refined products. Merely adding fiber in the form of bran will not decrease the toxicity of these foods.

Our natural foods are complete with all nutrients including fiber and these are the foods that will provide the conditions for health.

12. Fructose Diet Cure

This diet depends on the periodic ingestion of fructose and a high-protein, low-carbohydrate diet is followed. Dates are eaten between meals to maintain high blood sugar levels.

The foods are divided into seven basic types: 1) "free foods" which can be eaten in any amount since they contain negligible amounts of carbohydrates, fats, or proteins; 2) meat; 3) fat; 4) milk; 5) vegetables; 6) fruit; 7) flour products.

The fructose diet is intended for people who have functional hypoglycemia, for those who wish to lose weight without feeling hungry or irritable, for those who wish to reduce their craving for alcohol, for people who wish to avoid the onset of migraine headaches or premenstrual tension, for hyperactive children, and for persons with certain psychotic tendencies. Do not be fooled by these claims. The Fructose Diet or any diet cannot detoxify and heal. But they certainly can derange the body!

The lists of foods for this diet is as follows:

List 1 – “free foods”

Bouillon	Pepper & other spices
Clear broth	Pickles
Coffee	Rennet tablets
Cranberries	Salt
Horseradish	Seasonings
Lemon	Vinegar
Mustard	

This list of "free foods" contains the most toxic food elements that we can ingest. Except for lemon, all of the above foods are eliminated on the Hygienic diet not only for their toxicity but because they are irritants, and interfere with normal digestion.

List 1A (Unlimited in raw state; limit to 1 cup cooked—it is claimed that these foods are most digestible cooked.)

Asparagus	Eggplant	Rhubarb
Bean sprouts	Lettuce	Sauerkraut
Broccoli	Mushrooms	Spinach

Brussels sprouts	Parsley	Summer squash
Cauliflower	Peppers	String beans
Celery	Pimentoes	Tomatoes
Cucumbers	Radishes	Zucchini

Sauerkraut, spinach, rhubarb, radishes, parsley, and mushrooms all contain toxins which interfere with normal assimilation of certain nutrients. The other vegetables would be healthful additions to our meals if consumed raw.

List 2

This list includes meats, fish, cheese, peanut butter, and eggs—each serving contains seven grams of protein. All of these foods are unnatural items in the human diet and contribute to disease.

List 3 - Fats

Avocado - 1/8	French Dressing - 1 Tbsp.
Butter - 1 tsp.	Mayonnaise - 1 tsp.
Bacon - 1 slice	Nuts - 6 small
Chocolate - 2 tsp.	Oil - 1 tsp.
Light cream - 2 Tbsp.	Olives - 5
Heavy cream - 1 Tbsp.	Shortening - 1 tsp.
Lard - 1 tsp.	Cream Cheese - 1 Tbsp.

Except for the avocado and nuts in this list, these "foods" would result in ill health in anyone consuming them.

List 4 - Milk and milk products

1 cup of milk or yogurt equals one serving
1/4-cup ice cream equals one serving

Humans cannot digest milk products due to lack of the enzymes rennin and lactase. Ice cream contains many unnatural and toxic ingredients and a high percentage of refined sugar. Yogurt is fermented milk and also may contain high levels of sugar. Humans cannot digest the byproducts of fermentation and putrefaction.

List 5 - Vegetables - 1/2 cup per serving

Beets	Rutabagas
Carrots	Winter squash
Onions	Turnips
Green peas	Tomato puree
Pumpkin	Frozen mixed vegetables

These vegetables are all served cooked and add little to the value of the diet.

List 6 - Fruits - servings per day

Apple - 1	Orange -1
Applesauce – 1/2 cup	Peach - 1
Apricots - 2	Pear - 1
Banana – 1/2	Pineapple - 1/2 cup
Berries - 1 cup	Plums - 2
Cantaloupe -, Vi	Watermelon - 3" x 1 1/2"
Cherries- 10	Grapefruit - 1/2
Fresh figs - 2	Grapes - 12
Nectarine - 1	Honeydew - 1/4

List 6 provides the only major worthwhile contribution to the diet but in such small portions that they are merely "crops in the bucket."

List 7

Flour products and starchy vegetables.

As was explained in earlier lessons, humans have a limited capacity for starch digestion. In addition, wheat has toxic acids that are harmful and therefore should not be consumed.

For most people following this diet, Dr. Palm recommends that two to three servings of protein foods from List 2 and usually just one serving per meal for the remaining categories be included. Such high amounts of protein will only further endanger your health.

Several recipes include the use of concentrated fructose. In addition, Dr. Palm requires that you eat between 75 and 100 grams of fructose daily—available in tablet or powder form. Fructose is refined from sucrose, ordinary white sugar. The health consequences of such a practice is the same as ingesting the same amount of refined white sugar. This diet is dangerous and could never result in any benefits.

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13. Bland Diet For Peptic Ulcer Patients

13.1 History

The roots of diet therapy in the treatment of patients with peptic ulcer extend far back in medical history. As early as the first century, Celsus ordered smooth diets free of "acrid" food, and practitioners of the seventh century wrote of their belief in "special healing properties" of milk for patients with digestive disturbances. In the first half of the nineteenth century, peptic ulcer became established as a pathologic and clinical entity, and physicians generally advocated a liberal dietary regimen with frequent feedings.

However, in the later part of the nineteenth century, a radical change developed in medical opinion concerning peptic ulcer treatment. The belief spread that food was harmful to the ulcer, and only complete rest—meaning an empty stomach—would allow the stomach to heal itself. When the body is free from the irritation of the presence of food and when the digestive system is given a complete rest, healing will commence. This is the safest known method to regain health and its beneficial results can be documented by anyone who is familiar with fasting.

However, in 1915, an American physician, Bertram Sippy, broke the common practice of fasting end established the beginning principles of continuous control of gastric acidity through diet and alkaline medication. He outlined a program of milk and cream feedings with slow additions of single soft food items over a prolonged period of time, allowing little variation.

13.2 Theory

In general, Sippy's regimen is used today by many physicians and dietitions for gastric ulcer patients. This diet therapy is based on several erroneous principles. The food must be both acid neutralizing and nonirritating, according to this principle.

13.3 Acid Neutralizing

The therapy begins with milk and cream feedings every hour or so, to supposedly neutralize free acid with the milk protein, suppress gastric secretion with the cream, and generally soothe the Ulcer by coating the stomach. However, these assumptions have not been supported by research. In fact, clinical evidence proves them to be worthless.

There are gradual additions of soft bland foods over a period of time, keeping some food in the stomach at all times to mix with the acid to prevent its corrosive action on the ulcer. These bland foods are usually limited to choices of white toast or crackers, refined cereals, eggs, milk, cheeses, a few cooked pureed fruits and vegetables, and later, ground meat.

With such frequent meals, the digestive organs are never allowed to rest, and recovery is prolonged rather than assisted. In addition, many of the foods advocated are toxic and further contribute to the reason for the disease.

13.4 Nonirritating

The therapy is concerned with eliminating chemical, mechanical, and thermal irritation.

13.5 Chemical Irritation

Any food believed to stimulate gastric secretions is prohibited. These include highly-seasoned foods, meat extractives, coffee, lea, alcohol, citrus fruit juices, dried foods, spices, and flavorings.

I could concur with this rule. The above foods are highly irritating for anyone and all except citrus juices contain toxic components that would result in sickness in a well person. For a sick individual who is already enervated, the results are just that much worse.

13.6 Mechanical Irritation

Any food believed to be abrasive in its effect upon the ulcer is prohibited. These include all raw foods, plant fiber (strained fruits and vegetables are used), coarse or rough foods, whole grains, and "gas forming," or strongly-flavored foods.

Hygienists advocate that all foods should be withheld for the gastric ulcer patient. To ensure complete return of health, a fast is in order. After the fast, a diet of the same foods that are prohibited above would be those that would be the best to maintain health. That is a diet that consists of raw foods, mostly fruit.

13.7 Thermal lrritation

Any very hot or cold food believed to irritate the lesion by its effect on surface blood vessels are prohibited. These include hot beverages and soups, frozen desserts or iced beverages.

On this point. I would concur.

13.8 The Four-Stage Pattern

After initial hourly milk and cream only, the diet is gradually increased as the ulcer heals. The routine usually, follows a progressive four-stage pattern as follows:

Stage 1 - For this initial stage of the dietary therapy, the following foods are permitted: milk, cream, butter, margarine, eggs, cooked and refined cereals, plain custard, Jell-O, rennet, plain puddings, vanilla ice cream, noodles, macaroni, spaghetti, white rice, white bread, soda crackers, cheese, jelly, honey, sugar, white potatoes, and creamed soups

A healthy man could live for a very short time on this diet before he became extremely ill. Why, then, is it advocated for sick individuals? It defies reason.

Stage 2 - During this second stage of the bland diet, strained fruit juices are allowed to a limited extent (starting with 1/2 cup). In addition to the fruit juice, the following "foods" are added to the diet: plain cake such as angel food, sponge, pound, butter cake; winter squash; strained asparagus, peas, carrots, green beans, beets, spinach; cooked, stewed fruits

The fruit juice would be a welcome addition to the diet if it is served fresh. No individual—healthy or sick—should be served cake as it contains toxic ingredients along with refined white sugar and flour that will result in toxicosis and sickness. Since the vegetables and fruits in the above list are all served overcooked and strained, they contribute little value to this diet.

Stage 3 - At this stage, flesh foods are added to the diet. These include fowl, fish, and beef that has been ground

As we have stated in earlier lessons, flesh is a terrible food for man. We are not equipped to deal with the many toxic byproducts of flesh and therefore, its ingestion will invariably lead to ill health.

Stage 4 - At this stage, certain desserts are added such as prune or apricot whip, plain cookies, plain sherbert, water ices, and fine graham crackers. Also, some additional cooked vegetables and fruits are added.

13.9 Research Studies

This entire diet is a nutritional disaster and will result only in disease. Recent research studies demonstrate the uselessness of this type of dietary therapy.

A. M. Gill reported a series of studies with chronic ulcer patients, whose ulcers healed in four to eight weeks with placebo treatment of a daily injection of one ml. of distilled water and no diet or exercise restrictions or medications. He concluded that ulcers healed not by manipulation of the various common therapies used but because, "... the man with the ulcer comes under the care of a physician who is able to transmit some of his own confidence to the patient."

Gill's studies were valuable in that he found that the orthodox dietary therapy was useless even though he arrived at some other erroneous conclusions. But his theory that no therapy is better than the bland one, is valid.

Other researchers likewise have found that bland food do not increase the rate of healing, nor was there any particular benefit from avoidance of all foods thought to be commonly irritating (such as fruits and vegetables).

It has been demonstrated that routine omission of any fiber in the diet also seems to have no benefits.

Modes of eating—wrong foods or wrong combinations of foods, improper mastication, and rapid consumption of meals are more involved as sources of irritation. Many physicians, such as Dr. H. J. Shull, contend from their experiences with individual patients that so-called coarse or rough foods; such as lettuce, raw fruits, celery, cabbage, and nuts, do not necessarily traumatize a peptic ulcer when they are properly chewed and mixed with saliva. Grinding or straining of food is needed only when teeth are poor or absent!

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14. DMSO

Barry Tarshis (*DMSO* New York: William Morrow and Company, Inc. 1981) believes that he has found the true panacea for all illnesses. He states:

> "... let's say, for the sake of argument, that (somebody—the government, a drug company, a foundation—pulled together a blue-ribbon group of pharmacologists and physicians, presented them an unlimited budget and told them to develop a drug that came closer to being a panacea than any substance now known. Imagine the properties that such a drug, were it ever developed, would embody
>
> "To begin with, the drug would be effective not only against one or two conditions and diseases, but against a broad range of maladies, from simple, everyday problems such as sprains and sinusitis to life-threatening diseases such as stroke or cancer. The drug, in other words, would be far more powerful than aspirin and a good deal more versatile than, say, penicillin

> "Apart from its effectiveness, the drug would be safe, keeping in mind that not even aspirin is completely harmless. Physicians who prescribed it wouldn't have to concern themselves with the adverse reactions that may claim as many as 30,000 to 60,000 lives a year in the United States alone. And the people who take it wouldn't have to suffer the myriad side effects—headache, fatigue, blurring of vision, mental disorientation—that come with the territory when you have a chronic disease for which there are only a handful of medications available
>
> "The drug would also be versatile—versatile enough so that, depending on the condition, a physician could administer it orally or topically, by injection or intravenously. And it would be stable enough so that you could ship it anywhere in the world, or keep it on the shelf for months and not have to worry about it spoiling or losing its potency. The raw materials from which the drug was made would be readily available, so that you would never have to concern yourself with a shortage. And, finally, if you had a social conscience, you'd want the drug to be inexpensive enough (somewhat less expensive than, say, the interferon treatments now being offered for cancer in Europe at a price of $65,000) so that patients who took it on a long-term basis wouldn't have to spend a big chunk of their yearly income for the privilege of living without pain."

The name of this new "wonder drug" is dimethyl sulfoxide or DMSO for short. It is being used for such ailments as sprains and sinusitis to burns and arthritis. Some people claim that it has the ability to stabilize progressively crippling arthritic conditions and to alleviate certain forms of mental illness.

This powerful and toxic drug passes through cell membranes so quickly that you can taste it minutes after it has been applied to the skin. Combined with other drugs, it will carry them through cell membranes that were formerly impenetrable to these drugs when taken alone. Due to this property, DMSO can cause immeasurable damage to all the cells of the body. These cell membranes can become weakened or altered and many other toxins besides DMSO will enter the cell which would not ordinarily enter. Such derangement of the cells may result in serious health consequences—much more serious than the ailment for which it was given.

There is never any "easy way out"—no quick and magical path to health. Many athletes have been using this poisonous drug for years for sprains, pulls, and other soft-tissue injuries. Continued suppression of pain by this drug will eventually result in permanent damage. Besides this, DMSO is now being used regularly by thousands of arthritic patients. People use DMSO for cuts, for sores, for itching conditions. Some people even rub it on their gums.

Do not be fooled by misleading claims. No agent outside of the human body has the ability to heal. The regular use of drugs can result only in greater health destruction.

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15. Mineral Water Therapy

Certain places of the world are well known for their mineral springs that are said to have therapeutic properties. Sometimes it is recommended that these waters be consumed or bathed in as a "cure" for assorted ailments.

The theory behind all forms of hydrotherapy is that the minerals of the water will, in very small amounts, enter your system through the skin or mucous membranes and help restore your entire system to a healthier state.

However, these inorganic minerals are inert substances and have no magic about them. They cannot enter the system through the skin and impose any health benefits. If consumed, they cannot be utilized by the body and may prove toxic.

16. Bee Products

Honey, bee pollen, bee propolis, and royal jelly are substances collected or produced by bees for their winter food supply, for reproduction, protection, etc.

Honey is a popular product and is essentially sugar (about 1/3 to 1/2 glucose, 1/3 to 1/2 fructose, and the rest water). Bee pollen consists of certain pollen grains of flowers incidentally collected by bees while gathering nectar. It contains protein, vitamins and minerals, and enzymes. It is not a food that bees consume except as a honey contaminant.

Bee pollen is often used by athletes because it is claimed that it will increase their energy and stamina. This effect, however, is an illusion. Its stimulatory effect will first produce a false sense of increased energy, but like all other stimulants will soon have the opposite effect due to enervation of the stimulation of the organs involved.

Neither is propolis one of the bees' food products. It consists of various tree resins, collected and applied to the interior of the hive by them. It acts as a kind of cement to keep their hives intact. When ingested by humans, this substance will have a stimulatory effect due to the response of the body to attempt to eliminate this foreign material. It has no place in human nutrition and has no property to "cure" as is often claimed.

Royal jelly is produced from honey and pollen and fed exclusively to the queen bee. It is made by the bees for the unique dietary needs of developing a queen bee and is excellent food for her.

With respect to honey it cannot be emphasized enough that:

1. It is not a natural food of human's but of bees which created it for their specific needs.
2. Honey is laced with six protective acids. Humans cannot metabolize three of these acids, thus making it a toxic substance.
3. Honey is used as a sweetener. Anything that requires a sweetener to be palatable is not a fit food for consumption in the first place. In the second place, the addition of a sweetener creates an incompatible food combination that vitiates digestion and begets toxic byproducts.
4. Human desecration of the bees' food supply is unnatural, contrary to the symbiotic role of creatures in nature, and unhealthful both to bees and humans.

With respect to pollen keep in mind that, in gathering nectar, the bee performs a symbiotic service for the plant. It becomes contaminated with pollen and spreads it to the female flower, thus fertilizing it. Pollen's role is to create a seed package, not to serve as a food. When the seed package is mature, it ripens a part of the package as fruit which is free food for the creatures that incidentally perform a service in distributing the plant's seeds. That is symbiosis.

Pollen is not unique as a food and has no value. It fails to furnish our foremost need, carbohydrates, for energy. It is only the incipient nutrients and components to fertilize a flower ovary and thus create a seed package of which a part might be edible fruit. In that case we get not only all the nutrients contained in pollen but in a form specifically created to meet our needs. Most important of all we get an easily absorbable complement of simple sugars ready to convert to energy!

17. Macrobiotic Diet Cure

The macrobiotic diet consists of 60 to 100% grains. These include brown rice, buckwheat, wheat, corn, barley, and millet. They are eaten raw, cooked, creamed, with or without water, fried, or baked. A maximum of 30% of the diet may consist of vegetables. These vegetables that are considered permissible include: carrots, onions, pumpkin (a fruit), radish, cabbage, cauliflower, and lettuce.

Grain is considered "Principal Food" and is eaten at every meal. The principle behind this diet is based on the same Yin-Yang theory as for acupuncture. Yin and Yang are antagonistic but complementary forces. Certain foods are considered Yang foods and others are Yin foods. There must be a certain balance between Yin and Yang.

When a person becomes ill, it is recommended that he/she eat 100% grains. In addition to this, certain specific beverages and/or foods are used for specific ailments—all based on the superstitious Yin-Yang theory.

This type of diet not only cannot produce health but it can be very harmful if persisted in over a period of time. Humans are not grain eaters—we are frugivores. We are not biologically equipped to digest, assimilate, and utilize large amounts of grains. Fruits contain plenty of sugar, but little or no starch, whereas the cereals are largely starch. Starch requires much more time and energy to digest than fruit. Cereals are among the most difficult of foodstuffs to digest. The protein of most cereals are inadequate. They also contain an excess of acid due to the absence of certain base minerals, especially calcium. The need for calcium of most cereal plants is relatively small so they do not draw much of this mineral from the soil. In the human organism, on the other hand, the need for calcium is very great. Cereals, are therefore, inadequate to support growth.

Oats are deficient in many basic salts. Wheat is deficient in sodium and calcium. Rice is deficient in salts, and especially in calcium. It is also deficient in sodium and chlorine. They are all lacking in iodine. What does this mean when we consume large amounts of cereals? Since cereals are acid forming, they must draw on base minerals from the body to neutralize these acids so as not to create a condition of acidosis within the body. These base salts are withdrawn from the tissues, bones, and teeth, eventually resulting in various pathological disorders such as osteoporosis and dental caries.

Dr. Shelton says, "We have learned that all cereals have certain defects which may be looked upon as characteristic of these nutriments. As regards organic salts, they are deficient in sodium and calcium; they are also poorly supplied with organically-combined sulfur and with bases generally; but they contain a superabundance of acid-formers and of potassium. The cereals are also poor in vitamins A, B, and C. Finally, the proteins of the cereals are always inadequate; they are lacking in essential amino acids, and are especially poor in lysin and cystin."

A study of the human anatomy and physiology will clearly demonstrate which food humans are best suited to eat. For optimum health, we should stick with our biologically-correct fruitarian diet.

18. Questions & Answers

Are the natural or "organic" vitamins any better than the synthetic ones?

No, a vitamin is nothing more than a specific compound, whether it is synthesized or extracted from a plant. In either form, they are not usable by the body but may be toxic. All the vitamins that we require are found in our whole natural foods and this is how they must be taken to be utilized.

Is choline effective in keeping fat from accumulating in the liver and arteries as claimed by some advertisements that I have read?

Choline manufacturers may have a difficult time explaining why anyone should swallow choline pills. Choline is widely available in the diet and is also manufactured in the body. It is considered an essential nutrient, but dietary deficiencies have never been demonstrated in man. Although choline has been widely used to treat fatty liver, as well as cirrhosis and hepatitis, it has never been demonstrated that this type of therapy is of any value. It is, in fact, worthless, and should not be used.

I have diverticulitis and my doctor told me not to eat fruits and vegetables. Is that good advice?

Diverticula are outpouchings that can develop in weak spots in the bowel wall. When many of these outpouchings are present and one or more become inflamed causing pain, the condition is known as diverticulitis

This condition was virtually nonexistent in the early twentieth century and is now known as a disease of Western civilization. Its incidence has increased steadily in industrialized countries until between one-third and one-half the population over forty in the United States, Great Britain, France, and Australia suffer from it. Diverticulitis results from the increased use of refined flour and cereals and the substitution of foods containing large amounts of sugar and of meat for fruits and vegetables. In countries where the diet is high in fruits and vegetables, diverticular disease is still nonexistent

The very foods that you were told to avoid are the ones that you should be eating exclusively. It would, however, be advisable to fast first to allow the bowel to heal.

Will apple cider vinegar "cure" colds and catarrh?

Cider vinegar is made by pressing the juice out of the apples and fermenting it, in the same way as making cider. The fermented juice is left to age for about six months and then the process of turning the alcohol into acetic acid begins

Acetic acid is very destructive and corrosive to the tissues of the digestive canal and to all tissues and cells of the body. A small amount will halt digestion completely. This acid is so strong that it will dissolve certain metals and remove rust from steel. Consumption of vinegar will result in ill health and should never be consumed. There is no "cure" for colds. This is a reaction on the part of the organism to rid itself of accumulated toxic debris and should not be interfered with. Vinegar is a drug whose use suppresses the body's vital activity in conducting the eliminative task called a cold.

Could you suggest a diet for migraine headaches?

There are no diet "cures." Foods cannot act as specifics and go directly to the afflicted area to effect a cure. Only the body can heal and will promptly do so when the proper conditions provided. A natural diet of raw fruits, vegetables, nuts, and seeds will provide the proper condition for the body to heal if the other conditions for health are also present.

What is the difference between white and red Ginseng? Are either forms acceptable to take?

All ginseng roots are naturally white. The red roots are produced by a special process that includes treating the white roots with other herbs, steaming, and other steps. This process is supposed to preserve the root and prevent insect infestation. As mentioned earlier, ginseng is a toxic substance and should not be consumed. The red root is just that much worse because it has the addition of other toxic herbs. Neither forms are acceptable.

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1. The Germ Theory Of Disease

Acceptance of the concept of contagion is contingent on acceptance of the germ theory of disease. The germ theory of disease is the reigning premise upon which is superimposed a tremendous network of modern medical procedures.

Simply stated, this is the germ theory: Diseases are due solely to invasion by specific aggressive microscopic organisms; that is, *a specific germ is responsible for each disease;* and microorganisms are capable of reproduction and transportation outside of the body.

The germ theory was founded on the assumption that disease germs are specific and unchangeable in their biological structure and chemical characteristics.

Dr. Rene J. Dubos (eminent modern bacteriologist and 1968 Pulitzer Prize winner) contradicted this assumption by showing that the virulence of microbial species is variable.

Pasteur himself admitted his mistake (around 1880). Dr. Dudaux, a coworker of Pasteur, wrote that, when nearly sixty years of age, Pasteur discovered facts which were not in accord with his previous conception that disease germs were unchangeable. Pasteur found that microbial species can undergo many transformations, which discovery destroyed the basis for the germ theory.

1.1 Dramatic Proof That Germs Do Not Cause Disease

Reports in the *Journal of Infectious Diseases*, 1914. Vol. 14, pages 1 to 32, describe experiments by E. C. Rosenow, M.D., of the Mayo Biological Laboratories in Rochester, Minnesota. It was demonstrated that streptococci (pus germs) could be made to assume all the characteristics of pneumococci (pneumonia germs) simply by feeding them on pneumonia virus and making other minor alterations in their environment. When the procedure was reversed, they quickly reverted to pus germs. In all cases, regardless of the type of germs, they quickly mutated into other types when their environment and food were changed.

Two New York City bacteriologists, through similar experiments, converted cocci (round, berry-shaped) into bacilli (long, rod-shaped) and vice versa.

So it is obvious that specific bacteria do not produce specific disease symptoms—it is the environment and the type of soil which determines the type of bacteria that proliferate.

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2. Pasteur Becomes Identified As Originator Of Germ Theory

The first "Germ Theory of Infectious Diseases" was published in 1762, by M. A. Plenciz, a Viennese physician. In 1860, Louis Pasteur took the credit for the experiments and ideas of others, "plagiarizing and distorting their discoveries," according to Dr. Leverson of England. Because of Pasteur's strength, zeal, enthusiasm, and convincing personality, and his passionate determination to overcome opposition to the germ theory, he became identified as its originator.

Claude Bernard (1813-1878) disputed the validity of the germ theory, and maintained that the general condition of the patient's body was the principal factor in disease, but this idea was largely ignored by the medical profession and the general public. Pasteur had done his work well as the suave promoter of a plausible "scientific" hypothesis that could bolster the prestige of the sagging medical profession. Bernard and Pasteur had many debates on the relative importance of the microbe and the internal environment.

Pasteur was a chemist and physicist, and knew very little about biology and life processes, but he was a respected and influential man. His phobic fear of infection, his belief in the "malignity" and "belligerence" of germs, and his powerful influence on his contemporaries, had far-reaching consequences, and men of science were convinced of the threat of the microbe to man. Thus was born the period of bacteriophobia (fear of germs) which still exists.

3. The Fear Of Infection

The fear of "infection" of a cut, a bruise, or other injury is widespread. Actually, there is more danger from the drugs and antibiotics administered to "prevent infection." When an injury occurs, the body quickly seals off the area, a scab forms, and repairs are instituted. Suppuration rarely occurs, except in toxic individuals. Devitalizing drugs serve to hinder the cleansing and reparative processes; antibiotics destroy friendly bacteria.

Patients do not have much (or any) choice in the use of antibiotics after surgery. The massive invasive process of surgery (often opening into the body cavity) is quite different from a cut or other wound near the surface of the body. In any event, there is no option. The antibiotics (after surgery) are mandatory (for the "protection" of the surgeon).

4. Bacteriophobia

The universal acceptance of the germ theory, and the consequently widespread bacteriophobia, resulted in a multiplicity of frenzied efforts to escape from the threat of the dreadful and malicious germs by waging a constant war against them in the belief that the alternative was certain death.

The populace was advised to cook all food and boil all water (with the inevitable deterioration in health accompanying raw food deprivation).

The present-day practice of killing germs (inside and outside the body) with poison drugs was initiated, resulting in more and more degeneration and iatrogenic (drug-induced) disease.

Various programs were initiated to confer "immunity" against specific germs by means of vaccines and serums, resulting in the monstrous inoculation system—with horrendous effects, detailed in my book, *Don't Get Stuck!*

Fortunately, the warning against, and horror of, all raw foods as dangerous and bacteria-ridden, has been largely overcome, through the persistent educational efforts of Hygienists and other knowledgeable people, though the ban on unpasteurized dairy products still exists in most areas in the United States.

The acceptance of poison drugs, vaccines, and serums has not waned to any appreciable extent.

5. Pasteur Changes His Mind

As previously mentioned, around 1860. Pasteur discovered facts which were not in accord with his previous conception that disease germs were unchangeable. He found that microbial species can undergo many transformations; this discovery destroyed the basis for the germ theory. Since a coccus (pneumonia germ) could change to a bacillus (typhoid germ) and back again (and, indeed, since any germ could turn into another)—and since their virulence could be altered, often at the will of the experimenter, the whole theory exploded.

It is frequently overlooked that Pasteur by then had changed his direction, and his more mature conception of the cause of disease, as given by Dr. Duclaux, was that a germ was "ordinarily kept within bounds by natural laws, but, when conditions change, when its virulence is exalted, when its host is enfeebled, the germ was able to "invade" the territory which was barred to it up to that time. This, of course, is the premise that a healthy body is resistant to disease or not susceptible to it.

After the change in his outlook, and numerous experiments along this line, Pasteur was at last convinced that controllable physiological factors were basic in the assessment of vulnerability to disease and concluded, "The presence in the body of a pathogenic agent is not necessarily synonymous with infectious disease." *(The presence of certain germs is not proof that they are the cause of a disease.)*

So Pasteur did finally reverse his position and acknowledge that germs are not the specific and primary cause of disease, and he abandoned the germ theory. He is reported to have said on his deathbed, "Bernard was right. The seed is nothing, the soil is everything."

Although Pasteur abandoned his early immature and erroneous theory in the 1880s, it was accepted, developed, fostered, and perpetuated by others, and the mischief, medical misunderstanding, and error continue to this day (the ultimate irony!).

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6. A Plausible And Tangible Basis For "Medical Science"

Dr. Shelton says, "Medicine is now claimed to be a science. Before the discoveries and pseudo-discoveries of Pasteur it was a medley of diversified diseases and imaginary causes, treated symptomatically and empirically. Up to this time the evolution of medical thought was but a slow transition from superstition. The profession groped blindly about in search of a tangible basis upon which to base their theories and practices.

"Pasteur, while exploiting the work of Bechamp and other scientists of that period, gave the profession the germ. Here, at last, was a tangible and basic theory which could be developed without a limit. The microscope made it possible to visualize, differentiate, and classify the organisms. With a frenzied and hysterical outburst of enthusiasm, the medical profession seized upon this new theory, since which time practically all medical investigation has been carried on with the germ theory of disease as its basis."

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7. The Unity Of Disease

The unity of disease is not understood by those who insist on relating a specific germ to each disease. As long ago as March 12, 1924, an editorial in the *Boston Medical and Surgical Journal* discussed the trend away from this concept: "The reason ... of an eclipse or partial eclipse of bacteriology may be found in the belief that this branch of medicine, if it has not come exactly to a blind alley, has at least come to a halt ... There are signs, more or less vague as yet, that new conceptions of disease are arising, although such views are themselves nebulous. It is thought by some that there is more or less a fundamental unity of disease, and that many of the nosological labels attached to them are superfluous and confusing."

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8. Koch's Postulates

The German scientist, Robert Koch, maintained that for a specific bacteria to be the cause of a disease:

1. It must be found in every case of that disease.
2. It must not be found when the disease is not present.
3. It must be capable of living outside the tissues.
4. It must then be capable of reintroduction into the organism and producing that disease.

As has been repeatedly demonstrated, specific bacteria do not fulfill these prerequisites.

Robert Koch (1843-1910) was a bacteriologist, physiologist and one of Pasteur's contemporaries. The specific requirements of "Koch's Postulates" follow:

1. A culture of the bacteria must be taken from a diseased animal.
2. It must then be grown in pure culture in a laboratory.
3. After this, the culture has to be injected into a *susceptible* animal.
4. It must cause the same disease, and culture must be taken from this animal.

This is a modification of the germ theory, requiring a condition of *susceptibility* to establish a causal relationship between specific germs and specific diseases.

Scientists know that specific bacteria are not found in every case of a specific disease. The eminent Canadian physician, Sir William Osier (1849-1919) found that the diphtheria bacillus is absent in 28 to 40% of cases of diphtheria. Green's *Medical Diagnosis* says that tubercle bacilli may be present early, more often late, or in rare instances be absent throughout the disease condition. Koch's first postulate, "the specific bacteria must be found in every case of that disease" is not fulfilled in tuberculosis, diphtheria, typhoid fever, pneumonia, or any other disease. *Specific bacteria are not found in every case of a specific disease*.

Nor is the second postulate fulfilled, because it is a medically-known fact that bacteria are found in the bodies of humans and animals which exhibit no symptoms of any disease. *Specific bacteria are repeatedly found when the specific disease is absent*.

Further, bacteria are not capable of living outside the tissues; therefore, the third postulate is not fulfilled. Neither Pasteur nor any of his successors have ever induced a complaint by the inoculation of airborne bacteria, but only by injections from bodily sources. The reason is obvious: germs are dependent on human or animal organisms for their survival.

Quoting from "The Germ Theory Reexamined" by Bob Zuraw and Bob Lewanski (*Vegetarian World*, Volume 3, Number 11, September-November 1977): "Koch's Fourth Postulate: *Introducing germ cultures in a healthy body or organism does not produce signs and symptoms of the disease.* The Bio-Chemical Society of Toronto conducted a number of very interesting experiments in which pure cultures of typhoid, diphtheria, pneumonia, tuberculosis, and meningitis germs were consumed by the millions in food and drink by a group of volunteers. The results: no ill effects whatsoever."

But when the condition of *susceptibility* is introduced, this changes the whole concept. Thus we are back to the same point we have been emphasizing: the condition of the host is of primary importance in the production of disease.

9. Germs Are Powerless To Cause Disease

Dr. Shelton says (February 1972, *Dr. Shelton 's Hygienic Review*), "The germ alone could no more cause disease than a match alone can produce a fire. Just as the fire, so the microbe, if it is to have any part in causing disease, must find an organism that produces a suitable soil for its activities. We cannot avoid germs. We must be proof against them. We can avoid disease only by keeping ourselves in such a high state of health that they are powerless against us."

Dr. Shelton goes on to tell about numerous experiments in trying to produce various diseases by the feeding of germs, without any disease being produced. Dr. S. K. Claunch, in *Exploding the Germ Theory*, also cites such experiments by the U.S. Navy, again without results. Dr. Claunch says (page 25), "These experiments, conducted under test conditions and under government .supervision with such disappointing results should knock the last prop from under the germ theory, as they doubtless would have done if our government doctors had seen fit to make them public property ... would have been a signal government service to the people ... but not good business for the doctors and serum manufacturers."

10. Germs Are Not Enemies

Bacteria are ubiquitous—they are with us all the lime. Life on this planet would be impossible without them.

Specific "disease" bacteria are commonly assumed to be the primary cause of specific diseases. These much maligned microorganisms are, in truth, friends and scavengers that need nourishment to reproduce. They go into action immediately when there is a dangerous accumulation of toxic materials which is threatening body integrity. They perform the useful function of "cleaning up the mess" and then resume their more passive state, after their work is done.

There is no denying that bacteria are intimately associated with many serious diseases. They contribute secondary or tertiary complicating factors. They elaborate certain powerful toxins. They have factors which add to the primary causes.

There is no denying the importance of bacteria in the evolution of disease. But they are not the fundamental and primary causes, as so many people believe.

It is the disease condition that creates an environment favorable to the mutation of bacteria into those associated with that particular "disease," and favorable to their proliferation and increasing virulence. The disease condition springs from improper living that begets toxicosis.

There is no denying that in the disease process, the work performed by bacteria as scavengers is unpleasant and exhausting to the host, but it is necessary for the preservation of health and life. After the cleansing is complete, the organism again makes its energies available for normal activities.

10.1 Diseases Are Not Entities Traveling From One Person to Another

We hear about infectious diseases, contagious diseases, communicable diseases. But nobody has even seen a disease travel from one person to another. There is not an iota of evidence that this happens.

In 1860, the world-famous English nurse, Miss Florence Nightingale, published an attack on the germ theory of disease. She said:

> "Diseases are not individuals arranged in classes, like cats and dogs, but conditions growing out of one another. Is it not living in a continual mistake to look upon diseases, as we do now, as separate entities, which must exist, like cats and dogs, instead of looking upon them as conditions, like a dirty and clean condition, and just as much under our control; or rather as the reactions of kindly Nature, against the condition in which we have placed ourselves? I have seen with my eyes and smelled with my nose smallpox growing up in first specimens, either in closed rooms, or in overcrowded wards, where it could not by any possibility have been 'caught' but must have begun. Nay, more, I have seen disease begin, grow up and pass into one another. Now, dogs do not pass into cats
>
> "True nursing ignors infection, except to prevent it. Cleanliness and fresh air from open windows, with unremitting attention to the patient, are the only defense a true nurse either asks or needs ... The specific disease doctrine is the grand refuge of weak, uncultured, unstable minds, such as now rule in the medical profession. There are no specific diseases; there are specific disease conditions."

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11. The Cause, Nature, And Purpose Of Disease

Disease is a process of physiological and biochemical changes within the body, producing certain signs and symptoms which we label as specific diseases.

When diseases are categorized as communicable or infectious, it is not really meant that the disease, per se, is transmitted from one person to another. The concept actually is that an assumed cause of disease—virus, bacteria, etc.—is transmitted.

But disease is the result of many intoxicating causes. The actual process of disease (the fever, the inflammation, etc.) is the action initiated by the body to purge itself of toxic accumulations.

But the causes, the processes, and the effects have the appearance of being intermingled. Toxicity causes change in the processes of the body. These changes result in other changes as the body tries to cope. The situation becomes extremely complicated, with constant interaction between causes, processes, and effects.

But this should not discourage your attempt to discover and pinpoint the fundamental causes of disease. The Hygienic concept is that disease is the result of enervation—due to the bankruptcy of nerve energy, expending more than we are capable of regenerating. The general energy level diminishes and functional efficiency deteriorates. We evolve into a state which we call toxicosis—a condition of body saturation with toxic matters.

Toxicosis, in the Hygienic sense, implies a disturbance of the blood and tissue fluids, and the accumulation of toxic byproducts of metabolism. In recent years, studies of biochemical pathology have shown this disturbance within the homeostatic mechanism of the body, caused by the accumulation of toxic substances.

Dr. John H. Tilden, a Hygienic pioneer, in his book, *Toxemia Explained*, long ago (1926) presented "the true interpretation of disease." Habits of living that fail to supply our needs, that exceed our limitations

—too much food, insufficent exercise, insufficient rest, and so on—produce inner stresses and a chemical burden the body cannot handle.

The causes of disease are multiple and relate to all the facets of our existence—nutrition, exercise, rest mental and emotional factors, relationships with other people—all of life. The most significant causes are those that are related to our fundamental biological needs. Those relating to our fundamental and emotional life complete the total picture. *Most of the causes of disease are within the control of the individual*.

12. Disease Is Body Action And Is Self-Limiting

When the toxic level rises above a toleration point, the body takes remedial steps, defensive, and reparative action. Disease is body action, and is limited to the time and effort necessary to rid the organism of injurious substances. Every cell in the body acts in unison with all the other cells for the preservation of the organism. When the work is done and order is restored, the disease symptoms dwindle and disappear, and the organism—although debilitated from the effort made necessary by its toxic condition—regains its powers.

This almost consistent denouement is eloquent evidence that disease is body action and not an attack by proliferating bacteria and viruses. All cases recover without any treatment If a healthy body is unable to resist an original attack by small numbers of microorganisms—if a healthy body can "catch" a cold, or influenza, due to exposure to cold germs or influenza germs—how then can the subsequently debilitated body ever recover? How can the weakened organism subsequently repel the onslaught by proliferating trillions of microorganisms? If such reasoning were carried forward to its logical conclusion, the inevitable result would be the death of the organism. How can it be denied?—when the healing crisis is completed, recovery begins. People do recover from colds, from influenza, and every acute disease that has not had deadly medical treatments.

Under Hygienic guidance (noninterference), disease symptoms disappear. Those who are "treated" with drugs and nostrums and recover, do so despite the treatment. Often the complication brought on by the treatment are much worse than the symptoms of the disease.

13. The Vaccination Network

"Immunization" is based on the idea that it is possible, by chemical or biological means, to make a person disease-proof. If this were indeed possible, it would represent a suspension of the law of cause and effect.

People have been educated to be terrified of bacteria, to believe implicitly in the idea of contagion—that specific malevolent aggressive disease germs pass from one host to another. Even bacteriologists overlook the fact that, instead of the germ population being divided into specific "good" germs and specific "bad" germs, "good" germs have the ability to mutate into "bad" (proliferating and virulent) germs, when the soil is suitable for this change. *Germs have the ability to modify their structure and* *function, according to the environment in which they find themselves.*

The idea of vaccination is that injection of a specific vaccine of lesser virulence is supposed to confer immunity against a specific disease of greater virulence. Originally, it was maintained that one injection would confer lifetime immunity. After that idea failed, the idea of periodic revaccination was adopted. Read my book, *Don't Get Stuck!*, for the history of the failure of vaccination and the trail of tragedy it has left in its wake.

Dr. Robert Simpson of Rutgers University said (March 1976): "Immunization programs against flu, measles, mumps, and polio may invade the genetic makeup, and may actually be seeding humans with RNA to form pro-viruses, which then become latent cells throughout the body. These could be molecules in search of diseases, which may become activated and cause a variety of diseases later, such as multiple sclerosis, arthritis, or even cancer." While this conjecture is in line with medical reasoning, it is blatant nonsense. Organisms do not work this way.

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14. Immunity Vs. Toleration

Sometimes the injection of a poison into the bloodstream results in toleration of that poison, which is mistakenly labeled immunity. Toleration means the body hasn't sufficient vitality to resist.

The dictionary definition of tolerance is "the power or ability to endure, withstand, or resist the effects of a drug or food or other physiologic insults without showing unfavorable effects." Actually, this is contradictory. If the body endures the insult, it is because of lack of strength to resist. When it resists, it has the energy to institute defensive action: vomiting, sneezing, diarrhea, fever, or any crisis of cleansing and healing.

Dr. Shelton says that toleration is submission; it is broken-down resistance. "The warning voice of self-protection has gradually been put to sleep, while the organism is undermined and premature death comes as a surprise to everyone ... Toleration for poisoning is established by loss of the vitality necessary to resist it. The body pays for this toleration (miscalled immunity) by general enervation and lowered resistance to every other influence. ... It is a sad day for the body when it tolerates poisons. ... If tolerance for tobacco were never established, there would be no tobacco users. The same for alcohol, opium, arsenic, and other poisons. ... The repeated use of a poison gradually overcomes or decreases vital resistance."

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15. Inoculation Is A Disease-Producing Process

No vaccine or other similar preparation can confer immunity against the effects of wrong living. On the contrary, more (not fewer) diseases are the inevitable result inoculation with serum and vaccines, which exhaust the vitality and resistance. Inoculation is a disease-producing process, which results in injury to organs, the nervous system and the blood.

Serum inoculations and blood transfusions can dissolve red blood cells in the recipient and damage the central nervous system, which helps to account for the enormous numbers of servicemen discharged as insane. (*Dr. Shelton's Hygienic Review*, May 1977, page 200).

In an article published in the *United States Naval Medical Bulletin*, May 1, 1943, three naval officers (physicians reported that inoculations against typhoid, tetanus, and yellow fever are "epidemiological factors" of greatest significance in the history of meningococcic meningitis. They expressed the belief that "immunizing inoculations" may lower body resistance. The occurrence of seventy eight cases of cerebrospinal fever was reported among troops in a camp in Natal after the injection of typhoic vaccine.

The purpose of such inoculations is to produce specific antibodies against specific diseases. Dr. Shelton says that if the body produces antibodies when vaccines and serum are administered, these are the ones required to protect against the injected substances, and not the specific antibodies that would be required to protect it against the contingency of exposure or susceptibility to a specific disease.

The following report appeared in Vol. 93, No. 6, page 482, of the *American Journal of Epidemiology* (observations made by workers conducting a trial of "flu" vaccine):

1. "The overall respiratory illness rates were unaffected by the vaccine.
2. Infections due to agents other than the influenza virus accounted for a larger proportion of illness in the protected (vaccinated) than in the unprotected groups."

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16. Vaccinations And Failure Of Defensive Mechanisms

In their book, *Vaccinations and Immune Malfunction* (published October 1982), authors Harold E. Buttram M.D. and John Chriss Hoffman discuss the fundamental differences between the processes of "natural immunity" and so-called vaccine immunity. They suggest that those who are honestly trying to weigh the pros and cons of vaccines should become familiar with the existing evidence that vaccination does indeed cause lasting damage to the defensive systems of children; and they urgently propos an immediate change from compulsory vaccination programs to absolute freedom of choice.

They take the position that there is a fundamental difference between "natural immunity" (conferred by childhood diseases) and the attempts to confer immunity by introducing massive amounts of antigenic materials in the bloodstream, bypassing the primary defenses, and stressing the body in insidious ways which have previously been largely unrecognized. The body's resistance is lowered through a subtle defensive malfunction and a drastic reduction of the body's ability to defend.

On page 5 of their book, Buttram and Hoffman give an illustration of their concept. "According to the one cell one antibody rule, once an immune body (plasma cell or lymphocyte) becomes committed to a given antigen, it becomes incapable of responding to other antigens or challenges." A hypothetical child passes through "so-called usual childhood diseases with relatively minor and uncomplicated illnesses."

> "Considering the extreme efficiency of 'natural immunity,' we may make an educated guess that permanent immunity was gained to these diseases by utilizing only 3 to 7 percent of the total immune capacity. In the case of the routine childhood vaccines, in contrast, it is likely that a higher percentage of the total immune capacity becomes committed, perhaps something on the order of 30 to 70 percent. It should be emphasized that, once an immune body becomes committed to a specific antigen, it becomes inert and incapable of responding to other challenges
>
> "If the reserve immune, capacity of children is being reduced by current vaccinations in this

> manner, what will be the consequences? No one knows for certain at this time, but it is possible that these consequences could be seen as an increased susceptibility to viruses, to other infections, and to various forms of allergies. A child could be reduced from an expectancy of exuberant, health to a middle state: never entirely healthy, never entirely well."

One of the most extensively documented studies of the indirect effects of vaccines is found in "The Hazards of Immunization" (Oxford University Press, Inc., New York, 1967) by Sir Graham Wilson, formerly of the Public Health Laboratory Service, England and Wales. Dr. Wilson cites documented historical examples of vaccination against one disease seeming to provoke another; for example, fifteen cases of poliomyelitis following inoculation against diphtheria or pertussis.

Reports of twelve cases of multiple sclerosis following inoculations were reviewed in the article, "Multiple Sclerosis and Vaccinations," by Miller and others, *British Medical Journal*, April 22, 1967, pages 210-213. Numerous other reports of apparent immune system-mediated diseases (including Guillain-Barre syndrome) have implicated vaccines.

An overwhelming majority of American medical doctors approve vaccination, on the grounds that occasional direct toxicities are an acceptable risk in terms of assumed control gained over infectious diseases. Although direct toxicities are uncommon (as a result of vaccination), the real danger of vaccination appears to be the indirect effect of impairment of the immune system, first researched in the early 1970s by Dr. Arthic Kalorkerinos and Dr. Glenn Dittman (both of Australia) who uncovered the phenomenon of immune malfunction, lowering the body's resistance as a result of vaccination. The problem is that, because this effect is apt to be delayed and masked, its true nature usually escapes recognition.

Buttram and Hoffman maintain that, in view of the mounting evidence of immune malfunction following current vaccination programs, there must be a public demand for investigation of vaccination methods, and a discontinuation of compulsory vaccination.

These authors say that we are now seeing an increasing social disintegration, with increasing nervous and mental disorders, and that these trends are thought to be related to a subtle biological deterioration of the health of Americans brought about by denatured, devitalized, and adulterated foods; chemical pollution of air, water, and soil; a medical research system oriented toward the use of synthetic drugs and chemicals, and childhood vaccine programs.

> "Nature ... created the human biological system, including the immune system, as extremely adaptable so that it could cope with an ever-changing environment. We are now seeing vast numbers of our children who are unable to cope with their environment demonstrating allergic and/or toxic reactions to their foods, to chemicals, to common inhalants such as dust, pollen, and mold, and to environmental pollutants. If this is combined with an immune system which is compromised from the very first by our present compulsory childhood vaccination programs, and in turn, compounded by devitalized and denatured foods upon which many of our children subsist, could we really expect to see anything other than the deteriorating health which is now taking place?
> "It is possible that many of the nervous, mental, behavioral, and sociological problems occurring today among the younger generation in America may represent a counterpart of the malnutrition-immunization interaction observed by Dettman and Kalokerinos among the Australian aborigines."

Barbara Ann Boruff, in an article, "Immunization: The Risk Factors," says, "The thymus, spleen, and lymph nodes are the main components of the body's immune system. Inadequate nutrition during the time in pregnancy when these organs are developing in the fetus can impair their growth and thereby affect a child's susceptibility to disease, not only in childhood, but throughout his or her lifetime. A pregnant woman must insure that her diet includes the variety of wholesome foods necessary to the development of her unborn child's immune system.

> "Breast-feeding offers the newborn child protection against many diseases. The colostrum present in the first day or so of nursing contains disease-resistant factors
>
> "The long-term effects of breast-feeding are particularly rewarding. In one study at Northwestern University it was found that in comparing children breast-fed six months or longer to bottle-fed children, the bottle-fed children had four times as many ear infections, four times as many colds, eleven times as many tonsillectomies, twenty times as many diarrheal infections, and from eight to twenty-seven times more allergic conditions." (*Nursing Your Baby*, by Karen Pryor.)
>
> "Another recognized guardian of health are the tonsils. A study by Rodrigo C. Hurtado of Georgetown University School of Medicine indicated that the tonsils protect against many diseases, including the common cold, herpes, measles, influenza, and polio
>
> It was also discussed that following the removal of tonsils, there is an increased incidence of malignancy."

This paragraph from page 17 of the book, *Vaccinations and Immune Malfunction*, sounds as though it came straight out of the Hygienic body of literature. "The processes of Nature are always, or almost always characterized by two qualities: efficiency and economy. Attempts of modern science to reproduce or synthesize organic, biological substances and the life-processes of Nature are often grotesquely inefficient, wasteful, and frequently harmful. It is probably a truism that science succeeds only to the extent that it harmonizes with Nature's laws and processes; it fails to the extent that it conflicts with these laws."

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17. The Body Cannot Be Protected From The Consequences Of Injurious Practices

The body *will not* conduct defensive crises when there is no need for them. Healthy bodies do not require detoxification. The body *cannot* conduct defensive crises if its vitality has been lowered to a point where it no longer has the energy and resources to initiate and conduct detoxification and healing processes.

The suppression of the body's ability to heal itself (by drugging or vaccinating) should not be mistaken for exemption from the consequences of wrong living. On the contrary, the drugs and vaccines constitute additional attacks on the integrity of the organism. They impair structure and function, and hasten degeneration and death.

18. Epidemics

Although epidemics diminished as man purified his exterior environment, "it is conceivable that the filth that once beset him in rags, has come forth in a needle to destroy him." —Cash Asher, *Bacteria, Inc*.

Epidemics are mass sickness. In all "epidemics" there are more cases of various other diseases than of the one "epidemic disease."

Dr. Shelton says (*Dr. Shelton's Hygienic Review*, April, 1976, page 171):

> "What the epidemic will be will be determined by the public health authorities. The tendency is to diagnose everything as the epidemic disease at the outset and class further developments as complications. A case in point was that of typhoid fever in the American army in France. The whole army was immunized against typhoid, therefore our soldiers could not develop typhoid. A large number of boys v/ho died while being treated for influenza as their cases were diagnosed, were found at autopsy to have died of typhoid fever. The incident was of sufficient importance for the surgeon general of the army to issue a special letter about it and point out to the medical heads of the American Expeditionary Forces in France that inoculation is no substitute for hygiene and sanitation. Physicians were so preoccupied with influenza that they saw a flu devil back of every symptom and could not distinguish between influenza and typhoid fever. Even tubercular flare-ups were diagnosed as influenza
>
> "The high death rate in pneumonia and influenza was not due to any unusual virulence of the two diseases, but to the unusual virulence of the treatment ... ... Where hysteria rules the mind, treatment is always heroic and the death rate is in keeping, with the treatment. The staff of the Macfadden Healthatorium in Chicago cared for over three hundred cases of pneumonia and influenza during the 1918-19 pandemic without a single death in either disease."

18.1 Environmental Improvements, Net Vaccines, Eliminate Epidemics

Concurrent with extensive environmental improvements (including better sanitation) some forms of disease seem to have disappeared. Vaccine promoters have taken the credit for the virtual disappearance of smallpox and diphtheria, but nothing is said about the dwindling of cholera, plague, and leprosy, for which no vaccines exist.

The new rampant plagues of heart disease, cancer, arteriosclerosis and diabetes, are due at least in part to the radical changes in the nature and quality of our foods and living habits. These illnesses can also be diminished by environmental improvements, as well as by ceasing to pollute our bloodstreams with vaccines and drugs.

The relationship of population disposition to develop disease and environmental conditions to influenza epidemics is conceded in a 1976 report by the U.S. H.E.W. Center for Disease Control (page 2): "The occurrence of influenza epidemics depends upon a poorly understood interaction of virus, population susceptibility, and environmental conditions."

Dr. Shelton says (*Dr. Shelton's Hygienic Review*, May 1976, page 197), "If yellow fever disappeared from New Orleans after General Butler cleaned up the city and no vaccine was used, what has sanitation had to do with the disappearance of other epidemic diseases?"

From *Dr. Shelton's Hygienic Review*, April 1976, page 172: "Yellow fever vanished from New Orleans, Cuba, and Panama when these were cleaned up. The medical profession still refuses to admit that cleanliness did the work. They insist that it is all because they or the sanitary engineers did the St. Patrick act with the mosquitoes. There are still as many mosquitoes in these places as there are in Jersey. I have never been able to figure out how they succeeded in getting just the right mosquitoes to leave, and the harmless ones to remain."

How many people today know about the medical opposition to the early use of the bathtub? They denounced it as the "obnoxious toy from England," and said it would bring on a "whole category of zymotic diseases." In 1842 the Philadelphia physicians submitted a proposal to prohibit by law the use of bathtubs between November 1 and March 15; and in Boston, in 1845, the medical society secured the passage of an ordinance making bathing unlawful "except on medical prescription." The doctors of the time also violently opposed rapid travel on the railroad as being extremely dangerous to public health. Time marches on! The medical profession has adopted and claimed as their own these ideas which others have established as meritorious; but they are still fighting the battle of the poisoned needle; they are still upholding the myth of "contagion" and the role of virulent and aggressive microorganisms as the major cause of epidemics.

L. Tyagaraja Sarma, in an article in *Dr. Shelton's Hygienic Review*, January 1975, page 118, says, "England had repeated—and severe—epidemics of smallpox once every four or five years throughout the last century. The more the British government forced vaccination and revaccination on their people, the more regular were the epidemics. The County of Leicestershire refused to toe the official line; smallpox vaccinations were wholly stopped in this county and all the money that was originally allocated to mass vaccination was spent in improving sanitation. The protagonists of vaccination prophesied that by this step, all the people in the County of Leicestershire would become victims of this dread disease while the rest of England would be saved to a great extent.

"But ... what followed was just the contrary. While smallpox epidemics were raging in the rest of the country, every four or five years as before, Leicestershire was free from this disease."

After the British government introduced a law allowing people to refuse vaccination, the number of people vaccinated (and the incidence of smallpox) kept declining, and ultimately the vaccination law was repealed.

Dr. Shelton says (*Dr. Shelton's Hygienic Review*, October 1970, page 39), "England was the first country in the world to force vaccination on its people by law. After fifty years of rigid enforcement of its compulsory vaccination law, England suffered (1870-71) the largest smallpox epidemic in its history, with the highest death rate in its history. A well-vaccinated, revaccinated and rerevaccinated people suffered a worse epidemic than it had ever suffered under the previously worst sanitary conditions. Vaccination failed and this failure resulted in the rise of an anti-vaccination movement. Today vaccination is no longer compulsory in Britain."

Epidemics of the more virulent types of disease (plagues, etc.) were caused by unsanitary living conditions. The habits of the civilized world have become cleaner, yet more debilitating.

18.2 Modern Mass Sickness

Modern mass sickness is basically the result of the debilitating lifestyle and eating habits of the majority of the populace. In 1948, a polio epidemic was proven to have been triggered by excess consumption of sugar, and dramatically stopped when decreased sugar consumption was encouraged by mass media campaigns. (*Don't Get Stuck!*). Of course, vested interests soon reversed the trend by convincing the public to go back to the old habits.

Epidemics are triggered by mass debilitating and prostrating influences, such as prolonged temperature or humidity extremes, great and general worry, fear, grief, and anxiety (war, panic). The most enervated and toxemic people are the first to get sick. Advocates of vaccination (have never attempted to explain why it is often those who have been vaccinated who are the first to get sick, or who often contract the most virulent forms of disease.

The first colds of early winter are not "caught" from someone else with a cold, but are developed by those who have been improperly living and eating. The added stress of cold temperature further checks elimination, adds to the general toxemia, and thus precipitates a crisis.

The more severe diseases develop in people who carry a greater amount of putrescent poisoning, and are more prevalent after holidays and feast days. The enervating excitement and indiscriminate overeating at these times produce the inevitable unwelcome results.

Why does toxemia cause typhoid in one person and pneumonia in another? Dr. Shelton (*Dr. Shelton's Hygienic Review*, March 1972, page 162) says that the answer will have to be found in the laws of heredity, nutrition, and environment. Those tissues offering least resistance to the toxins are the first affected.

The more virulent diseases result from the poisonous toxins in the host. Toxins resulting from protein putrefaction are more virulent than those from carbohydrate fermentation. Flesh foods produce more virulent toxins than plant proteins. There is also a difference in the virulence of poisons produced by different animal proteins, and in various vegetable proteins.

Dr. Shelton says (Dr. Shelton's Hygienic Review, March 1972) that he believes, for example, that tonsilitis is the result of the less virulent plant toxins, while diphtheria results from the more virulent animal toxins. In both these diseases, there is decomposition in the intestinal tract, which may also sometimes cause pneumonia or meningitis or typhoid or other symptoms of disease.

18.3 Epidemics Explained

Why is it that some people who are exposed to those in the throes of these crises subsequently are also "laid low" while others are not? People who have maintained an internal state of cleanliness through correct habits of eating and living do not need the disease process because it cannot develop unless the toxic conditions for disease exist.

As previously indicated, different diseases are different symptom complexes arising out of reduced nerve energy and increased toxicity. Habits of living that waste nerve energy result in inhibition of secretion and excretion—and the consequent self-poisoning. The part of the organism laden with toxins is the first to react, but the effect is general—all the organs and structures of the body suffer the impairing effects.

The body functions as a unit and depends on the continuous cooperation and coordination of all its parts—if one function is disturbed, the health and integrity of the organism and all its parts and functions are affected.

The body ejects its uneliminated waste products by means of a crisis or acute disease, so that the toxins are expelled vicariously, or through channels not normally utilized, e.g., mucous membranes, skin, etc. Thus the disease is a process of detoxification and recovery, and is remedial and beneficial. Although it does expend great reserves of energy, it is a process of self-preservation.

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19. Accommodation

There is a body limitation to the vital resistance it can muster against acute disease. When the organism is continually subjected to intoxicating substances (such as tobacco, coffee, drugs, etc.), the body accommodates, and the result is impaired function and chronic disease.

In general, accommodation is thought of as beneficial, but most physiological accommodations are just the opposite. The body accommodates to excessive exposure to sunlight by a deep tan, which cuts off the damaging influence of the sun. Vitamin D needed by the organisms is produced in a much reduced quantity. The skin will also become coarse and leathery because of the defensive accommodations. Normal secretions are reduced, and other departures from the ideal occur.

When calluses form on the hands as a result of manual work, this adaption is necessary—it is the body's defense against a mechanical irritant it can't escape or overcome. Such accommodations preserve life, but they are departures from the ideal.

Accommodation to smoking, drugs or other poisons imposes upon the body higher levels of toxins. The inevitable effect is the multiplication of the toxicity level, with the body actually accumulating additional toxins of its own which it cannot normally excrete. The result is disease. Epidemic diseases are the consequences of the existence of such conditions in the bodies of great numbers of people.

In today's world, it is probably not possible to achieve the degree of health that could be attained after several generations of healthful living Hygienists, we keep striving for improvement, though the true "ideal" may be unattainable.

We may have occasional crises of illness, but we must realize that sickness is not an enemy. Discomforts are our own body signals that we are doing something wrong. If we heed such signals in a timely manner, by fasting and resting, instead of waiting for a full-fledged healing crisis, we will need only a mild and brief cleansing period. If we live our lives in this manner, we do not fear so-called "contagion" and "epidemics."

Natural Hygiene begins in the mind—with understanding. The food regime is a critical factor—exercise is important—but all the other needs of life must be met. It is necessary to get in touch with yourself and be in harmony with your biological requirements.

19.1 "Allergic" Symptoms

When, the organism is confronted with toxins which it cannot eliminate and to which it cannot adapt, it may produce "allergic" or even "pan-allergic" symptoms—extreme reactions causing respiratory, neurological, and digestive symptoms, and symptoms involving the muscles, joints, skin, eyes, ears, throat, and elsewhere.

The Environmental Health Center (Dallas, Texas) is a clinic that specializes in treating people for chemical sensitivities, principally by first "fasting patients to cleanse their systems," then testing on various foods and chemicals to determine which cause "allergic" reactions, and then endeavoring to eliminate the offending substances. It is a slow, painstaking, and expensive process.

Dr. William J. Rea, who founded the Center, and Dr. Sprague, a colleague of Dr. Rea's, deal mostly with "ecology" patients—people who have become "pan-allergic" from exposure to insecticides, or from the use of drugs or chemicalized foods.

D.W. Nauss, *Dallas Times-Herald* (reprinted 11/3/82 *St. Petersburg Times*) says: "Dr. Rea said his interest in chemical sensitivities developed after he and his family were incapacitated following a pesticide spraying in their home. I realized then that there were many chemicals, not only pesticides, that were harming people, he said.

"Chemicals are not the root of all disease, Rea said. But he believes many ailments could be prevented if doctors better understood their role in impairing the body's defense systems. The medical community, however, is ill-informed about ecological illness and resistant to learning, he said.

"Clinical ecologists admit they have only scratched the surface in their effort to understand chemical allergies. Researchers say allergies can be inherited, can be caused by a physical or emotional trauma or can result from exposure to various toxins.

"An allergy is produced when the immune system breaks down. In simplified terms, the system is depleted of white blood cells which control the production of antibodies to fight antigens or foreign bodies. As a result the system is overrun by antibodies, creating the allergic reaction. In extreme cases, the body becomes so sensitized that it reacts to even small doses of substances that normally would present no problem.

"Because some chemicals often attack the nervous system, mood swings and personality disorders are not uncommon among ecology patients. Dr. Theron Randolph, a Chicago doctor and pioneer in the theory of clinical ecology, suggests some mental illnesses may be caused by chemical sensitivities, stemming from foods, beverages, dusts, and pollen."

NOTE FROM THE EDITOR: Don't take this medical rationale wholehog. There is no such thing as an immune system or antibodies. There are only regular defensive faculties. Allergies are due to body overreaction to certain substances it overdefends.

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20. The True Explanation Of Contagion

M. O. Garten (*Tomorrow's Health*) says, "An average healthy person, with an uncontaminated bloodstream, need not be concerned or apprehensive about being subjected to a 'contagious' disease ... However, this is not true with a person of low vitality and high accumulation of metabolic waste productions ... Bacteria or germs of such a person stimulated into activity by the devitalized elements upon which they thrive, when transferred to the mucous membranes or tissues of another person equally toxemic may be assumed to begin work immediately and in the same manner as on the first-carrier.

"This is a true explanation of 'contagion' and one may say that the germ precipitates the disease or excites it in the person to whom the germs are transferred ... Germs ... could be recognized as contributing factors in all toxic crises in which the localized outside area is exposed to infection or contamination. Serums or drugs will help add to the general toxic load, and instability results in serious harm, even though they" (the serums or drugs) "may apparently modify or suppress a local or general pathological process."

The modification or suppression of normal body function by poisoning (with serums or drugs) is another factor in this picture. Sometimes, when people are too drugged and devitalized, they *cannot* have the healing crisis, even though elimination of a high accumulation of wastes is necessary. Because vaccinations may so reduce vitality as to make it impossible to conduct a simple eliminative crisis, vaccinated people are said to be "immune" against the particular disease they have lost the ability to conduct. In truth, the price of their inability to dispose of the toxins at an early stage, is their accumulation and the insidious development of worse, and more serious, degenerative diseases.

The contagion that actually is prevalent is the contagion of bad habits, producing the same vulnerable and susceptible condition in great numbers of people. Such people conceivably can, through intimate contact, trigger disease symptoms in each other.

But what about the thousands of people who develop colds who have not been in contact with someone with a cold? And what about the thousands who are in intimate contact with someone with a cold who do not develop a cold?

In 1967, after my 29-day fast, I worked in a small office with several other people. Every one of them had repeated colds, some developed flu; I was the only one in the office who never had any such symptoms and lost no time from work.

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21. Physiological And Ecological Cleanliness Vs. Vaccination

21.1 Von Hoffman: "Do we really need vaccination?"

Physiological drainage is even more important than drainage of swamps, and infinitely more important than germicides and pesticides. The soil (in the body) is prepared for so-called epidemic disease by failure to keep the fluids and tissues of the body sweet and clean.

In the 1850s, when this country suffered with recurring epidemics of cholera, it developed among the residents of sweltering and crowded cities, and among (as Dr. Shelton puts it) the drunkards and the ill-nourished.

A Hygienist writing in 1851 about cholera (*Dr. Shelton's Hygienic Review*, May 1976, page 196) says, "In New York as in the Old World, the chief victims of the cholera came from the same classes; the destitute poor, the badly fed, the insufficiently clothed, the crowded, the dirty and the intemperate."

The better fed, better housed, clean, and temperate did not get cholera. The same is true today; the enervated and toxemic, the weak and dissipated are sick. Those who live according to the laws of nature are well.

Dr. Shelton says (*Dr. Shelton's Hygienic Review*, May 1976, page 197), "Before the Salk and Sabin vaccines there were great numbers of mild cases of polio and there were a few severe cases. This condition has not been changed, although many cases formerly diagnosed as polio are no longer so diagnosed. But I have yet to learn of a single child of Hygienic or vegetarian parents who has had polio. ... A healthful regime will not cause polio nor cholera, smallpox, and diphtheria."

Scarlet fever declined in incidence and virulence as rapidly as did diphtheria—without a vaccine. Cholera, bubonic plague, English sweat, and typhus fever declined and disappeared at the same time as smallpox—only smallpox had a vaccine! Some common factor must have been responsible for the total decline—not an "immunizing agent," used for diphtheria and smallpox and not for the' other diseases. Dr. Shelton asks, "Is vaccination merely a substitute for personal and community cleanliness?"

Van Hoffman: "Do We Really Need Vaccination?"

Nicholas Von Hoffman, syndicated columnist, after reading *L'Intoxication Vaccinate*, by Fernand Delarue, wrote and article, "Do we Really Need Vaccinations?" (*St. Petersburg Independent*, 9/18/78). He says that the French anti-vaccinationist has some compelling statistics supporting his position.

Von Hoffman continues:

> "Swine flu experience or no, no practice of Western medicine is more globally accepted as

> safe and efficacious as inoculation. In a quiet way, some few doctors have grown so concerned about the known and unknown harmful effects of inoculation, they have wondered if the prevention of the disease may be more risky than going without protection. Prestigious medical figures have even gone so far as to venture that in recent years more polio may have been caused in the United States by the vaccine than by contracting the disease in the usual contagious manner
>
> "A long list of maladies ranging from blindness to convulsions to eczema to death has been imputed to vaccination, but for well over a hundred years informed opinion has held that the benefits of protection outweigh the risks. Now a small but growing number is wondering if inoculation docs confer the protection claimed for it. We know, for instance, that some of the worst epidemics to ravage our kind were not suppressed by vaccination but by achieving a higher level of public cleanliness. Thus it was sanitation, not inoculation, which ended the Black Death. Something of the same thing may have occurred with smallpox
>
> "In the middle of the '70s, the English launched a large public sanitation program and as it went forward the percentage of vaccinated people in the population and the incidence of smallpox both dropped. Moreover, medical records from the time indicate vaccinated people were more, not less, likely to get smallpox than the unvaccinated
>
> "Delarue centers his inquiries in France, where he says, for a long time there has been a number of practicing doctors as well as academicians who've had the gravest private doubts over inoculating people. *They've not wanted to take the catcalls and the damage to their careers which speaking out would bring down on them.*
>
> "Somewhat the same situation probably obtains here. Yet old ideas have to be reexamined and retested from time to time. We have sunset laws for our public institutions so that every so often they must defend themselves and show that they are still necessary. The same should hold for old, long undiscussed scientific principles, especially when they concern the immediate health and well-being of millions."

21.2 Dr. Mendelsohn: Now I Am Against All Vaccines

Dr. Robert S. Mendelsohn's book, *Confessions of a Medical Heretic*, contains three pages (pages 143-145) about the dangers of immunizations, and the fact that "immunized" people may not only be in greater danger of contracting the specific disease against which they were vaccinated (than if unvaccinated), but are also subject to neurological and sometimes fatal conditions caused by the vaccination

Dr. Mendelsohn says, "The entire flu shot effort resembles some massive roulette game, since from one year to the next it's anybody's guess whether the strains immunized against will be the strains that are epidemic. We were all afforded a peek at the real dangers of flu vaccines when, in 1976, the great swine flu fiasco revealed, under close government and media surveillance, 565 cases of Guillain-Barre paralysis resulting from the vaccine, and thirty "unexplained" deaths of older people within hours after receiving the shot."

Dr. Mendelsohn recently told American Natural Hygiene Society member Barry Mesh that "now he is against all vaccines."

21.3 "Mistakes" and "Bad Batches" (Contaminated Vaccine)

When an epidemic occurs on the heels of a mass immunization, the excuse is often given that "it was a bad batch." Sometimes "mistakes" occur. A recent (fall 1982) report from Sarasota, Florida, is a case in point. "Health officials in Sarasota admitted Tuesday a miscalculation in determining the dosage of a vaccine resulted in 19 youngsters receiving 10 times the recommended amount of Rifampin, a vaccine for hemophilius meningitis. Dr. Robert Laurie, head of the Sarasota County Health Department, said the overdose administered over the weekend resulted in adverse reactions in the 19 children, but none of them had to be hospitalized. The vaccine was given to the parents of 19 children at Grace United Methodist Church Day Care Center at Venice after a three-year-old girl at the center was stricken with the disease." (Craig Basse, Sunrise Digest, *St. Petersburg Times*.) Sometimes the "bad batches" or "mistakes" result in deaths.

In Barbara Ann Boruff's article (referred to previously), she also says:

> "In addition to the likelihood of disease, complications, or death, is the possibility of receiving contaminated vaccine. Since 1954, several such incidents have occurred. One is the well-known Cutter scandal, which became the impetus for the establishment of a federal agency to monitor the effectiveness and safety of inoculations for mass immunization. This organization is the Division of Biologies Standards (DBS)
>
> "In the early seventies, the DBS came under severe criticism with regard to its practices. In 1961, several million people received polio and adenovirus vaccines that had been contaminated with a monkey virus known as SV40, known to cause cancer in hamsters. Its effect on humans is not yet known. Instead of taking the remaining vaccine off the market, the DBS continued to allow their usage 'rather than risk eroding public confidence by a recall.' (*Science*, March 17, 1972)."

21.4 Let's Look At the Record

Excerpts from *Don't Get Stuck!*

William Howard Hay, M.D., Pocono, Pennsylvania June 25, 1937, Address before The Medical Freedom Society (published in the Congressional Record) on the Lemcke Bill to Abolish Compulsory Vaccination:

... "I know of one epidemic of smallpox comprising nine hundred and some cases, in which 95% of the infected had been vaccinated, and most of them recently ...

"A number of years ago, Cook County, Illinois Hospital decided to immunize (against diphtheria) one-half of the nursing staff, and not the other half. Diphtheria broke out soon afterward among the immunized cases, not the others ...

"Within six years of the U.S. takeover of the Phillipines and after 30,000,000 vaccinations, they suffered the worst onset of smallpox, the worst epidemic three times over, that had ever occurred ... and it was almost three times as fatal. The death rate ran as high as 60% in certain areas, where formerly it had been 10% and 15%."

Report of U.S. Secretary of War, Henry L. Stimson, July 24, 1942:

"Recent army experience with yellow fever vaccine resulted in 28,505 cases of hepatitis, with 62 deaths, as of July 24, 1942."

1957-1959

In 1957, nearly *half* the paralytic cases of polio in children between five and fourteen occurred in vaccinated children. It was admitted that the vaccine had been causing paralysis. There were more polio cases in 1958 than in 1957—6,029 cases, with 3,122 paralytic. In 1959 there were 8,577 cases of polio, with 5,694 paralytic. (The Salk vaccine had been introduced in 1955.) In 1959, the health director of the state of Idaho; Dr. Carl Eklund, one of America's vaccination authorities; and Dr. Florio, the medical officer of Denver, all spoke out against the epidemic and crippling effects of the Salk vaccine.

1961 (Chicago Daily News, 9/16/61):

In 1959, the Sabin Live Virus Vaccine for polio was introduced. "Eleven persons who received Sabin oral vaccine a mass immunizing program in the Syracuse, New York, area have developed paralytic polio, the U.S. Public Health Service reported yesterday."

1964 (Awake Magazine, 11/22/64):

"The U.S. Public Health Service recommended that the Sabin oral vaccine for polio be discontinued to adults ... A seventeen-man committee found that 57 cases of paralytic polio have been found that were compatible with the possibility of having been induced by the vaccine. The vast majority ... involved adults."

Read *Don't Get Stuck* or *The Poisoned Needle* for details about the trail of crippling and death left by vaccination. A large volume could be filled with the recorded cases.

21.5 The Swine Flu Hoax

Dr. Shelton said in 1976, "The pain proposed by the president" (Ford) "involves the absurdity of introducing the supposed cause of influenza into the bodies of the people to produce in them mild cases of influenza in the hope that this will cause them to produce protective antibodies and thus enable them to escape more serious disease by the accidental invasion of their bodies by the same supposed causes. Viruses are very accommodating little critters. They introduce mild disease when introduced into the body by physicians and serious disease when introduced accidentally. What an enormous debt the medical profession owes to viruses!"

A student of mine (in 1976) reported to me that her father had been caught up in the swine flu immunizing frenzy, and had died the day after receiving the vaccination.

It may seem incredible that the 1976 Swine Flu Epidemic hoax, with its terrible consequences, has not aroused the public to reject all so-called immunizations. But the government and the medical profession have glib and plausible explanations and continue to sell the idea that the risks involved in "immunization" are small, compared to the potential benefit. And the public still accepts the idea of "contagion" being the cause of "epidemics", and allow their children to stand in the "immunizing" lines.

21.6 Compulsory Vaccinations and Exemptions

Those who doubt the necessity or advisability of vaccination are browbeaten into submission by the "authorities" who insist "it is the law." Actually, the laws vary from state to state.

California allows exemption simply on a written statement that immunization is contrary to his or her belief. But even in Florida, where the media have been screaming, "No child will be allowed to enter school without proof of immunization," it is possible to escape.

Members of the American Natural Hygiene Society can apply to the Society for assistance. Sometimes a firm approach to the school authorities is all that is necessary.

At the October 1982, meeting of our Pasco Natural Hygiene Society, two happy parents (Clearwater, Florida) informed me that all it took was a statement to the school authorities that vaccination is against their religious beliefs. They were told that in case of any outbreak of one of the "vaccination diseases," their children would be required not to attend school until the outbreak was over.

Of course, they were delighted, and repeatedly thanked me for guiding them in the right direction—away from the fear of "contagion" and "epidemics."

22. Questions & Answers

What explanation does the medical profession offer as to the origin of a disease that appears without any possibility of having been caught from another person with that disease?

> I have never heard any "explanation" of this anomaly, but medical people still insist that germs are the primary cause of disease.

If advocates of vaccination believe that it protects, why are they so insistent that everyone else also be vaccinated?

> They claim that for vaccination to be truly effective, at least 90% of the population must be vaccinated. The rationale is, I believe, that a vaccinated person can infect an unvaccinated person, and the unvaccinated person, being "unprotected," may develop a more virulent form of the disease, and start an "epidemic." When epidemics start among the vaccinated people, the tendency is to blame the unvaccinated people for not participating, so that complete "protection" might be obtained. These specious arguments are the only ones I have ever heard as justification for compulsory vaccination. If there are other more logical reasons for compulsory vaccination, I would like to hear them.

What causes a germ inside the body to mutate into another type of germ?

> The amount and type of toxins in the body. See (in the lesson) Dr. Shelton's explanation of why toxemia causes typhoid in one person and pneumonia in another, and the relationship to the types of food in the diet. Lack of inner cleanliness and the absence of a clean, Hygienic environment, influence the kind of eliminative crises the body will conduct. Bacteria are scavengers which feed on the materials (soil) available to it in the body of the host. The type (shape) of the bacteria is determined by the kind of soil involved.

Article #1: Toleration Means Loss of Vital Resistance by Dr. Herbert M. Shelton

Barring violence, perhaps the only cause of death is tolerated poisoning. The slow, gradual, insidious undermining of the organism—the wasting of its nervous energy and the impairing of its functional and structural integrity—by poisons that are harbored and "tolerated" kills sooner or later. Yet, toleration is one of the most misunderstood phenomena in all nature. Very few men and women grasp its true character.

Tolerance for poisoning is established by breaking down resistance to its influence. The body pays for this toleration (miscalled immunity) by general enervation and lowered resistance to every other influence.

It has been objected that the breaking down of resistance should not produce toleration, that it should weaken the organism and render it more susceptible to the influence of poison. This objection arises out of not understanding the phenomena of resistance.

We have seen tolerance defined as the "ability to endure the continued use of a drug." We have also seen it defined as the ability to resist a drug. There is something wrong somewhere. It is one thing to resist; it is another to endure.

That the vital system resists drug poisons is not doubted. The means of resistance is not well understood. When emesis (vomiting) follows a dose of ipecac and diarrhea follows a dose of calomel, these processes are recognized as evidences of intolerance; but they are not understood to be means of resistance. Resistance is supposed to be some occult power that comes into play after the physiological evidences of intolerance have ceased. This is the reason we are told that tolerance means being inured to poison by habit so that it may be taken without harm.

So long as the body actively resists and speedily expels the poison, it is supposed to produce harm, after active resistance has ceased and rapid expulsion no longer occur, it is supposed to be harmless.

It should be obvious to even a child that its speedy expulsion prevents harm while its toleration permits it to do much harm. If calomel is expelled by diarrhea, it does not get into the blood and cannot damage the blood, nerves, bones, teeth, etc. If it is not expelled by diarrhea, it does get into the blood and does damage all of these structures.

It is a sad day for the body when it learns to tolerate poisons. If intolerance persists, it will force cessation of the use of poison. If tolerance for tobacco were never established, there would be no tobacco users. The same for alcohol, opium, arsenic, and other poisons.

Note that the symptoms of poisoning—pain, nausea, vomiting, griping, diarrhea, vertigo, weakness, inflammation, etc.—are also the symptoms of disease. So-called disease is a process of resistance—resistance to poisons. It expels the cause of disease as surely as it expels calomel or ipecac. This fact is so very obvious we are unable to understand why it cannot be grasped by all.

Drugs are said to lose a degree of their potency by repetition. This does not express what actually takes place. It is not the drug that loses its potency. It is the body that loses power. The repeated use of a poison gradually overcomes or decreases vital resistance.

So long as it was believed that the symptoms following the taking of a poison represented drug action, it was legitimate to believe that when these symptoms, no longer followed a dose of the poison, the drug had lost some of its potency. But when we realize that these symptoms are signs of vital resistance, that they are actions of the living body, we understand that the failure of these symptoms to follow a dose of the poison is due to a loss by the body of power to act.

This weakening of the powers of life, this subduing of the power of resistance, results in establishing what is called toleration. When toleration is established, that is, when the power of resistance is worn out, to produce the same effect—the same degree of resistance—the size of the dose must be progressively increased.

When medical men tell us that drugs lose their "remedial" effects by long continuance, we are to understand that vital resistance has been subdued. For the phenomena of resistance are what medical men mistakenly call the "remedial" effects of their drugs. They have not yet learned that it is the living body, not the drug, that acts (acts to expel the poison).

Toleration and lost resistance are one and the same thing. It is a matter of every day experience that as the body's power of resistance to a particular poison is reduced, it is less able to "react" to that poison.

The first effect of a toxin is always stimulation, which is merely another name for excitement or irritation. This is always followed by actions of the body (the so-called "reaction") to expel the poison. These actions (or "reactions") represent the process of resistance. The body refuses to tolerate the poison.

When "stimulation" is frequently repeated, increasingly large doses of the same poison or toxin are required to arouse a degree of intolerance that equals the intensity of the original "reaction." This lowered "reactive" power, this lessening of the defensive actions of the body, is called toleration.

Diminished resisting power (toleration) is a state of enervation. General enervation, however produced —by drugs, excesses, by toxemia—diminishes resisting power to all poisons or excitants.

This does not, in and of itself, represent a diminished susceptibility to the baneful influence of poisonous drugs. It may, however, represent, in addition to the increased enervation, a change in the methods of self-protection, a shifting from one method of defense to another and let; expensive one—a passive resistance and a slow yielding to the influence of the poison.

This represents the cessation of active resistance, or partial submission to the poison. For submission, or lessened resistance, is what toleration really amounts to.

Passive resistance is doubtless accompanied with or accomplished by changes in the tissue, which, if not identical with those seen in the hands when these are subjected to repeated friction, are analogous to them. The hardening and thickening of the hands, that is the building up of callouses, is not the result of friction, but is a means of resisting friction. The tendency of friction is to wear away the skin, hence this must be continuously built up from beneath.

While the callous guards the underlying structures against the friction, it cripples all the powers of the skin. Such skin is not ideal—does not represent the physiological norm.

If you are not accustomed to using fiery condiments and you undertake to use red pepper, it causes the lips, mouth, tongue, and throat to burn intensely. When swallowed, it produces discomfort in the stomach. There is later a feeling of discomfort in the intestine as the irritating pepper passes along. When, finally, it is expelled in the stools, the anus and rectum burn as much as did the mouth when the pepper was swallowed.

Persist in the use of the pepper and its irritating effect grows less and less until, finally, it produces no burning of the mouth and throat, no distress in the stomach and intestine, no burning of the rectum and anus. The membranes of the entire digestive tract become thickened and hardened in defense against the repeated irritation. The protective thickening impairs their other functions. The sense of taste is dulled, digestion is impaired. Doubtless something similar to this takes place in all the tissues of the body that are subjected to chronic irritation by alcohol, tobacco, caffeine, arsenic, opium, salt, and other poisons and irritants in common use. They, too, must undergo changes to defend themselves.

Adaptation to poisons, that is, the establishment of toleration, is accomplished by changes in the tissues that are away from the idea! and that cripple all the powers of the tissues.

I do not think it can be too strongly emphasized that adaptation to the use of a poison, that is, the establishment of toleration, is accomplished by a depravity of the organism. This fact was, so far as I know, first explained by Sylvester Graham more than a hundred years ago.

The greater the physiological depravity, the more of the poison will be "demanded" by the user and the more his body will tolerate without signs of active resistance. In other words, in precisely the proportion to which one becomes accustomed to the use of any poison is his system depraved and his defensive powers reduced. The ability to use large quantities of tobacco, for instance, without being made sick, instead of being an evidence of strength and physiological fitness, is an evidence of weakness and physiological depravity.

When tobacco is taken into the undepraved organism, it is met with strong vital resistance. There follow in rapid succession distressing dizziness, muscular relaxation, tremor, weakness, perhaps fever, nausea, vomiting, diarrhea, and even convulsions. Such a "reaction" always follows the introduction of tobacco into the undepraved organism; and the more vigorous and undeprived the organism, the more prompt and powerful will be this "reaction."

It is only by commencing a career of depravity, with cautiously measured steps, that we may break down the body's resistance to the poison and, ultimately, bring about a condition in which the body seems actually to call for and embrace, as a friend, its arch foe.

The body may thus be so depraved that the deadliest poison may be habitually taken in considerable quantities and only result in an immediate feeling of apparent well-being. Indeed, there maybe, and usually is, much suffering if the depraved organism is denied the cause of its depravity.

The habitué may be able to take at one dose enough poison to kill six nonusers. Arsenic may be used as freely as table salt, with as little immediate evidence of its poisonous character, once the body has been beaten into submission. Prussic acid, which kills like lightning, when the body is not accustomed to its use, may, beginning with minute doses, and gradually using larger and larger doses, be used with considerable freedom as a means of "exhilaration" and intoxication.

The opium addict can take at one dose sufficient opium to kill several nonusers outright. Instead of producing any immediate symptoms of poisoning in him, the opium results in an immediate feeling of well-being. If he is denied his accustomed dose, he suffers intensely. Give him his accustomed poison and his sufferings vanish as if by magic. The cause of his suffering seems to cure his suffering, but only seems to, for the longer he uses the opium, the more he suffers and the larger dose and the more frequent doses will he require to silence the outcries of his outraged system. The real effect of the dose is to renarcotize his nerves, which can only cry out and reveal his true condition when they are no longer under the influence of the drug.

In the same way coffee will "cure" the headache it produces; tobacco will "steady" the nerves it has unsteadied; alcohol will "strengthen" the man it has weakened; sleeping potions "cure" the sleeplessness they have produced, only to make the sleeplessness worse and require a larger dose to "cure" next dine. Stimulants weaken us by overstimulation, mistaken for "energy."

The ability of the carefully depraved organism to tolerate large doses of poisons and the fact of every day experience that the use of poisons by the physiologically depraved instead of producing immediate symptoms of poisoning, results in the appearance and feeling of well-being, has led even intelligent people to stoutly deny the poisonous character of many poisons in habitual use. Because tobacco, opium, alcohol, arsenic or coffee and tea may be freely and habitually used without producing immediate death, or any of the distressing symptoms that indicate acute poisoning; but, on the contrary, so far as the feelings and actions of the users are concerned, they act as grateful "cordials," men and women are deceived by them. "My experience has shown that tobacco is very kind to me," says the tobacco user, while the opium addict informs us that his "experience has shown that opium is very kind to me."

Such "experience" is based not only on the deceptive appearances of drug habituation, but is defective in that it forgets or ignores both the beginning and the end of the experience with the drug. If we accept the nonpoisonous character of tea, coffee, tocabbo, alcohol, opium etc., on the basis of such "experience," we are forced to the fallacious conclusion that there is no such thing as a poison in nature. The body can learn to tolerate most substances, however deadly, by a career of physiological depravity.

The true test of the poisonous or nonpoisonous character of any substance is its introduction into the undepraved—the intolerant—organism. By this test tobacco, alcohol, tea, coffee, opium, arsenic, and all other drugs that are used for "exhilaration" and intoxication are shown to be strongly anti-vital i.e., poisonous.

The beginning of a poison vice is marked by evidences of acute poisoning. Thereafter, there are evidences of acute poisoning. The end—no one disputes the end of opium addiction. Few today will deny the end of arsenic eating. Why close our eyes to the ends of alcoholism, nicotinism, caffeinism, etc.? Not until we include in our "experience" both the beginning and the end of a poison-vice are we justified in drawing conclusions from "our experience."

Article #2: Your Probing Mind By V. V. Vetrano, B.S., D.C.

What is the Hygienic viewpoint of viruses and their effects on living cells?

This question is a little difficult to answer because virology is still in its childhood. Their nature is still not known. Are they plants, chemicals, animals, or parasites? No one knows exactly what they are.

Boyd states that a virus "represents a most minute and primitive form of life. Even this statement may be questioned, for the virus seems to exist in the dim borderland between living things and chemical compounds. It is a submicroscopic unit containing nucleic acid and protein. Unlike bacteria, viruses are not capable of supporting life on their own, owing to a lack of enzymes. In order to exist and multiply, they must occupy living cells, which provide them with necessary material and energy. ... It is evident that a virus is a perfect example of a parasite."

Some viruses live and grow only in man. Others prefer other animals. Some of them like to live only in specific tissues such as nerve tissue (neurotropic), while others prefer the skin, and are called dermotropic. Still others are *viscerotropic*, meaning that they live in the viscera of animals.

The current knowledge of the virus seems to point clearly to its parasitic nature. Knowing the nature of viruses gives us a clue as to how to "defend" ourselves from them, if, indeed, we need defending. They, like bacteria, may end up being our benefactors instead of our enemies. Their outstanding characteristic is that they cannot multiply unless in a living cell. Since they live within the cell, dosing ourselves with antibiotics and other drugs such as the sulfonamides will not destroy them.

Viruses, being mainly proteinaceous in nature, occasion antibody formation when they are in the bloodstream. The body acts against them to destroy them, just as it destroys bacteria. A healthy body can destroy them as rapidly as they are formed. Even though they are somewhat protected within the cell from the antibodies, a healthy cell can keep them under control and prevent them from overwhelming the cell.

A medical differentiation is made between a viral infection and viral disease. A host may be infected with a virus but not manifest a disease. In the case of viral infection multiplication of the virus can proceed without damage to the cell. When there is a viral disease, the cell shows pathological changes, usually in the form of degeneration. Boyd thinks that viral infection is universal but that viral disease is relatively rare. He says, "viral infection is very much commoner than viral disease—indeed it may be universal. Thus polio virus infection is many hundred times commoner than the disease, and adenovirus infection of the tonsils is present in about 90 percent of normal persons, although disease caused by these viruses occurs in a very small percentage.

"In viral infection, a virus may sojourn indefinitely in the comfortable surroundings of the cell. It is more than a boarder, for it has become one of the family, and it can live with the family for generations without causing trouble. Various internal or external agents may upset the harmony and convert the latent virus into a virulent one, which usurps the cell's biosynthetic machinery for the production, almost exclusively, of viral progeny (Swartz and Littlefield). Such factors as age, genetic makeup, nutrition, or hormonal balance may be responsible. So may bacterial infection, one of the best examples being the well-known relation between the herpes simplex ("cold sore" on the lip) and pneumococcal pneumonia. Influenza is believed with reason to predispose the patient to respiratory tract bacterial infection, but it is also possible that such an infection may precipitate an attack of influenza through the conversion of a latent into an active virus.

"It is now known that a protein is produced by virus-treated cells in tissue culture which is capable of inhibiting or interfering with the growth of many other viruses. This material has been named interferon, and it seems to have many of the properties of a viral antibiotic, so that we may hear more of it in the future (Isaacs and Burke). Recovery, as opposed to immunity, does not depend on the production of antibodies. The factors responsible for recovery are at present unknown.

"The practical importance of the theoretical considerations which have just been outlined lies in the fact that as viral disease is dependent on viral reproduction, and as viral reproduction is dependent on biochemical processes, it may be possible to interfere with these processes and thus inhibit reproduction by chemical compounds. First steps in this direction have already been taken, but we have to face the unfortunate fact that by the time signs and symptoms of disease are apparent, reproduction for the virus is far advanced. It is evident that the control of viral diseases presents the same formidable obstacles as the control of cancer and for the same reason, namely that we are dealing with a disorder within the cell itself."

I quoted extensively from Boyd because I wanted you to read the medical man's words yourself. When analyzing his writing, we learn that a virus can be present without a disease being manifest and without the disease necessarily developing even in the future.

In fact, we learned that 90% of normal persons can harbor a virus and only a few of this percentage develop the disease the virus is supposed to cause. Viral disease, like bacterial diseases, require something else or some other enervating substance or influence to prostrate the body's protective functions permitting the virus to run away with the biological activities within the cell.

We also learned about interferon. This indicates that the body does have a means within the cell of protecting itself, thus preventing the virus from multiplying within the cell. It has always been totally unthinkable to me that a virus could enter a ceil, and take over without the least bit of biological protest. Now we have learned that the body protects itself from viruses just like it does from bacteria and their toxins. Our job is to supply our bodies with the necessary materials and influences which promote health and protection.

We learned also that there are "carriers" of viruses just as there are "carriers" of bacteria. A "carrier" is a person in a state of impaired health but not yet sick enough to go to bed. This state of lowered vitality is low enough to permit the virus to exist, but not low enough to permit it to multiply so much that it produces apparent degeneration of the cell. This takes years. Greater health will enable the host to destroy the viruses, and less health will cause the carrier to develop a so-called viral disease.

As Hygienists, we know that there is no such thing as a viral disease. There are simply stales of impaired health with cell degeneration. That the virus is an entity and that it occasions cellular degeneration is stilt a mute question. The so-called viruses may simply be the various toxic debris that Hygienists have been condemning and shouting about for many years. Not wanting to keep the toxin in the bloodstream, the body may find a means of encapsulating it in a protein membrane and injecting it into a cell to get it out of the bloodstream. Eventually these toxins pervert the metabolism of the cell and cause cellular degeneration. The virus may be only encapsulated protein, the body having surrounded it with a membrane to prevent an excess from upsetting the system. The modern high protein diet may be the reason for so-called viral infections.

Another thing we gleen from the foregoing quotation from Boyd is the manner in which the medical man thinks. Instead of thinking in terms of improving the person's health with the normal elements of physiology, he thinks in terms of a chemical which will destroy the virus although he previously pointed out the fact that the cell can protect itself with interferon, and although he mentioned the factors which may make a latent virus become active. Instead of telling us to avoid these factors, he searches for a chemical panacea. It has been proven with antibiotic therapy that you can't kill all bacteria with antibiotics and often instead of destroying the bacteria, the drug simply produces a mutant strain that is resistant to the chemical or antibiotic, and the bacteria thrive in the host despite the drug.

But the host's health is destroyed and his ability to destroy bacteria is at the same time depressed by the antibiotic. Instead of making the host immune to disease and bacteria, it makes him more susceptible. The same can be said of any drug, which may be produced, that will kill viruses. If it is destructive to the virus, it will also be destructive to those taking the drug.

Many important facts have been brought to the surface by modern research. What is so remarkable, is that every time something new is learned it only strengthens and confirms the Hygienic viewpoint of disease.

We have learned that viruses vary just as do bacteria. Something causes them to change from a virulent virus to a nonvirulent one or vice versa. What causes this? In bacteria, it is their environment. If the environment is toxic and the bacteria must live on filth, they become virulent. There is every reason to believe that viruses in a toxic environment filled with an excess of metabolic waste products and environmental poisons, will also become virulent because of their nourishment.

An article from the *Cyclopedia of Medicine* written by Edwin W. Schultz, M.D. clearly points out that viruses change. He states,

> "Considerable experimental work has been done on variation in viruses. It is well established that viruses do undergo variations, including variation in virulence, in antigenic structure, and in the character of the lesions induced. Sometimes the variations are of a stable mutation type, at other times, not. While viruses have been compared with self-perpetuating genes, little is known regarding the genetics of viruses
>
> "The capacity of viruses to undergo variation has also been studied in the laboratory. Certain variations have been induced in vaccinia virus and other pock viruses. The conversion of 'street virus' to 'fixed' rabies virus it a classical example of laboratory adaptation. In its passage from brain to brain in rabbits, street virus loses its ability to progress along peripheral nerves; this is a variation relating to its tropism. It occurs without significant changes in antigenic properties. With some viruses, however, appreciable shifts may sometimes occur in the antigenic properties when these are passed long enough in a new type of host. Among the more important variations, which have been induced under artificial conditions, is the transformation of yellow fever virus under tissue culture conditions from a primarily viscerotropic virus to one which has not only lost its viscerotropism, but inherent neurotropism as well, arid this without significant alteration of its natural antigenic properties. Strain 17D, now employed in immunizing against yellow fever, has this history."

Again the physician is thinking in terms of using this newfound knowledge wrongly. Instead of learning that a healthy body will destroy the virus and that it can even turn a virulent virus into a nonvirulent one so that it will not cause any pathological degeneration, they are still thinking in terms of immunizing the body against the virus, which is impossible anyway because of the many different strains of the same virus.

That the immunizing process is fraught with great danger is brought out in the following quotation from the the same author. "A certain degree of pliability in a virus can prove a useful property. If a virus can be made to give up its natural virulence without significant change in its anti-genic properties, it may become useful as a vaccine. What will happen when it is placed in a new environment is, however, often unpredictable. Merely carrying it under such conditions for a time gives no assurance that a change in virulence or other properties has been induced. Proof that such a useful change has been effected may require lengthy experimental observations to determine not only the degree of the change, but the stability of the change."

In summary, all the newer knowledge about viruses only strengthens, corroborates, and substantiates the Hygienic viewpoint of all bacteria, parasites, and viruses. The healthy body has its means of destroying and eliminating them from the system. If you are in a state of impaired health, drugs and vaccines do no good whatsoever. They further weaken the organism and intoxicate the system, making it even more susceptible to parasitic and bacterial invasion.

Furthermore, we just learned of the hazards of injecting attenuated viruses. They can backfire and become virulent again. Many children became paralyzed after taking Sabin and Salk vaccines. The means of health and only the means of health are useful in states of disease. If a substance bears no normal relation to the body and if it is not generally used in any of its biochemical or physiological processes, then it does not belong in the body even if it does kill bacteria and viruses in the test tube. We are dealing with living organisms, not minced tissue growing in a culture in the lab. Let us rely on the only reliable means left, and those are the primordial requisites of life.

(Editor's Note: While the above article gives credence to medical views, it is, nevertheless an excellent Hygienic presentation. Students should now know that so-called viruses are only cellular debris, being, particularly, the remnants of genetic material from cellular mitochondria. This debris, along with other uneliminaled wastes, constitutes the morbid material the body endeavors to expel when it institutes an eliminative crisis called sickness, disease, etc.)

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Article #4: Must I Be Immunized? by Virginia Vetrano, B.S., D.C.

Worried people call the Health School asking if they should have themselves immunized before traveling abroad. They are going to the Far East or Mexico, and should they beware of fresh fruits and vegetables? Is it true that they must drink wine or beer, and shun pure water?

These and other questions come to their mind when preparing for a visit to other countries. They have heard so many scare stories written by the masters of the scare science that they take a trip with great fear and trepidation. Indeed, some remain home for, fear of "catching" some foreign "bug."

On January 4, 1971, the *Arkansas Gazette* carried an article by Dr. Van Dellen alarming the people that a cholera epidemic was spreading through the Middle and Far East, into Africa. "For the first time in 100 years the disease has bridged the Sahara and is in tropical Africa and as far west as Guinea. These areas are densely populated and have poor sanitation—ideal conditions for the spread of the infection. The mortality also has been high.

He goes on to say that the cholera poses "no immediate threat to the United States," but he says this "with his fingers crossed, because any person visiting afflicted countries could bring it back." Then those stow-away germs could pounce on us poor unsuspecting Americans who would then succumb to the disease.

Where was the cholera vibrio all these years? Did it disappear and suddenly return? Travelers are advised to consult the United States Public Health Service to determine which countries demand that they be *immunized* for cholera before entering, making it sound as if many countries demand immunization for this disease before crossing their frontiers. This is not so. Dr. Van Dellen states in the aforementioned article that, "Many countries in Europe, Asia, and Africa demand evidence of vaccination before a person crosses their frontiers. And this is true particularly after the person has been in a cholera-infected area."

I telephoned the United States Public Health Service and was told that it is not necessary to be immunized before going into an infected area; that the countries did not care if you were subjected to the disease when there. It is the other countries that worried when you re-entered them on your way home. I was advised that before making a world trip that one should be immunized for smallpox, cholera, yellow fever, tetanus, typhoid, polio, and hepatitis. Then one month before entering a malaria-infested area I was told to start taking medication and continue taking it as long as there was a chance of being bitten by the malaria-carrying mosquito.

The World Health Organization, Geneva, is the responsible body for the International Sanitary Regulations. It is clear in Article 83, for all those countries that accept the International Sanitary Regulations, that "objectors to vaccination can refuse the operations without being refused admission into those countries which have accepted the International Sanitary Regulations."

If you have traveled into Asia, Africa, America, other than from the United States and Canada, and wish to enter the United Kingdom, an official vaccination certificate is necessary. In almost all countries, however, you can get in without shots of any kind. It is when you re-enter other countries from an *infected* area that trouble may be given you. Paul-Emile Chevrefils, M.D., founder president of *La Ligue Pour Le Vaccine Libre* states that he travels without the yellow certificate, using only Article 83. He states that, "This international by-law gives anyone the right to go around the world by using the medical surveillance for 15 days, *not to be isolated but to go freely.*"

After informing his readers that "there is no good evidence that cholera immunizations are any good ..." Fredrick J. Stare, M.D. (*Arkansas Gazette*, November 16, 1970) urges us to be shot anyway, and then gives us a formula for eating that will supposedly prevent cholera. Do what he says and you probably will develop cholera. Do the exact opposite of his advice which follows and you will probably have more energy, enjoy yourself more and not be troubled whatsoever with "vacation diarrhea."

Stare, according to the dictates of the *infection* myth, gives us this advice: Stick to bottled mineral water, hot tea or coffee, or bottled beer, eat the meat, potatoes, rice, or other well-cooked foods, canned vegetables, bread, butter, and jam; and shun the fruits and vegetables unless you can readily peel them yourself. Wash your hands well before you eat."

This nonsensical plan of eating supposedly prevents the development of cholera by killing the vibrio with heat or chemical processes before introducing it into the body via food and water. Were the vibrio the cause of cholera his reasoning would still be specious. *Vibrio cholerae* are aerobic bacteria, meaning that air is necessary for their growth. There is not an excess of air in the gastrointestinal system. They are also killed by acidity. If food and water, contaminated by *vibrio cholera* are taken, the acid of any good stomach will soon destroy them. Kendall A. Elson, M.D. states in *Cyclopedia of Medicine*, that, "The *cholera vibrio* escapes from the body of the infected individual in stools and vomitus, although if the latter is strongly acid the organisms are immediately killed."

What people should be taught is cleanliness, and to eat moderately of properly-combined foods so that digestion is normal and they need not fear the *cholera vibrio*, if they still believe the concept of disease of the shaman. We must caution our readers against Stare's Middle Ages advice. The *cholera vibrio* does not cause cholera.

Even though he has twice made the statement that cholera *immunizations* do not protect one from cholera, Stare advises getting *immunized* anyway to avoid trouble at ports of entry to other countries which have strict public health regulations. He condemns his peers, who are M.D.s who give the shots when he says, "It is important to have this certificate in order to avoid inconveniences in travel or the threat of serum hepatitis from a dirty vaccinating needle."

To back up his statements about cholera vaccine, Stare quotes Dr. W. B. Greenough, III, whom he says "knows far more about cholera than I know or ever will know," as having written him the following: "Many commercial vaccines do not protect even in populations from endemic areas (where cholera is always present) ... as a measure for disease control immunization is ineffective since the carrier state is not interfered with by the vaccine."

What he is saying in plain English is that if the cholera vaccine protected, then cholera would not be endemic, and those who were protected would not develop the disease even if supposed "carriers" are present. However, we are taught that the "organisms usually disappear from the stools of the cholera patient within five to seven days of the onset of infection. ..." and the carrier state is not supposed to be a significant method of transmission of the disease. Cecil and Loeb's textbook of medicine states "there are no known instances of chronic carriers among human beings."

Many Hygienists have traveled to the Middle and Far East and into Africa, eating plenty of fresh fruits and vegetables, without developing any trouble, whereas often those who had all the shots and who drank wine instead of water and who didn't dare taste a fresh fruit or vegetable came down with various illnesses, including cholera. I might add, that for the sake of cleanliness, pure distilled water would be best to drink, here or overseas, and for absolute cleanliness of vegetables and fruits, rinse them well in distilled water. The *cholera vibrio* is easily killed by drying, and it dies rapidly in pure water. It is cleanliness that is necessary, not sterility.

Cholera, an acute inflammation of the intestinal canal, is supposedly spread by food and water contaminated with *vibrio cholerae*. It is usually a disease endemic and epidemic in Asia primarily along the Ganges River in India and Pakistan. The bacillus, which is shaped like a comma, and was called the comma bacillus by Koch, its discoverer, releases a powerful endotoxin after death, which contains a mucinase. Mucinase is thought to be responsible for the extreme cellular desquamation of the mucosal epithelium that is so characteristic a feature of cholera. The endotoxin supposedly causes such intense dilatation of all the capillaries along the whole intestinal tract that the fluid leaks out of these into the intestines, thus producing the rice-water stools so typical of Asiatic cholera. Because of the loss of such huge quantities of electrolytes and water, extreme dehydration ensues, and Boyd states that 75% of the untreated patients die.

Since the *vibrio cholera* does such horrible things to a person, by all means, shouldn't we take steps to prevent *infection*? These threats could scare one into being *immunized* despite the poor reports of *immunization*, before going to the Middle and Far East. Who wants to dehydrate and die? So we become immunized and avoid all fresh foods, hoping that we won't develop the disease.

Germs by themselves do not cause disease. Dr. Pettenkofer, Professor of Bacteriology at the University of Vienna, astounded all his students one day by drinking a glass of water containing millions of living cholera bacilli. He had come to the conclusion that germs do not cause disease, and wanted to prove it. As he gulped down a glassful of living vibrio, the bearded Dr. Pettenkofer only growled, "Now let us see if I get cholera." De Kruif said that Dr. Pettenkofer drank enough of the "wiggling comma germs to infect a regiment." Nothing happened to the "mad" Pettenkofer. Many incidents could be cited showing that infecting the body with germs does not cause any specific disease to develop. Perhaps this is why the president was persuaded to dump stockpiles of germs for germ warfare. Perhaps experiments proved them useless and physicians didn't want the lucrative germ theory destroyed just yet. If germ warfare were effective, it is hardly likely that he would have disposed of the stockpile.

As far back 1928, Dr. M. Beddow Dayly, M.R.C.S., L.R.C.P., Medical World, said: "I am prepared to maintain, with scientifically established facts, that in no single instance has it been conclusively proved that any microorganism is the specific cause of a disease."

In Volume VI of the *Hygienic System*, Dr. Shelton says: "In more than sixty years of intensive farming the germ idea, there is not one 'disease' that has been proved to be of germ origin, and not one can be cured according to the germ theory. Unless a germ will cause a disease every time it infects the body, it is not a cause. A cause must be as constant and specific in its influence, or it is not a cause. Germs are omnipresent—this is one of the fundamental truths Pasteur or his contemporary, Bechamp, discovered; but he and his followers appear to have overlooked the fact that germs fail to have a specific influence all the time."

Dr. Shelton further says: "The view I would put before the reader is that 'disease' is not caused by the germ, but by the state of the body that allows the germ to flourish. And this condition of the organism or any part of it which renders possible the growth of the germ therein is the much sought for 'filterable virus.' It is the outgrowth of violations of the laws of life and is no chance or haphazard condition."

Dr. Tilden says that germs are merely adventitious—secondary. If the soil is proper for the growth of bacteria, they will flourish but if tissues and secretions are normal and healthy, pathological germs will not grow and multiply.

Those who travel and drink alcoholic beverages, smoke, keep late hours, overeat on spicy, cooked dishes, and sight-see until they are about to drop are enervating themselves. They are using up nerve energy in excess. Functions begin to lag. Metabolic waste products mount in the tissues and fluids of the body. Secretion and excretion are impaired. This is the ground work, or the foundation for the development of any disease. Even then, many times the specific bacteria fail to appear. And in numerous other cases the bacteria fail to appear until very late in the stage of the disease. If a cause is a cause, logically it should be present in sufficient numbers before symptoms appear. It cannot be demonstrated that bacteria invariably appear even after the development of a particular disease.

What is the real reason for Fredrick Stare's change in feeling about vaccinations for cholera? Probably, he was given a good lecture by the AMA. Thousands of dollars will be lost to the American medical profession if people do not get their *immunizations* before they leave home. So he castigated his brethren physicians in other countries by telling his public that it is important to avoid the dirty needles in other countries. It would have been better to tell them the truth, that they could rely on Article 83 of the World Health Organization and go freely in other countries, as long as they let the health officials know of their whereabouts. This way a painful shot could be avoided as well as the occasional development of hepatitis from dirty needles in *this* country.

Why the recent outburst of cholera? An item under World Health News, in the September 1971, *Health For All* (England), has a very good answer to this question. It states: "Whenever there is a great social upheaval, with its tragic displacement of people and the consequent crowding of refugees, there is always a medical lesson to be learned. Disease often follows in the wake of such catastrophes, and, as with the most recent one, cholera becomes almost epidemic. According to medical opinion, the causative organism in this case is the *spirillum cholerae* which is found in the stools of patients. Entry into the body is through the alimentary tract, and the source of the infection is polluted water due to a lack of sanitation. To say that the organism is the cause of the disease is, however, to put the cart before the horse. The course of events runs in this order; First the breakdown of social order; then the panic of the population; and then the crowding of the people with the absence of sanitation, with the development of the organism as an associated factor. In this country, as history tells, cholera was widespread whenever people were crowded together and there was a lack of proper sanitation.

"It is interesting to notice that whenever there is a cholera outbreak, the headlines in the newspapers are given over the use of vaccines, to which, also, credit is generally afforded when the epidemic comes under control. The vaccines are rushed from the great pharmaceutical centres with the accompaniment of massive publicity with the result that probably 99 persons out of 100 would affirm the vaccines were effective in controlling the situation.

"It would therefore have come as a surprise to many people to have read on the front page of *Medical News Tribune*, June 11, 1971, the headline: 'Medical science helpless against cholera epidemic' and to have learned that 'medical science is virtually powerless in the face of the cholera epidemic on the India-Pakistan border. Tropical medicine experts can't even estimate how many could die. Better sanitation is the only answer, impossible in the present situation as millions of Pakistani refugees exist in terrible conditions, aggravated by the monsoon... .' "

Boyd's textbook of pathology states that, "The wise Chinese are the only Orientals who do not suffer from cholera; they use boiled water and cooked food, they drink tea and eat hot rice." We have had personal talks with Scott Nearing, who also said that cholera was virtually wiped out in China, but this is attributed to better sanitation and better diets for the Chinese and not due to the fact that everything they eat or drink is boiled or cooked. They have habits of moderation in all things and do not eat extensively of flesh foods.

It is a well-known fact that the Chinese have used human wastes for many centuries for fertilizer. They are still using this method of fertilization. It isn't the boiling or cooking of their foods that protects them; it is the fact that they have a better economy than many years ago, and their people are better fed than previously.

Recently, in *Organic Gardening and Farming*, an article entitled "Goodbye to the Flush Toilet" pictures the use of human wastes as very ecological and necessary. It demonstrates how unclean our system of purifying water is, and how "even the most modern of sewage plants don't do a perfect job of taking that one part of human excrement out of toilet water." This dirty water, even though sterile, is, sent back into the reservoirs for us to drink and wash vegetables in. It clearly shows that the disposal of body wastes is actually cleaner when done the old-fashioned way, by bacteria and filtration through soil. The article states that "clearly, the soil does a much better job of purification than any sewage plant."

The aforementioned article quotes from Dr. F. H. King's book, *Farmers of Forty Centuries*, and shows that all animal wastes are recycled by the Orientals. "Human wastes were almost the life-blood of Oriental agriculture, Dr. King found. Farmers made attractive screens near their fields so passersby would honor them by leaving behind some human fertilizer. All families saved their toilet wastes and sold them to farmers. Cities found their human wastes to be a net profit instead of a liability, as in the U.S. In 1908 Shanghai sold one Chinese contractor 78,000 tons of human waste for $31,000 in gold."

It just goes to show you that it is not the method of fertilization that harms people. If one fears the vibrio, it may help to know that *cholera vibrio* can survive in sewage for only 24 hours and if the sewage is well composted before using it as fertilizer, there will be no live vibrios to fear.

Cholera is nothing more than a very severe diarrhea commencing high in the intestinal tract. The fluids that are lost during the diarrhea are secreted by the intestinal membranes to rid the food tube of very poisonous and irritating substances, which are *not* the vibrios. Overeating and drinking with the consequent putrefaction of proteins, producing virulent poisons high up in the small intestine are the causes of the diarrhea. It is a disease of poisoning, and because it develops high in the digestive tube, many electrolytes and fluids are lost. This is the danger. But if no food is taken when a malaise is first felt, and the body is permitted to wash the intestines free of the poison, and fear is kept from the patient, and he is freely supplied water when he is thirsty and can retain it, there will be a recovery rate much greater than now.

Graham states in his book on cholera "that the primary and paramount cause (of cholera) is always the peculiar condition of the human system resulting from the violation of the laws of organic life. Its more immediate exciting causes, however, are various; such as atmospheric changes and conditions—quality and quantity of food—excesses of every kind; but more than all, perhaps the use of artificial stimulants, and especially of the narcotic and alcoholic kinds;—in short, anything and everything that reduces the vital powers of the nerves of organic life; and brings the alimentary canal and with it the whole system into a state of extreme, morbid irritability, leaving little power in the system to sustain high irritation, and to resist and throw off things that are noxious or disturbing to it.

"It may, however, with confidence be asserted, that all the causes which obtain, beyond the control of man, would seldom or never develop this disease without the occurrence of those causes which operate through his *voluntary conduct.*"

Instead of indulging in beer and wine, and much coffee and cooked food while traveling, if you do the very opposite of this ancient and harmful advice you will be more likely to have a healthy vacation.

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1. Introduction

Many people, at some time of their life, find themselves in the hospital. Often it is due to an accident of some sort where surgery is necessary or bones must be aligned and set. Some people find themselves being talked into entering the hospital for acute or chronic diseases. This lesson will demonstrate the dangers of hospitalization so that you may be aware and act accordingly. You will learn about various tests and surgical procedures so you will be able to determine whether you wish to undergo these rigors.

As an individual, you have certain rights and these will be enumerated. Be sure to be aware of and assert your rights. Even Hygienists may have to go to a hospital for accident treatment; this lesson will provide some practical advice.

2. Choosing A Hospital

Millions of people are hospitalized each year who need no hospital care whatsoever. Many physicians now admit that at least 10 percent of hospital admissions are not necessary. We know, however, that the true statistics were actually much higher than that, more like 95%. If you feel as though you must go to the hospital, you should ask your physician the names of all hospitals where he has admitting privileges and then discuss with him the pros and cons of each. A lot of your time, energy, and money can be wasted if you let your physician "send" you to a less-than-adequate hospital. If you are not satisfied with your physician's plans for your hospital admission, you should seriously consider finding a physician at the hospital of your choice, or simply going there as a "ward" or "clinic" patient.

Once you have assured yourself about equality, you may wish to consider a hospital's efficiency; its length of stay, occupancy rate, and daily cost. If you have a choice, let's say, between two hospitals you might wish to take these "efficiency factors" into account. You might wish to choose the hospital with the lower daily rate, or length of stay.

If you have been in an accident, you will not have a chance to go through all this decision making concerning an appropriate hospital. It may be worthwhile, however, to go through these steps in the event such a decision would be necessary.

2.1 Your Admission

Some hospitals, on admission, ask you to sign a blanket consent form covering many items, but these vague and indefinite forms have not held up in court. And, even if you do sign such a form, you still have the right to refute any procedure during your stay. Before each major procedure, you will also be asked to sign a specific consent form, once the procedure has been explained to you.

Some hospitals also ask you to sign a form releasing them from legal responsibility in case of negligence. This type of release has not held up in court either. If you object to signing such forms but the admitting clerk insists that you do so, keep in mind that they have not been known to be enforceable.

Most hospitals will want the following five items:

1. The social security card or number of the head of the household (that person who will have the ultimate responsibility for the bill).
2. Your insurance cards or numbers.
3. Your Medicare and/or Medicaid card.
4. Name, address, and phone number of your employer and of your spouse.
5. Name, address, and phone number of the person to notify in case of an emergency.

2.2 What to Bring With You

Take the items that you would need for routine comfort: toothbrush, shaving equipment, pajamas or nightgown, robe and slippers. Optional items might include stationery and stamps, address book, needlework projects, books, etc. However, keep in mind that you should try to discharge yourself as soon as possible and it may be unnecessary to bring many such things with you. Circumstances will dictate. If you have been in a severe accident, it may be necessary to stay in the hospital for awhile. In this case, you may ask friends to bring in reading material and other needs.

2.3 Questions to Ask

Don't be afraid to ask questions. Not only do you have the right to question your care; you owe it to yourself to do so. Here are some questions you should ask:

1. What do you think is wrong with me?
2. What tests do you recommend? Is there any special preparation for any of these tests?
3. What medication do you suggest? What are their purposes? How will they be administered? How often? (As you know, we do not recommend medications, but if surgery is required for repair of bones or tissues following an accident, you may have to take certain anesthetics and drugs.)
4. Will I see the anesthesiologist before the operation? What preparations are required before surgery? After the preliminary tests are completed, you may ask:
    1. What are the test results?
    2. What did the various consultants think?
    3. Are there any changes in medications?
    4. How long a recovery period is anticipated?

2.4 Initial Tests

You will be given a blood test, during which time blood will be drawn from a vein in your arm and then your blood will be subjected to a dozen or more tests for information about your kidneys, liver, and endocrine glands. Sugar and cholesterol levels will also be measured. You will have X rays if you have been in an accident. Do not allow them to take X rays every day of the same parts.

If you think that the X rays have been excessive, you may refuse further ones until you discuss this situation with your physician. You may also be given an electrocardiogram.

Once you are in your room, a nurse will appear to take hat is called a nursing history. She will want to know about any previous hospitalizations and problems. She will take your blood pressure, pulse, respiration, and temperature, and ask for a urine specimen.

If it is a teaching hospital, you may be examined and questioned more than once. If this becomes unbearable, speak up and let them know that you have already been examined and do not want to be again.

2.5 Your Room

The choice of a private or semiprivate room may be left up to you, but sometimes physicians recommend a private room. Some people can't bear the thought of being in a room with strangers; others enjoy the company and would not opt for a private room even if there were no cost differential. Sometimes, however, a roommate or mates can be unbearable (especially if they smoke) and make rest impossible. If that is the case, ask the nurse on the floor to have your room changed.

Most insurance policies cover, semiprivate rooms—usually two patients to a room. In most hospitals semi-private rooms are now two-patient rooms, some are four, and a few still have as many as six. If you wish to have a private room, discuss this with your physicians. If you choose a private room, you will almost surely be responsible for the difference in cost, since insurance coverage is usually limited to semiprivate facilities.

Some hospitals not only give you a choice of semi-private versus private, but also allow you to choose smoking or nonsmoking areas. You will probably not be able to choose your roommate, but if you have serious roommate problems, as mentioned above, you can switch rooms.

2.6 If You Want to Leave the Hospital

What happens if you go in for a particular procedure and then change your mind? What if your doctor recommends an operation, but you decide you don't want to have it? Tell him, and ask that he discharge you. Usually he will do this willingly, but if he feels strongly about your staying put, he may be resistant. In fact, he may refuse. In that case, you can sign yourself out. Don't be intimidated; trust your instincts and do what makes you feel most at ease.

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3. Dangers Of Hospitalization

Once committed to entering the hospital, you should make you your mind to stay no longer than absolutely necessary. In a recent study by the New York City Health Services Administration, some 30 percent of people hospitalized more than twenty-one days, had no valid reason for being in the hospital. Ask your doctor to estimate your discharge date.

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4. Let The People Beware

The following are true cases (from *The Great Billion Dollar Swindle* by Dr. K. A. Laski):

1. A person is admitted for cancer surgery on the left leg and the right leg is amputated by mistake.
2. A woman admitted to a hospital for removal of a tumor in her right lung has her left lung removed by mistake. The tumor-filled lung is all she has left to breathe with.
3. A twenty-six-year-old man, about to be married, enters the hospital to have an operation on an undescended testicle. Somehow, his twenty-year-old surgeon inadvertently cuts off his penis.
4. An intensive care unit person falls out of his bed three times, striking his head each time, and afterward dies.
5. A person in intensive care is found out of his bed, not on t'he floor or in a chair, but walking aimlessly in a delirium on the hospital roof eight floors above the ground.
6. During thyroid surgery, one man's whole vagus nerve trunk is accidentally severed, leaving him with permanent paralysis of the voice box. Another man's surgeon accidentally removes all four parathyroid glands, leaving him with a lifetime of life-threatening agony.
7. A comatose diabetic is brought to the hospital emergency room. During his hospital stay, intensive treatment with insulin, intravenous fluid, electrolytes, and all medical means are expended to save the patient. He recovers and becomes fully alert; yet, a day before going home, he collapses and enters a deep coma again. The doctors are stumped. Has he had a stroke? Has he had a relapse? What on earth happened? The answer is that the nurses failed to give the patient his insulin while in the hospital for over three days.
8. The people get someone else's lab tests, someone else's X rays, someone else's surgery, someone else's baby.
9. A person enters the hospital with a bleeding stomach ulcer. The clever intern puts a tube down into the stomach, hooks it up to a vacuum pump, and proceeds to suction the patient's blood continuously, almost bleeding the man to death.
10. Intravenous solutions contain life-threatening contaminants.
11. Blood transfusions induce hepatitis.

12.Halothane anesthetics have caused massive liver destruction.

4.1 To Rule Out Myocardial Infarction

A person with chest pain, if he is over age twenty-one, can well expect to be stuck in the hospital for at least a three-day "observation period."

The vast majority of these admissions to "rule out acute M.I." (myocardial infarction or heart attack) are unnecessary. The patient goes home and is none the wiser as to why he had chest pain in the first place. The physician does not educate the patient as to how to live so heart disease will not exist.

Even in those very few patients who do get heart attacks after hospitalization to "rule out acute M.I.," there is no evidence that hospitalization is necessary in the overall picture. In Britain, people suffering from heart disease are kept at home, they are not hospitalized. The results in Britain are no different than the results in the U.S. Furthermore, the need for coronary care units is being questioned. No difference exists in mortality or morbidity rates between places where coronary care units are available and places where they are nonexistent.

A more rational care for the person who suffers from heart disease is to fast and rest. This will allow the heart tissue to heal and regenerate. Dr. Shelton has fasted many hundreds of people with heart disease with tremendous success—much moreso than any hospital could claim.

4.2 Coronary Care Units

Many times the physician, to protect himself from any possible risk, will put anyone with any chest pain in the hospital—even if the person is too young for coronary disease.

Physicians dutifully put everyone they see with chest pain in these coronary care units. Of these people, perhaps one out of five have coronary problems.

As mentioned, in England, physicians do not hospitalize patients with heart disease. They send them home to rest. Statistics show no difference between survival of heart attack patients in England and the United States. And Hygienic practitioners have the best survival rate of all because they know how to "intelligently do nothing." They instruct their clients how to live so that neither heart disease nor any other disease will evolve.

4.3 Intermittent Positive Pressure Breathing

IPPB, or "intermittent positive pressure breathing," is a disputed form of medical treatment that costs the U.S. public a total of $1.5 billion yearly. Consisting of forced inhalations of air, or air plus a little salt water, given briefly every three hours or so, IPPB is one of the biggest money-makers hospitals have. Costing the patient a hundred dollars or so daily, these IPPB respiratory treatments markedly raise a patient's hospital bills and are one of the major causes for the rise in hospital charges during the past several years.

Yet, occasional deaths have occurred from these treatments. Approximately 50 percent of all pulmonary specialists insist the treatment is useless.

The fact that the individual can still breathe in between IPPB treatments means he never needed the treatment in the first place. A great number of physicians concede this but go right on ordering IPPB anyway. Remember, you have the right to refuse any treatment. You do not have to accept worthless and costly therapies.

4.4 Medical Errors

Dr. Arthus Levin cites a story concerning hospital errors (*Talk Back to Your Doctor*, New York:

Doubleday & Company, Inc. 1975):

"There is an old story doctors at the prestigious Massachusetts General Hospital used to tell. It seems a little old man walked into the MGH outpatient clinic one day to get a new pair of eyeglasses. By mistake someone directed him to the gastrointestinal clinic. Once there he got into the wrong line. Before he knew it, he found himself on his hands and knees on an examining table, having a sigmoidoscopic exam. During the procedure, the instrument accidentally perferated his bowel. The unlucky fellow was admitted to the hospital, where he underwent surgery to repair his torn bowel, developed peritonitis, and died."

Duncan Neuhauser, a hospital expert now at Harvard, studied thirty Chicago hospitals. He found that some had death rates three times as great as others. Neuhauser estimated that overall, hospital death rates could be lowered by 50 percent.

The National Commission on Medical Malpractice found that nearly 8 percent of hospital patients were the victims of medical errors which made their conditions worse. A larger number, presumably, were victims of errors which—fortunately—did not worsen their health status. At least their health was not immediately noticeably impaired but such treatment can only result in a lowered degree of health. Remember, only the body can heal and any interference will hinder healing and repair.

Medical errors occur frequently. (We condemn all drugs and the reasons were outlined in earner lessons.) Medication errors occur in all hospitals when people (a) receive the wrong medicine, or (b) the "correct" medicine in an incorrect dose or form, or by the wrong route of administration. These errors make the poisonous effects even worse.

Milton Silverman and Dr. Philip R. Lee, in their book *Pills, Profits, and Politics*, assert that "from two to eight percent of all drugs doses given in hospitals are in error— wrong drug, wrong dose, wrong route of administration, wrong patient."

Medication errors happen for many reasons. The physician makes an error when writing in the "order book." A nurse makes an error when copying the doctor's order from the book into her card file. Or the nurse doing out cups of "medicine" simply gives you someone else's cup. However, any medicine is wrong and what is poisonous for one person is poisonous for another. But the fact remains that certain drugs are more toxic to certain individuals due to their particular state of health at that time.

If you elect to accept the medication your physician has prescribed for you, you should know what it looks like. If a nurse gives you a new medication, you should make sure your doctor's orders have changed (ask her to check the order book). As I stated earlier, drugs are not indicated in disease, but in case of accidents, it may be necessary to accept some, especially if surgery is required for repair.

Dr. Levin cites another case where medication was given in error. "A male construction worker was injured when a nail pierced his right leg and fractured his fibula. On being taken to a hospital, he informed the medical student who took his history that he was allergic to penicillin. This information was passed along to the nurse anesthesist. There was, however, a question as to whether the information concerning his allergy was given to the resident who performed the surgery, and who wrote the postoperative orders. The information was not given to the staff surgeon who was in charge of the resident's activities. The construction worker was given large doses of penicillin postoperatively. He suffered a cerebrovascular accident (stroke) followed by severe physical and personality changes."

This case shows how dangerous drugs are and how crucial facts can get "lost in the shuffle" among the hospital hierarchy. You should be aware that this can happen. You should never assume that what you tell one physician will be communicated to all your physicians. It may be tiresome repeating the same story three or four times, but he assured that it is necessary.

4.5 X Rays

The U.S. Food and Drug Administration estimates that Americans spend $6.3 billion annually for diagnostic X rays, most of which are totally unnecessary.

These X rays (exposure may induce cancer) result in profits to hospitals and doctors and may be ordered just to help a doctor protect himself from charges of inadequate work-up in a malpractice case. Here is "defensive medicine" practiced by physicians, for physicians, with total is regard for the safety and pocketbook of the patient, whom the physician fears as a potential malpractice threat. You have the right to refuse to be x-rayed. Defend your rights!

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5. Health Advocate

A health advocate is someone who can represent your interests in dealing with physicians and other health personnel. The job of a health advocate is to make sure you are getting proper care and attention.

Anyone who enters a hospital, or other health care institution, ought to consider having a health advocate. The advocate's sole function is to represent your interests—regardless of what they may be—when you are not totally able to do so yourself.

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6. Your Rights

When in the hospital, you have the right to:

1. see your hospital record;
2. refuse to be examined by a medical student;
3. refuse a diagnostic test or procedure;
4. refuse treatment;
5. demand that your records be kept a secret;
6. leave the hospital at any time.

Informed consent is one of your most important rights as an individual. This means that, before any procedure or treatment, your physician must inform you of its risks and consequences. He must, after this explanation, have you sign a consent form.

You should not feel obliged to sign a consent form even if you are satisfied that you have been fully informed concerning the procedure or treatment in question.

Do not sign a blank consent form. Do not let the physician convince you to sign a blank form, saying, "I'll fill in the procedure later." Or, "We're not sure exactly what the surgery will be at this time."

Below are your "Bill of Rights" as outlined by the American Hospital Association:

1. You have the right to considerate and respectful care.
2. You have the right to obtain from the physician complete current information concerning his diagnosis, treatment, and prognosis in terms the patient can be reasonably expected to

understand. When it is not medically advisable to give such information to the patient, the information should be made available to an appropriate person in his behalf. He has the right to know by name the physician responsible for coordinating his care.

3. You have the right to receive from the physician information necessary to give informed consent prior to the start of any procedure and/or treatment. Except in emergencies, such information for informed consent should include but not necessarily be limited to the specific procedure and/or treatment, the medically-significant risks involved, and the probable duration of incapacitation. Where medically-significant alternatives for care or treatment exist, or when the patient requests information concerning medical alternatives, the patient has the right to such information. The patient also has the right to know the name of the person responsible for the procedures and/or treatment.
4. You have the right to refuse treatment.
5. You have the right to every consideration of your privacy concerning your own medical care program. Case discussion, consultation, examination, and treatment are confidential and should be conducted discreetly. Those not directly involved in your care must have the permission of the patient to be present.
6. You have the right to expect that all communications and records pertaining to your care should be treated as confidential.
7. You have the right to expect that within its capacity a hospital must make reasonable response to the request of a patient for services. The hospital must provide evaluation, service, and/or referral as indicated by the the urgency of the case. When medically permissible, a patient may be transferred to another facility only after he has received complete information and explanation concerning the needs for and alternatives to such a transfer. The institution to which the patient is to be transferred must first have accepted the patient for transfer.
8. You have the right to obtain information as to any relationship of his hospital to other health care and educational institutions insofar as his care is concerned. The patient has the right to obtain information as to the existence of any professional relationships among individuals, by name, who are treating him.
9. You have the right to be advised if the hospital proposes to engage in or perform human experimentation affecting his care or treatment. The patient has the right to refuse to participate in such research projects.
10. You have the right to expect reasonable continuity of care. He has the right to know in advance what appointment times and physicians are available and where. The patient has the right to expect that the hospital will provide a mechanism whereby he is informed by his physician or a delegate of the physician of the patient's continuing health-care requirements following discharge.
11. You have the right to examine and receive an explanation of your bill regardless of sources of payment.
12. You have the right to know what hospital rules and regulations apply to his conduct as a patient.

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7. Abbreviations

While you are in the hospital, you will see various instructions concerning your care that are written in a type of code that would be impossible for you to decipher if you did not know what some of their abbreviations meant. Below are the most common abbreviations used in most hospitals.:

a - before
a.c. - before meals
ADL - activities of daily living
ad lib - as desired
AMA - against medical advice
ASA - acetylsalicylic acid (aspirin)
ASHD - arteriosclerotic heart disease
b.i.d. - twice a day
BP - blood pressure
BPH - benign prostrate hypertrophy (enlargement)
BRP - bathroom privileges
Bx - biopsy
c - with
CA - cancer
CAD - coronary artery disease
CBC - complete blood count
CBD - common bile duct
CC - chief complaint
CCU - coronary care unit
CHD - coronary heart disease
CHF - congestive heart failure
chol. - cholesterol
CNS - central nervous system
COPD - chronic obstructive pulmonary disease
CSF - cerebrospinal fluid
CVA - cerebrovascular accident
CVP - central venous pressure
CxR - chest X ray
D & C - dilation and curettage
DM - diabetes mellitus
D/W - dextrose in water
Dx - diagnosis
ECG or EKG - electrocardiogram
EEG - electroencephalogram
ER - emergency room
FBS - fasting blood sugar
FH - family history
Fx - fracture
GB-gallbladder
GI - gastrointestinal
GTT - glucose tolerance test
GU -genitourinary
Hgb - hemoglobin
HPI - history of present illness
h.s. - at bedtime—literally, hour of sleep
Hx - history
ICU - intensive care unit
I & D - incision and drainage
IM - intramuscular
I & O - intake and output
IPPB - intermittent positive pressure breathing
IV - intravenous

IVP - intravenous pyelogram
KUB - kidneys, ureters, bladder
l - left
LLE - left lower extremity
LMP - last menstrual period
L.P - lumbar puncture
LUE - left upper extremity
m- murmur
MI - myocardial infarction (heart attack)
N-G - nasogastric
N & V - nausea and vomiting
NPO - nothing by mouth (non per os)
NSR - normal sinus rhythm (heart rate)
o - none
OOB - out of bed
OPD - outpatient department
OR - operating room
OT - occupational therapy
p - after
p.c. - after meals
P.E. - physical examination or pulmonary embolus
PI - present illness
p.o. - (by mouth (per os)
p.r. - rectally
p.r.n. - as often as necessary
pro time - prothrombin time
pt - patient
P.T. - physical therapy
PTA - prior to admission
Px - prognosis
q - every
q.h.-every hour
q.i.d. - four times a day
q.o.d. - every other day
q2h - every two hours
q4h - every four hours
q.n. - every night
q.s. - quantity sufficient
R - right
RBC - red blood cell
rbc - red blood cell
RHD - rheumatic heart disease
RN - registered nurse
ROM - range of motion
RT - radiation therapy
Rt - right
RUQ - right upper quadrant (abdomen)
Rx - therapy or treatment
s - without
s.c. - subcutaneous
SH - social history
S1CU - shortness of breath

s.o.s. - may be repeated once if urgently required
S & S - signs and symptoms
stat. - immediately and once only
Sx - symptoms
T & A - tonsillectomy and adenoidectomy
TIA - transient ischemic attack
t.i.d. - three times a day
TRP - temperature, pulse, respiration
TUR - transurethral resection
TURP - transurethral resection of the prostrate
Tx - treatment
URI - upper respiratory infection
UTI - urinary tract infection
VS - vital signs
WBC - white blood count
wbc - white blood count
y.o. - year old

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8. Nursing Care

Nursing care is a big part of hospital life. People often feel helpless when faced with rude, incompetent nurses. What can you do if you have the bad luck to encounter a nurse or an aide who is not giving you reasonable care; who is making you wait, for instance, half an hour for a bedpan even though she's not doing anything else? You (or if you are not up to it, your family or friends) should tell the head nurse. In her absence, ask for the nurse in charge. If this does not solve your problems, you can contact the nursing supervisor who is responsible for that unit. If none of these people can resolve your problem, go up the chain of command, which ends with the director of nursing, who is ultimately responsible for all nursing care in that institution.

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9. Food

You may try to request from the dietary department only fresh fruits and uncooked vegetables. Most, often, however, these foods will not be available in the quantity or quality that you require. You may, then, have food brought in from the outside.

Ask family and friends to bring in your fresh fruits, vegetables, nuts, dried fruits, etc. This is the best way, and probably the only way, that you will be able to obtain good food. As a general rule, do not accept any of the hospital fare. Even their fruit juices should be regarded with suspicion. Most often it is not real fruit juice but a fruit-flavored drink with sugar and other chemicals added. Rely on your outside sources.

10. Drugs

No matter what the reason for your hospitalization, chances are you will encounter some kinds of drugs. Sleeping pills are routinely offered on the assumption that you aren't feeling well or you wouldn't be in the hospital in the first place, and that since you are not in your own bed in your own home, you may have difficulty falling asleep. However, no one can force you to take these pills. Simply tell the nurse that you do not want them.

Pain relievers are also given routinely after operations, even minor ones. Again, you have the right to refuse these medications if you feel that they are unnecessary.

There are drugs that result in the depletion of your body's supply of certain chemicals. Diuretics, for one, can cause you to lose a significant amount of potassium. Your |doctor may prescribe another drug containing potassium to replace what is lost. However, this inorganic form of potassium is not utilized by the body. Tell your doctor that you prefer to obtain your minerals from the food that you eat. Potassium, for example, is found in large quantities in fine foods such as bananas, apricots, and raisins.

Drugs are administered orally (pills, tablets, or liquids); by injection (intramuscularly or intravenously); or rectally in the form of suppositories. Be firm! Do not let the physicians or nurses talk you into taking drugs that you do not want.

10.1 Pills

If you must take pills before surgery or to alleviate excruciating pain from an accident, you must make sure that what the nurse hands you is truly yours. This is what should happen: the nurse who brings the medication should check the nameplate on your bed, ask you your name, check the medicine card against your ID bracelet, and then—and only then—hand you your medication. If she doesn't follow all these steps, let her know who you are before you take the medicine.

Learn what your medication looks like. Most physicians do not change medication without telling their patients. If you have been taking big red pills, and suddenly you are given some small yellow ones, ask the nurse, "How come?" But any drug should not be taken if you can bear the pain without them. The body will heal better without the drug. Using up vital energy expelling drugs will interfere with and delay healing and repair. Your individual situation will dictate what is best.

10.2 IV (Intravenous)

IVs are often used routinely as a matter of course. They are almost never needed. You have the right to refuse this unpleasant treatment and I would recommend that you do so.

The IV is usually inserted into a vein in your hand or arm. A tourniquet is first applied to make the vein stand out, and a needle or thin plastic tube is then inserted into the vein. This, in turn, is attached to a bottle which hangs from a pole above your bed or chair. The bottle is kept high so that gravity will keep the solution flowing. It will be kept running all the time with a glucose/saline/water/potassium solution. Other drugs may be added to it.

Sometimes the needle gets dislodged from the vein, and the solution goes into the surrounding tissue.

This is called infiltrating, and your arm or hand will swell. Tell the nurse at once if this should happen. The IV should be stopped and the needle removed. IVs are inherently wrong but may be necessary if you cannot take water any other way.

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11. Tests To Accept Or Reject

Many tests require that you sign a consent form. You have the right to understand exactly what a test will entail; how it will feel; what the risks are; and what it will contribute to the physician's knowledge of your condition. Be sure you understand how much you have consented to. Don't agree to anything until you are satisfied on all these scores. Don't be ashamed to ask for a second explanation if the first isn't clear. Don't hesitate to make notes of what to ask and of the answers.

Angiogram - This test is performed to get x-ray views of various arteries in order to gain information about those arteries as well as about the organs they supply. For example, areas of bleeding or clotting and any abnormal pathways would be evident. Angiograms can be done of the legs (using the femoral artery), of the kidneys, pancreas, spleen, liver, Gl tract, brain, and heart.

The Hygienic approach is to fast all individuals who have any blood clots, clogged arteries, etc., no matter where they are located. During the fast, the body will remove clots and heal those areas that need it. It does no good to locate those areas on X rays when the X rays do harm in themselves.

Barium Enema - Used to get an x-ray view of the large intestine. This test is totally unnecessary and enervating to the sick individual. Placed on a Hygienic regime, the bowels will heal and normal function will be restored. Barium Swallow (Esophagogram) - This test is used to get an x-ray view of the esophagus. The test may be necessary-only if a mechanical obstruction is suspected. Otherwise, reject this test.

Bone Marrow Aspiration - This test is used to withdraw, through a needle, a small amount of bone marrow, which will then be examined under a microscope. Examination of the bone marrow can reveal information about the production of blood cells.

The bone marrow is an important organ for the production of blood cells but this test will not lead to positive results or correction of the problem. The body itself must initiate this production and will do so when and only when the conditions for health are provided. Here again, fasting and the Hygienic program will lead to a normal blood cell count. The test is useless.

Bronchogram - This test is used to get an x-ray view of the bronchial tree. A useless and dangerous test —reject it.

Bronchoscopy - This test is used to look into the bronchial tubes of the respiratory tract leading to the lungs. This test is not as dangerous as the bronchogram but it is just as useless.

Cardiac Catheterization - This test is used to explore the heart's structures, to measure blood pressure and blood gas levels in the heart chambers and associated blood vessels. When the coronary arteries are being studied, the test is called coronary arteriography; when the chambers are studied, the test is called angiocardiography.

Blood pressure can be taken in a much safer and more pleasant manner and if necessary blood tests may be performed without cardiac catheterization. For the person who is living healthfully, this test is unnecessary. Any individual who is willing to begin a more healthful regime, this test is equally unnecessary for.

Cholecystogram - This test is used to get an x-ray view of the gallbladder.

Cisternal Puncture - This lest is used to obtain a specimen of spinal fluid from the back of the neck in order to gain information about the nervous system (brain and spinal cord). A dangerous procedure that is unnecessary.

Colonoscopy - This test is used to examine the upper portion of the colon; to remove polyps; or to perform a biopsy. Reject this test. Removing polyps will not create health. The cause of the formation of the polyps must be removed and only then may health be realized. Likewise, biopsies are unnecessary.

Computerized Axial Tomography - To see and localize any abnormalities in the head. Highly-detailed, cross-section, three-dimensional pictures are produced which, because they are of thin slices, or cross sections, establish more precisely than conventional X rays and depth of any abnormality. This test may be necessary following severe injury to the head where surgery may be needed.

Cystometry - This test is used to measure the amount of pressure in the bladder and its reaction to hot and cold, and to evaluate the functioning of the nerves supplying it. This is an unnecessary test that is very enervating to the body. The Hygienist has no need for such tests.

Cystourethrogram, Voiding - (Also known as voiding urethrogram) - This test is used to view, by X ray, the lower portion of the urinary tract (bladder and urethra) during urination. A useless and dangerous test.

Electroencephalogram (EEG) - This test is used to record the electrical activity of various parts of the brain to see if h falls within the normal range. Abnormal electrical patterns are subject to further tests. Everyone's brain gives off minute amounts of electricity. Sometimes a sleep EEG is done, which simply means you are asleep when the recording is done rather than lying awake trying to think pleasant thoughts. This test is unnecessary and meaningless though not dangerous. It is based on a normal range that is derived from people who may be far from normal in their way of living and general health. Do not think that you must submit yourself to this enervating test.

Electrocyography (EMG) - This test is used to evaluate the function of nerves and muscles. This test may be rejected as unnecessary.

Fluorescein Angiogram (Also known as retinal angiogram) - Used to get information about the blood vessels of the eye. An unnecessary test for the Hygienist. Gastric Analysis - Used to analyze a sample of the contents of your stomach, more frequently to check the amount of acid present. This test is totally unnecessary and should be rejected.

Hysterosalpinography - (Also known as uterus and fallopian tube test) - Used to examine the uterus and fallopian tubes when there has been an inability to conceive. This is a worthless test. Adherence to a more healthful lifestyle will often resolve problems in conception.

Intravenous Pyelogram (IVPJ) - Used to get x-ray views of the kidneys, ureters, and bladder. The only time that this test may possibly be needed is in the case of a severe accident where kidney damage is suspected.

Knee Arthrogram - The test is used to get x-ray views of the inside of the knee joint. It is unnecessary except in the case of severe injury and even then it is doubtful.

Laryngoscopy - This test is used to examine the larynx (voice box) in order to take a biopsy or to remove a growth. Here physicians are working on symptoms and not causes. The Hygienist should reject this test.

Liver Biopsy - This test is used to get a small specimen of liver tissue for examination. A dangerous and unnecessary test.

Lymphogram (Also called lymphangiogram) - X-ray examination or the lymph channels and nodes. It is unnecessary to submit yourself to this test.

Mammography - This test is used to get x-ray views of the breasts to detect tumors. This will only give the physician an excuse for operating. Tumors usually autolyze during the fast and this is a much safer way to correct this problem.

Myelogram - This test is used to get x-ray views of the spinal canal, the area that surrounds your spinal cord. Abnormalities of the contour of the spinal cord or a protruding disc would show up. It has been clinically proven that healing takes place in the case of a ruptured disc more rapidly if nothing is done and the individual stays in bed and rests. All hospital treatments are worthless in these cases and often delay recovery.

Oscopies - In any test the suffix oscopy means "looking into." Another term you may hear is endoscopy; it means the same thing. The rest of the word will tell you what organ or part of the body is being studied. For example, esophagoscopy means, literally, looking into the esophagus; bronchoscopy means looking into the bronchial tubes, and so on. Sometimes, besides looking at an organ, the physician may take a specimen for further examination. This is called a biopsy.

Pneumoencephalogram - To view, by X ray, the ventricles of the brain where cerebrospinal fluid circulates. The test can show if any brain substance has been lost, if there are growths, or if the passage of cerebrospinal fluid has been blocked. The only time that this test may possibly be indicated is injury to the head.

Proetosigmoidoscopy, Proctoscopy, Anoscopy - This test is used to examine the lower part of the colon (large intestine), to remove polyps, or to perform a biopsy. The difference between sigmoidoscopy, proctoscopy and anoscopy is the length of the instrument and the amount of the intestine that can be seen. Observing the lower part of the sigmoid colon is the highest point of the exam; this is called sigmoidoscopy. Proctoscopy is an examination of the rectum just below the sigmoid, and anoscopy is an examination of the anus. It is unnecessary to submit yourself to these unpleasant probings. They irritate the lining of the intestine and no benefits ever result.

Renal Biopsy - This test is used to take a minute sample of renal tissue for study. It is a dangerous and unnecessary test—reject it.

Scanning - This test is used to evaluate the structure and function of various organs, including brain, bone, lung, thyroid, liver, kidney, spleen, pancreas. This test would only be indicated if damage to these organs is suspected following an accident.

Spinal Tap (Also called a lumbar puncture) - This test is used to obtain spinal fluid for examination which will provide information about the nervous system (brain and spinal cord). It is also done to inject drugs or anesthetic. Damage can occur when needles are inserted into the spine for any reason. Do not accept this dangerous procedure. Only adverse results can be expected.

Stress Test - This test is used to see how the heart reacts to exercise. It provides more information than a resting EKG. While not particularly harmful, this test is certainly unnecessary.

Thoracentesis (Also known as pleural tap) - This test is used to remove fluid from the space surrounding the lungs just inside the chest wall, called the pleural space. This procedure is based on the theory of removing symptoms to "cure" disease. It just doesn't work that way. Causes must be removed and this fact makes this test worthless. It is harmful as well.

Ultrasonography - Ultrasonography uses a very high frequency, inaudible sound wave directed into the body at a specific point. The sound waves are generated by an ultrasonic transducer, a device something like a microphone, which is passed over the area under study. When the sound wave passes through the junction of two types of tissue with differing densities, an echo is produced. The echoes bounding off are converted into a visual pattern on a machine and evaluated by your physician. Ultrasonography is used to gather information about soft tissues, such as kidneys, thyroid, heart, female reproductive organs (particularly for pregnant women), spleen, pancreas, gallbladder, lymph nodes, and aorta.

One major objection to the use of such devices is that the ultrasound waves may cause damage to bones and tissues if used improperly—especially if the frequencies are set too high. I would not take the chance of irreparable damage, especially since the value of this testing in the first place is questionable.

Upper GI Endoscopy (Includes esophogoscopy)—looking at the esophagus; gastroscopy—looking at the stomach; duodenoscopy—looking at the duodenum) - This test is used to see the esophagus, stomach, and/or duodenum, or to get a tissue sample for a biopsy. It is unnecessary to submit yourself to such probing. It is likely to cause damage and there is no valid reason for it. The gastrointestinal tract will quickly heal itself when given a total rest.

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12. Chemical Feedings

You will find that physicians at the hospital have the idea that you must be fed following an operation to "keep up your strength" for healing to commence. Actually, the opposite is correct. All feedings take strength and energy away from the healing process. One would surely recover quickly if allowed to fast for a few days. Hunger will return when the body is ready to accept and digest food.

12.1 IVs

One of the most common methods of chemical feedings is through IVs. As described earlier, these are tubes connected to a bottle. The tubes are inserted into a vein and the liquid chemicals are allowed to flow into your vein. Physicians advocate these feedings to be sure that you "do not become dehydrated" and also to supply electrolytes, vitamins, and calories. There are several different kinds of IV solutions and they are supposed to each be suited to individual needs.

The body, however, is not equipped to handle inorganic chemicals. The body detects these substances as poisons and attempts to rid itself of them as best as it can under this stressful condition. Certainly much more harm than good is done by administering IVs.

12.2 Hyperalimentation

Hyneralimentation, too, is done intravenously, but into the large vein entering your heart, the superior vena cava, which can dilute the material as it flows into your bloodstream. Because it bypasses the digestive system, this method of feeding is sometimes called total parenteral nutrition (TPN). It is most often used for patients whose intestines cannot absorb nutrients, need a rest, or have been removed. However, if the intestines need a rest, a more sensible approach would be to fast and not subject the body to chemical substances that it cannot utilize anyway.

The solution includes sugar, protein, fat, electrolytes, and vitamins—all inorganic damaging substances. As many as two thousand calories a day can be administered this way. Most often a person stays on hyperalimentation for a minimum of ten days but usually closer to twenty days or more.

Another form of hyperalimentatiori, less frequently used, is enteral hyperalimentation, in which a special diet is introduced directly into the small intestine. This might be done if for some reason you cannot chew or swallow or if there is a problem with your stomach. It will probably be started right in your room. A thin tube is inserted through your nose and passed into your small intestine. The tube is then connected to a pump which provides high-caloric, high-protein feedings continuously.

It has been proven that high-protein feedings are harmful for relatively healthy individuals. How much more harmful could it be for the sick and weakened person. Do not think that you have to submit to such feedings. Simply tell the hospital staff that you refuse such feedings. They cannot force you to accept any treatment against your will.

12.3 Tube Feedings

If there is some problem with your throat or esophagus, or if you are unconscious, you may get nasogastric feedings. In this case a tube is inserted via the nose directly into your stomach. A diet of pureed or blenderized food is introduced.

Gastrostomy feedings are a way of providing nourishment by surgically creating an opening directly into the stomach through the abdomen. This might be done if, again, the esophagus is obstructed, or if for some reason you cannot swallow. The tube, which is inserted into the stomach, is clamped except during feedings, when a blenderized preparation, warmed to body temperature, is introduced.

Again, you have the right to reject any treatment and this includes tube feedings. You may find resistance but they cannot deny your rights.

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13. Surgery

Operation rates in this country are double those in England and Wales. If you are hospitalized, the chances you will wind up on the operating table are fifty-fifty (nearly twice as high as in Sweden).

Many physicians look upon surgeons as the only members of their profession who can actually "cure" their patients. More surgery, they feel, means less disease and fewer deaths.

"More surgery," asserts Dr. John Bunker, "means more deaths." Bunker is a Harvard professor and has spent more time studying surgery and surgeons than probably anyone else. Those locales, he points out, where operation rates are highest, also have higher death rates. Indeed, Bunker points out that death rates in the United States are much higher—under age sixty-five—than in most other developed nations. He raises the possibility that these excess deaths may be due to our national love for surgery.

13.1 Risks of Surgery

All surgery carries some element of risk. A so-called "routine" D and C can result in a postoperative uterine inflammation and impairment. The surgeon doing a tonsilectomy may accidentally perforate the internal carotid artery and be faced with a rapidly extinguishing patient.

Below are some of the most common causes of death during and immediately after surgery:

1. Uncontrolled hemorrhage
2. Inflammation and tissue damage
3. Metabolic disorders (abnormal blood sodium, potassium, sugar, etc.)
4. Body temperature disorders
5. Embolism

The most overdone operations include:

- Hemorrhoid repair (hemorrhoidectomy)

- Tonsillectomy (with or without adenoidectomy)
- D and C (dilation and curettage of uterus)
- Hysterectomy (removal of uterus and, usually, ovaries)
- Thyroidectomy
- Varicose vein removal
- Radical mastectomy (removal of breast and surrounding tissue)

You should not go to a general surgeon (or a surgical specialist) for your primary medical care if you feel that you must see a physician. Surgeons tend to have a way of finding things which require surgery. (It is probably no accident that doctors in general, who have the most contact with surgeons, also undergo the most surgery!) On the other hand, "medical men" (internists, family practice specialists, pediatricians, etc.) tend to try to avoid surgery, if possible.

In general, the risk of surgery is less if general anesthesia can be avoided. Many surgical procedures usually done under general anesthesia can be done under another type. You should seriously investigate these other types of anesthesia, in order to lessen the risk of surgery.

You should make certain that your anesthesia will be done by a board-certified anesthesiologist. An anesthesiologist is a doctor who is a specialist in anesthesia. It is his or her job (usually with the surgeon) to select the most appropriate type of anesthesia to be used. During surgery he is also responsible for maintaining all the body's vital functions. In the United States, less than hall of all anesthesia is administered by a physician anesthesiologist.

13.2 Nausea and Vomiting

Nausea and vomiting are occasional aftermaths of surgery. General anesthesia may, at times, result in transient stomach upsets. Other causes may be related to the operation itself (if it is an abdominal procedure, for example) and reactions to certain medications. The best solution is to fast until hunger returns and nausea is no longer present.

In some cases a specific cause can be found and eliminated. This is particularly true when a drug is the offender. If you find that after receiving your pain medication, you become nauseated, tell your doctor or simply refuse that medication.

13.3 Appetite

Even those who don't develop actual nausea and vomiting postoperatively may not feel like eating for a few days. A surgical experience dampens the appetite. Here, again, fasting is essential until hunger returns.

The following is the nonsense advice given by Drs. Ronald Gotts and Arthur Kaufman (*The People's Hospital Book*). It exemplifies the approach taken by most hospitals and physicians.

"If you have no dietary restrictions, a favorite delicacy—an ice cream sundae, a milkshake, pizza, or escargots—brougt in by a friend or relative may revitalize a temporary sluggish appetite. Another remedy tor that no-taste-for-food feeling is a little wine or cocktail before dinner. Many hospitals have wine or hard liquor available. They can be ordered by the physician as a predinner appetite stimulant or a bedtime sedative."

They are advocating the same foods and poisons that resulted in sickness in the first place. It is pure nonsense and demonstrates that any dietary advice given by hospital physicians is best ignored. Either fast or have someone bring in your fruits and vegetables.

13.4 Most Common Operations—Are They Necessary?

Appendectomy - This operation is performed if your appendix becomes inflamed. Appendicitis was a condition unknown to medicine even in the late 1890s. Diagnosed then as "indigestion," "typhilitis," and "bowel obstruction," some patients died, most likely from heroic drugging. Yet many seemed to survive and do remarkably well without the surgeon's interference.

As many as one-third of the appendices removed today are not inflamed at all. Many of the remainder are inflamed due to improper dietary habits. All would recover if allowed to rest and fast. Appendicitis is not a death-threatening situation.

Breast Surgery - If there is a lump in the breast, most physicians feel that the lump must come out to see if it is malignant. They state that the removal of even benign lumps is considered the most prudent approach, because there is some uncertainty about whether or not benign tumors can become malignant. Don't let anyone talk you 'into this surgery. Many thousands of people have had tumors autolyzed during a fast or by merely following a more healthful lifestyle.

Cataract Extraction - A cataract operation is performed if the lens of your eye has become opaque, causing a clouding of vision. A cataract is not a growth or a tumor, but the result of a chemical change in the protein of the lens that prevents light rays from passing through. Cataract surgery is the most common eye operation in the U.S.; some three hundred thousand are performed each year. It involves removal of the lens.

The condition of the eyes reflect the health of the entire organism. Merely removing the cataract will not produce health—you are just removing one result of ill health. On the other hand, a healthy lifestyle will produce clear, healthy eyes.

Cholecystectomy (Removal of the gallbladder) - If, by some unlucky chance, your indigestion, ulcer pain, or bowel complaint happens to coincide with a moment when Doc is in an X-ray-happy mood, you just may get a gallbladder X ray. And if you are in that 33 percent of adults who happen to have a gallbladder stone—which may just be there minding its very own business—off you go to surgery.

The gallbladder performs a useful function, and one's digestive function is never up to par after the operation.

There is a very interesting name for the incision often used in the performance of this little operation. It is a modest little name for a not-so-modest incision. It is, in fact, based on a particularly violent and fatal mutilation popularized in World War II. It is the descriptive image of how the gallbladder operation is begun. It is called the "hara-Kiri" incision.

D & C (Dilation or dilation and curettage) - This operation is performed if you have abnormally heavy bleeding in the uterus; to obtain a tissue specimen for examination, to treat an incomplete abortion or miscarriage, or to terminate a pregnancy.

Do not think that this operation is perfectly safe because it is not. Tissue damage can be done due to this totally unnecessary operation. Any abnormality such as heavy bleeding will be corrected by the body when a healthful regime is begun.

Gastrointestinal Surgery (Including gastric resection, intestinal resection, colostomy, ileostomy, and continent ileostomy) - This operation is done for ulcers, tumors, inflammatory diseases of the intestine, or diverticulitis—all of which may be causing pain, bleeding, obstruction or perforation. The only valid reason why this operation should be performed is if there is a mechanical obstruction or for tissue repair following an accident.

Invariably when this operation is performed for the first reasons given, at some point a tube is inserted through your nose and down your esophagus into your stomach or small intestine. These tubes are used for feeding, for administering drugs, and for removing fluid and gas from the stomach or intestines, as well as for obtaining specimens for study. The tube will be an anasogastric tube if it is to reach your stomach, an intestinal tube if it is to reach your small intestine. The tube is taped in place at your nose or forehead. As it is inserted, you are supposed to help it down by a, couple of swallows or a few sips of water through a straw. The intestinal tube has a weight at the end, usually a small, soft plastic bag weighted with mercury, which allows peristalsis, the natural movement of your intestines to carry it along, just as it would carry food.

If the tube is being used for suctioning out fluid and gas, it will be attached to a gentle suction pump, which works intermittently. When it is working, a light goes on.

No one should have to submit themselves to this torture-some treatment.

Gastrectomy - This mutilating stomach cutting never was constructive. Instead of telling the patient how to live more healthfully, they simply cut out the stomach.

They sever the vagus nerve to the stomach, the patient not knowing that the nerve almost always grows back. They connect the stomach to the bowel and thereby trade ulcer symptoms for worse symptoms called "dumping syndrome." They cut, stitch, anastomose, sever, remove, and generally make the ulcer patient a lifetime digestive cripple.

Intestinal Resection - This operation is performed to remove tumors or portions of the intestine with diverticuli or inflammatory disease. After the affected portion has been removed and the two parts of your intestine are reconnected, a colostomy may be done It is done temporarily, to allow the intestine to heal and reconnect it in a second operation, or it may be permanent.

If your intestine is inflamed or if you have diverticuli or tumors, the body can and will heal if the causes of disease are removed and a rest is taken. This mutilating operation is unnecessary and will never provide health. Too many of these operations are performed daily, giving the sick individual false hopes of recovery.

Ileosiomy - If the colon is diseased, the entire colon and rectum will be removed, and from then on, waste will drain through an artificially-created opening on the abdomen into a plastic pouch.

This operation makes cripples out of hundreds of people every year. It is based on the false idea that if the diseased portion of the body is cut out, then total health will result. This is entirely absurd. Total health only conies from total healthful living. When the Laws of Life are obeyed, all organs of the body will function perfectly, including the bowels.

Coronary Artery Bypass - This operation is performed if one or more of the coronary arteries (the vessels supplying the heart) have become clogged by atherosclerosis. The most common conditions for which this operation is done are angina pectoris (severe chest pain) and severe disease of the left main coronary artery. The operation involves using grafts from a leg vein to create new routes around the arteries (hence the term bypass) so that blood can travel freely to the heart muscle. Sometimes the mammary artery is used to create the new route.

First done 14 years ago. it is a controversial procedure today. While there is no question that it relieves the immediate symptoms, it has not yet been conclusively proven that it prolongs life.

Hemorrhoidectomy (Removal of hemorrhoids) - This common operation is performed for painful or bleeding hemorrhoids (varicose veins of the rectum). When they are inside the anal sphincter, they are called internal; when outside, external. Internal hemorrhoids frequently prolapse through the anal sphincter and cause pain. If the blood within them clots, they are said to be thrombosed.

Pain, anesthesia, risk of surgery, inflammation, time lost from work, the expense are all consequences of this needless surgery. Most often, the hemorrhoids return because the cause for them has not been removed.

Hernia Repair (Called herniorrhaphy) - Performed to repair a weakened muscle through which an abdominal organ, usually the intestine, protrudes. There are several types of hernia, but inguinal—low on the abdomen near the groin—is the most common.

This operation can be done as an outpatient and doesn't require hospitalization or an operating room. The whole cost of the hospital stay, operating room, anesthesiologist, etc., could be dispensed with. The individual rests for a bit afterward and then goes home.

However, hernias can often be corrected through special exercises performed daily at home. Dr. Shelton describes several exercises in his book, Exercise. By all means, you should give these exercises a fair try before subjecting yourself to any surgery.

Hysterectomy - The removal of the uterus supposedly takes away a so-called "cancer-prone" organ. Thus the gynecologist justifies the operation and the large fees for performing this major surgical procedure.

Along with the uterus, they usually remove the ovaries. This induces an instant "surgical menopause." Often, the women develop years of anxiety, depression, sweats, hot Hashes, and a constellation of symptoms of estrogen deficiency. The physician gives her estrogen shots or estrogen tablets once a month. However, the estrogen itself is a cancer-causing agent. Thus a so-called "cancer-prone" organ has been removed so that the woman can get shots of a known cancer-causing agent.

Prostatectomy - Sitting at the base of the bladder in the male, a small roundish gland the size of a chestnut circles the male urethra. Sometimes it enlarges a bit and presses on the urethra, causing slow starts and a slow flow on urination. However, this is not a valid reason to remove the gland. As soon as the cause for the swelling is removed, the prostrate will return to normal size.

Prostatectomy may leave as its aftermath loss of bladder control (incontinence of urine), impotence, inflammation, impaired ejaculation, sterility, and recurrent return visits to the urologist.

Tonsillectomy and Adenoidectomy (T and A) - This operation is most often performed on children under six who have had recurrent sore throats (a symptom of healing), who have difficulty swallowing, breathing, or talking because their tonsils and/or adenoids are enlarged. They enlarge because of chronic toxicosis.

The adenoids shrink as the child grows older anyway, so the surgeon is sure to operate before that naturally occurs. We should not mutilate and cripple our children with this totally unnecessary surgery. Tonsils and adenoids are vital organs of detoxification.

Thyroidectomy - The fact that enlarged thyroids, overactive thyroids, and underactive thyroids can be completely healed without medicine or surgery is a fact that has largely been ignored by the general surgeons. They routinely cut out the thyroid gland, trusting to fate that the patient will never know that the operation was unnecessary and that the thyroid could have been left alone to heal on its own.

When the surgeon cuts out the thyroid gland, he renders the patient permanently hypothyroid; that is, for the rest of his life the patient will be dependent on thyroid supplements or else he may go into a coma.

Also, when, the surgeon cuts the thyroid, he may cut the recurrent laryngeal branch of the vagus nerve, which courses through the neck just underneath the thyroid gland. The patient then suffers permanent hoarseness due to the loss of the recurrent laryngeal nerve supply to the voice box.

Vasectomy - Vasectomy is male sterilization by cutting the vas deferens (the tube connecting the testes to the penis). Most men who have had vasectomies have subsequently been impotent.

Two reasons why urologists continue doing vasectomies and have not revealed the high incidence of impotence it causes are as follows:

1. Urologists earn a mint doing this operation.

2. So many vasectomies have already been performed, so many men have been made impotent that they are ashamed to admit it or bring up the fact. If the truth should come out, then malpractice cases against urologists would jam every court in the country.

Another aspect of vasectomy that the public has not been made aware of sufficiently is this for practical purposes it is a nonreversible operation. Rare cases have occurred where surgeons using microscopes have reconnected the severed ends of the vas deferens. However, a successful outcome from this is very rare.

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14. Intensive Care Unit

The intensive care unit is designed differently from other areas of the hospital. It is a large room, sometimes with curtains between beds, sometimes not. Men, women, and children are all together. There is a central nurses station from which all patients are visible. Specially-trained teams of doctors and nurses are on duty twenty-four hours a day.

The ICU is a room which is definitely not conducive to health. The room is deliberately kept cool to decrease the body's need for oxygen. This creates an additional stress to maintain proper body temperature.

When you first enter the ICU, it looks like something from a spaceship: wires, tubes, lights, pumps are hooked into and onto mostly immobile, white-sheeted figures. There are constantly flashing lights and beeps from monitors. It is eery and enervating. The light is eerily, intensely bright; there is constant, purposeful movement on the pan of the staff. There is rarely an outside window so there is no fresh air and little sense of time of day or season. Beneath all the apparatus it can be hard to recognize (and sometimes even see) the person you know.

14.1 Equipment

People in the ICU are often hooked up to cardiac monitor's that provide records of the heart's activity.

The screens that display these are usually placed at the patient's bedside, as well as at the central nurses station. Tubes or masks often connect them to a respirator or ventilator. If it is believed that you will need help breathing over a long period of time, a tracheotomy (an opening into the trachea through the neck) may be performed. Moistened air or oxygen will be delivered to the area of the tracheotomy through a plastic tube. Since the normal moistening mechanism (your nose and throat) is no longer doing this job, the air must be artificially moistened to prevent the drying of your respiratory passages.

Sometimes, to see how your heart is handling the blood it is receiving, a central venous pressure catheter is used. This is a thin tube inserted into a vein in your arm and threaded up to the large vein (vena cava) entering your heart.

To get a constant and precise measurement of your blood pressure, thin catheters called arterial lines may be in place in arteries in your arm. This makes it possible to check your blood pressure without having to put on the cuff and pump it up the way your doctor or nurse normally would. In other words, the pain and inconvenience experienced by the sick individual with these catheters if for the primary purpose of making the job of the nurse easier.

Often a Foley catheter, to drain urine, is in place in your bladder. It may flow into a bag and be measured from time to time—another unnecessary monitor.

14.2 People's Reactions

Some people simply cannot tolerate being so totally dependent on other people and on machines. Others can't bear the lack of privacy. Some feel that they'll go mad from the noise, the continous bright light, the constant attention: temperature, pulse, respiration, and blood pressure are taken every fifteen to twenty minutes. You are burned, checked, made to sit up and cough and take deep breaths.

The people look terrible—pasty-colored, immobile, sometimes unable to talk and, worst of all, often disoriented. Disorientation is common in the ICU because of the constant noise, the lights, the lack of sleep, the fact that patients are seriously ill, may have a fever, and may be sedated so that they won't fight the equipment. People often hallucinate and pass in and out of periods of clarity.

The environment in the intensive care unit is the opposite of what a proper environment for healing should be. These places should be called intensive abuse units. The proper environment should be quiet and peaceful. There should be plenty of windows so that the room is light and airy with plenty of fresh air from outdoors. Since sleep is the prime requirement for all sick individuals, they should never be disturbed when sleeping or resting. There is no equipment or chemicals that can heal—only the body can do that and rest is the primary need.

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15. The Emergency Room

The emergency room is an entirely separate unit of the hospital, set up to handle people with an injury or condition that may cause death, disability, or serious illness if not treated promptly.

The person who greets you in an emergency room will have two questions: Do you have insurance? What is the matter? If you do not have insurance and are unable to pay, any hospital that operates a twenty-four-hour-a-day emergency service must still give you emergency care. It does not, however, have to provide follow-up care; and a private hospital has the right, if you cannot pay, to transfer you to a public hospital once you have, received the initial emergency care.

If you do have medical insurance, bring your identification cards with you. It's also a good idea to bring a friend, because the hassle of the emergency room may be more than you can bear alone.

In the hospital, those who get immediate care are usually heart attack cases, women about to give birth, and those with severe bleeding. The rest wait.

15.1 Fees

Don't be shocked by emergency room fees. In large metropolitan hospitals they can be as much as fifty dollars plus charges for such things as X rays. Check your insurance to see if it covers all or a portion of emergency care costs so that you'll be prepared.

16. Questions & Answers

Are there any psychological effects of hospitalization?

> Yes, according to Dr. Robert S. Mendelsohn, the psychological dangers of the hospital are every bit as deadly as the physical dangers. He says: "Your hospital stay from the moment you walk in the front door until the moment you walk—or are carried—out has a psychological effect on you similar to a hex or a voodoo curse. Whether you consciously acknowledge it or not, hospital procedures and environment encourage despair and debilitation rather than hope and support. Nobody's optimistic. You see the long faces of the people suffering and dying, and you see the faces of the people who must watch them suffer and die. You see the hospital staff denature their responses and become machines. And then you are denatured at the admissions desk as you are reduced to a collection of numbers and symptoms belonging not to you but to the doctor. You leave your former world and identity behind. You're literally stripped of your former life as you take off your clothes and hide them and your personal belongings in a closet—artifacts of your real life. That past life is kept from reasserting, its ties with you—your relatives—are restricted from spending more than token amounts of time with you.
>
> "The effect of all these psychological pins is that you relinquish any notion you may have had about having control over your health. Your captors isolate you, alienate you, scare you, depress you, and generally make you feel so anxious that you submit to their every wish. Your spirit broken, you are ready to be a "Good Patient."

What causes gallstones to form? Are operations sometimes necessary?

> According to Dr. Shelton, imprudent eating and heavy eating of fatty foods by the enervated and toxemic, and a lack of exercise, are chief among the causes that produce gastrointestinal and biliary irritation leading to stone formation. They do not develop in healthy individuals, but in those who have broken down their health by years of wrong living. Nobody would ever have gallstones if he lived right.
>
> Referring to the gallbladder operation, Dr. Shelton says, "In my opinion there is no necessity to operate for gallstones. Normal nutrition is not restored by removing an effect of impaired nutrition. The great and growing army of postoperative invalids attests to the fact that operations on organs of the body do not restore health. Too many organs are removed that could be saved by the simple expediency of draining them by means of the fast. "Instead of surgically draining the gallbladder, a fast will enable the body to perform an excellent job of drainage and do it in a way to leave the gallbladder intact and unharmed."

Can tumors be dissolved without having to resort to surgery?

> Yes they can. Dr. Shelton has had considerable experience on this subject and he says,
>
> > "A woman was told that she had" a fibroid tumor of the uterus about the size of a lemon, and that it should be removed at once. This meant that her womb would be removed and that during surgery reasons might be discovered for removing her ovaries.
> >
> > "But this would not restore health. She would still be a sick woman.

> Operations remove effects, not causes. There would probably be a recurrence of tumor. She would also be a physiological cripple. Cutting into the ovaries is like cutting into the brain. The patient rejected the operation and resorted to the fast. Soon the tumor was autolyzed and her organs were saved.
>
> "One case that I cared for was a woman who had a uterine fibroid about the size of a medium-sized grapefruit. Complete absorption of the tumor was brought about in twenty-eight days. This was an unusually rapid rate of absorption and I have never seen it take place so rapidly in another case.
>
> "I have seen tumors in the breast, on the womb, in the abdomen, on the feet and elsewhere absorbed while fasting, and some of these absorptions have been rapid while others have been slow.
> "For reasons that are not yet fully understood, some tumors are not affected by the fast, but thousands of tumors, some of them of considerable size, have been completely and permanently removed by fasting. I have had the pleasure of saving hundreds of women from mutilating operations for the removal of the breast, and many more from desexing operations for removal of uterine fibroids. The process is identical with the removal of stores of fat in the tissues. There is nothing mysterious about it.
>
> "Just as fat on any part of the body may be autolyzed and taken up by the lymph stream to be mingled with the blood and used in nourishing the vital tissues of the organism-while no food is being taken, so other tissues may be digested in the same manner and used as food. Muscular tissue, glandular tissue, and other tissues may be called upon to supply nutriment for the more vital tissues, those that have to carry on the most essential functions of life.
>
> "In like manner, the tissues that make up a tumor (neoplasm) are digested and absorbed, the usable portions employed in nourishing the vital tissues, the nonusable portions excreted."

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Article #1: Is Medicine a Fraud? by Dr. Herbert M. Shelton

A few years ago Dr. Hutchinson, consulting physician to the London Hospital, lectured at Aberdeen University on "The Progress and Present Aspect of Medical Science." The lecture was published in the British Medical Journal. In this lecture Dr. Hutchinson said:

> "So few are the diseases that we can really cure, that one is tempted to believe that if all the doctors went on strike for a year the effect on the death rate would be inappreciable. In most cases of illness the doctor is really a mental poultice; he is a source of comfort, confidence,

> and consolation to the patient and his friends; but if he is honest with himself he will admit that the number of patients who would have died but for his attendance is lamentably small."

Does this honest confession not brand the practice of medicine as a gigantic fraud and its practitioners as a gang of swindlers? Was anything I ever said about medicine a stronger condemnation of the practice than this coming from one of its honored members? Does Dr. Hutchinson, in the above statement, not, in effect, at least, accuse the members of his profession of accepting money under false pretenses?

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Article #2: Physician Heal Thyself - Part 1

The frequency with which medical specialists die of the very diseases in which they specialize speaks volumes to the thinking person. If a physician specializes in diseases of the heart for twenty or thirty years and develops heart disease from which he dies, how can such a man be expected to be able to prevent or "cure" heart disease in his patients?

If he does not know enough to save himself. how can he save you? If members of his own family sicken and die of the "disease" that he has made the object of his specialty, hat can he do for the members of your family? Is it not about time we demand of these men that they prove in their own lives and in their own families the value of their much boasted "science"?

Heart specialists die of heart disease, lung specialists die of tuberculosis, cancer specialists die of cancer, asthma specialists have asthma, hay fever specialists have hay fever, neurologists become insane—what kind of a science of medicine is this that is good for everyone but its practitioners?

Here is a case in point. It is taken from the *New York Times*:

HEART ATTACK KILLS HEART SPECIALIST, 56

Dr. John M. Cassidy Stricken While Attending Patient

JERSEY CITY, N.J.—Dr. John M. Cassidy, a specialist in diseases of the heart, was stricken with a heart attack at the bedside of a patient here yesterday and died within a few minutes. Dr. Cassidy was 56 years old and lived at 1913 Boulevard.

He was born in Paisley, Scotland, and his family emigrated to the United States when he was a boy. He received his early education in the United States and in Scotland, a Bachelor of Science degree from New York University and a degree from Bellevue Medical College, from which he was graduated with Phi Beta Kappa honors.

For fifteen years he was a lecturer on the staff at Bellevue Medical College and for twenty-eight years he was on the staff at the Greenville Hospital in this city. For several years he was associated with Dr. John Wycoff, New York heart specialist.

With all his education, all of his degrees, his connections with famous institutions and his wide experience, he did not know how to care for his own body in a way to keep it healthy and strong. What good is all his store of knowledge, if it cannot be used to help him live?

The sober fact is that he had very little knowledge. He knew a lot; but we would repeat the question that we believe was asked by Josh Billings: "What's the use of knowing so much if what you know isn't so?" This physician had accumulated too much canned ignorance.

Article #2: Physician Heal Thyself - Part 2

"By their fruits ye shall know them" applies as much to "science" as to trees. What are the fruits of modern medical science? What may we expect from this "science" in the future? Do "medical" men really know how to prevent and "cure" disease? Can they really prolong life? Can they help us if we submit ourselves to them for periodic examinations, frequent inoculations, occasional operations, and treatments of many kinds?

If they possess the necessary knowledge and skill to improve, preserve, and restore our health, to prolong our lives and free us from suffering, should we not find evidence of this in the better health and longer life of physicians and the members of their families? If these do not show better health and longer life than that of the lay population, are we not justified in doubting their claim that they possess such knowledge and skill?

A reader sends us a clipping from the *Long Island Star-Journal* telling of the death of a Brooklyn physician who dropped dead in the home of a patient, where he had been called. The physician was only 41 years old. The patient was reported by his wife to be "recovering from his illness."

The physician, Dr. Frank Donigan, died in the home of Joseph McBride, a Great Neck engineer, at 160 South Middle Neck Road.

Were this an isolated case, it might be considered as only a curiosity; but, the fact is that physicians frequently die young, even younger than this one did, and we have known of other cases where physicians have dropped dead while attending their patients. Such facts entitle us to demand, at least, freedom of choice in medical matters.

We cannot reasonably expect medical knowledge and medical methods to do more for us than they do for medical men themselves. Medical men should hesitate before advocating compulsion in the use of their wares when they chalk up such poor records where we have reason to expect their most thorough and conscientious use.

Article #3: "Good Drugs"

In one of his recent syndicated articles, Dr. Irving S. Cutter says that he received a letter that read: "A medical student at Harvard told his father that he was taught that there are only 13 essential remedies. My physician says he is of the opinion that there are only four. Were you to make a list how many would you include?"

After dealing with the old belief that "since the good Lord had sent disease to curse mankind, He had planted in the earth an antidote for every symptom," which we only need to find, and how this led to a search for remedies in everything and, ultimately to the development of shotgun prescriptions, he tells of the development, in the middle of the 19th century, of pharmacology, so that "today every product, before it is applied to human use, must pass the rigid test—what will it do to help the body rid itself of disease?"

Then he adds: "It should be clear that nature is the great healer. All that any medicine can accomplish is to place the tissues and organs in the best possible condition to repel illness." This is a perversion of the old threadbare statement that "it is nature that heals, medicine only aids nature."

I am certain that Cutter is well aware that "medicines" never "place tissues and organs in the best possible condition." He may not know that the body does not "repel disease," for he still thinks that "disease" is some kind of a mysterious attacking force that must be repelled as any invader should be repelled. But he has studied too much toxicology to believe the mass of lies in the pharmacology about the "physiological action" of poisons.

He tells us of pharmacology, that it deals '"with the action of drugs." But he omits to mention the fundamental defect in pharmacology, if he is aware of this glaring defect: that it fails to distinguish between the "action" of drugs and the action of the body. Pharmacology attributes all the action to the lifeless drug—the chief characteristic of which is *inertia*—and none to the living body, the leading characteristic of which is *action*—"action is life."

He believes that epsom salts act on the bowels to produce a diarrhea; and does not understand that the diarrhea is bowel action—that the living thing and not the lifeless thing does the acting. It is the bowels acting on the drug to eject it that produces the diarrhea. Pharmacology is a mass of fallacy simply because it mistakes vital action for drug action.

Drugs do not "place the tissues and organs in the best possible condition." On the contrary they force them to assume a condition of defense. They are compelled to defend themselves against the drugs. Drugs place them either in a condition of excitement, followed by exhaustion, or in a condition of depression, also followed by exhaustion. The excited action of the bowels (diarrhea) that follows a dose of salts, leaves them exhausted. The depression of these same bowels that follows a dose of morphine exhausts them nonetheless.

Cutter uses the term "medicine" and net drug. Medicine is derived from a Greek word meaning heal or healing. There are no medicines. "It should be clear that nature is ' the great healer." What is nature? In this instance, nature is the ensemble of the forces and processes of life. It is nutrition, detoxication, drainage, elimination, repair, recuperation—function. Nature is not only the great healer—she is the only healer.

Continuing, Cutter says: "In this connection (that of putting the tissues and organs in the best condition to repel the mysterious attacking force), nursing often is more powerful than all the elixirs in the pharmacopeia." This must depend on the kind of nursing employed. For, nursing may be "medical" nursing, or it may be Hygienic nursing.

Cutter says:

> "A few years ago Dr. Shattuck of Boston prepared two lists of drugs. The first enumerated 11 items and was entitled "Very Valuable," the second tabulated 15 under the caption, "Useful." Of the first 11, diphtheria antitoxin is the only serum noted. Nowadays we could scarcely do justice to our patients without antitoxins against lockjaw, gas bacillus, meningitis and pneumonia
>
> "Since Shattuck's pronouncement the sulfonamide derivatives have come into the picture. They are lifesaving in the treatment of meningitis, urinary infections, mastoid, middle-ear disease and pneumonia
>
> "Anesthetics are not even mentioned. I would incorporate also oxygen—so helpful in certain respiratory and heart conditions. When combined with carbon dioxide, this element is of great service in the management of gas poisoning
>
> "The only hormone recorded is insulin. Most experts, I am sure, would demand pituitrin, adrenalin and the sex hormones. There is no reference to glucose or normal salt solution.

> Certainly human blood and plasma occupy positions of first importance
>
> "Thoughtful physicians are not generous drug-prescribers, but they must be familiar with the possibilities of their ammunition. To answer the question categorically, I think I would accept most of Professor Shattuck's 26 entries. To these I would add at least a dozen more, with the reservation that no one preparation should be employed unless the doctor who prescribes it knows just what it will do and that his patient needs it."

He includes oxygen and human blood among the "valuable drugs." How did he overlook food and the human brain? Aren't they "valuable drugs," also?

All leading physicians are agreed that there are not many "valuable drugs," but they are not all agreed as to which are the valuable drugs. I have not seen Shattuck's list, but it is safe to say it contained the now discarded specific for "syphilis"—mercury. Most lists of this kind also contain the vaunted specific for malaria—quinine.

A few years ago a prominent New York City physician stated that he could practice medicine successfully with three drugs—mercury, opium, and quinine. I saw a list of "really valuable drugs," prepared by a famous medical authority that contained only twelve drugs. At the present time the Army recognizes epsom salts, C.C. pills, arsphenamine, and sulfanilamide. The U.S. Pharmocopea and the Handbook of New and Nonofficial Remedies each contain a large list—over 45,000 in all—of "curative" drugs.

The simple truth is that there are no valuable drugs. They cure nothing, but kill many. They can cause disease; they cannot restore health. Drugging the sick is a survival of savagery. Increase or decrease the number of drugs in use as they will; it still remains a relic of the voodooism of the medicineman of savage tribes.

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Article #4: Good Medical Attention by Dr. George E. Crandall

In the *New York Times* magazine section several years ago, there appeared an article captioned, "How Healthy Are We?" by Michael M. Davis. It contains some very interesting statements, statistics, and assertions. It is a very graphic tale of a decaying civilization. The contrast between the youth of this country of 1917-1918 and the draftees of 1941-1942 shows conclusively that, in spite of our boasted medical enlightenment and progress, humanity is on a declivitious march. "The March of Time" is undermining our health and sapping our vitality.

The subjects of this article have been examined, reexamined, immunized, reimmunized, and possibly sterilized, yet they are less fit than the youth of two decades ago. Can it be that the advice and knowledge of the family physician, the American doctor, is grossly misleading and fallacious? All these young men have been supervised from birth by the family doctor: in infancy, in the public schools, in colleges and in their athletic pursuits everywhere. Yet approximately 1,000,000 of the 2,000,000 drafted were weighed in the balance and found wanting of the physical qualifications essential to modern war requirements. If I were a logician, an analyst, or statician, I would want no more conclusive proof of the incompetency of modern medical science than the comparative health status of the American youth as released in this article.

The cause of our health deficiency as given by the author is that we do not receive "good medical attention." He does not state the reasons but infers that we are all negligent and fail to employ a physician: TMs, too, in spite of the fact that they are forced on us from birth by custom, coercion, and law. We could not dodge them if we would. We are medicated, vaccinated, innoculated, extirpated, serumized, immunized and figuratively baptized. We are literally soaked and saturated in a medical bath, yet we grow weaker and weaker. Possibly if all the pseudo-science was abandoned, Nature would have an opportunity to develop our youth more normally and more ideally.

There is only one way to build a healthy, sturdy adulthood and that is to observe and follow all the health laws. Be guided by natural instinct rather than live haphazardly and depending on artificial immunity which, itself, is taking a huge national toll in degenerating our manpower.

"The human machine shows more diseases and defects as it gets older, *especially when it does not receive good Medical attention*." From this quotation it is quite apparent that the author is not familiar with medical practice or such a statement could not have been made. As we grow older, we build and develop all the chronic diseases. These ailments, when once established incurable and not amenable to any known medical treatment. We have been building these diseases for years and even now heart disease (incurable) is taking a greater toll than any other disease, either acute or chronic. Now why are these diseases not prevented by "good medical attention"? The chronic so-called incurable diseases are not respectors of poisons and the wealthy are more frequently afflicted and go down and out more rapidly than the less opulent, in spite of the fact that they can well afford the most renowned physicians and clinics in the land.

If doctors know the cause and cure of these degenerative diseases, why are the American people kept in ignorance? Why do we donate to, endow and build lavish foundations for medical institutions and medical progress and receive no enlightenment or health improvement in return? We are sinking, fellow Americans, into the clutches of disease and death and there is no succor or saviour.

Is American medicine commercialized? Do we need state medicine? Has medical science yet discovered the true cause of disease or have they been totally deceived into following a "Will o' Wisp"—a false philosophy? Is the germ theory a farce and is the practice of modern medicine a burlesque? These are pertinent questions vital to every American and they should be answered truthfully.

We pay annually, over $2,000,000,000.00 for relief from discomfort, pain, and suffering. This is a staggering sum and should insure health to everyone if we could receive adequate enlightenment along health lines. It should be self-evident that if we build better health, we will develop less disease. If we would pursue our health search far enough, we could eradicate all disease, suffering, and premature death. It is certain that we cannot obtain this knowledge from licensed physicians and it is not taught in hospitals, or clinics, nor by the visiting nurses association.

In time of need, health knowledge is not even supplied by the American Red Cross.

There is only one solution to this vital national problem. It is quite evident that our modern medical knowledge is woefully inadequate, erroneous and ineffective. Even surgery cannot cut health into the body or the cause of disease out of the system. Our only solution to this national problem is to learn "The Laws of Health," and develop enough desire and self-control to practice them. Health cannot be expected from a country of people saturated with tobacco, alcohol, tea, coffee, and drugs.

Doctors and their families indulge in all the bad habits that are so prevalent, suffering with the same degree of impaired health and go to an untimely grave. Frequently, we read of doctors or members of their families dying from twenty to thirty years prematurely so it is a case of the blind leading the blind and all the medical propaganda we read so much in the daily papers is just a game of Blind Man's Bluff.

By a proper regime, consistently and persistently followed, we can in time develop a healthy, strong, and vital people. It will eliminate our weakness and susceptibility to disease. This is a natural immunity and the only dependable safeguard we can possess. It is the function of a health school to impart these laws to the public and create in humanity a desire to have health rather than physician and mental degeneracy and destruction.

Rome has burned but we are still fiddling. Are the needle and the scalpel mightier than the sword (truth)?

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Article #5: Blood Transfusions by Dr. Herbert M. Shelton

We have received numerous requests for information about blood transfusions, blood banks (or, as, one correspondent called them "bloody banks"), and the desirability of donating blood to the sick and wounded. All this curiosity has been aroused by the frequent calls for blood and the many stories carried by the press of the great good accomplished by transfusions and by the use of the blood banks.

Our readers, despite the information they possess, are still very susceptible to voodooism's propaganda. If the propaganda is persistent enough, or repeated often enough, or if its claims are great enough, they think there may be more to it than there is to other forms of propaganda.

That blood-transfusing is a hoax and a swindle; that it is only an expensive and dramatic piece of grand-stand play by voodooism's white-robed priests; that it is a damaging and often fatal procedure, have been known for years; yet our readers seem to think there may be good in it.

On the other side of the picture, one of our readers in Rochester sent us what he calls a "good one." He tells us that "the Red Cross is making its rounds in the Rochester industries to replenish its blood bank—or should I call it, its bloody bank? It has just completed its stay at Eastman Kodak Company, Rochester's largest industry. Pressure was put upon all the workers to donate of their substance.

"Here is the procedure: A pint of blood is taken from the arm of each worker. After that, each one is ushered into a sort of traveling cafeteria. The worker is now given a treat for his donation. The treat is supposed to help him recover from his loss of blood. And here it is:

"Sandwiches of white bread and baloney or cheese or peanut butter, coffee, tea, or milk (pasteurized) with white sugar cookies—cigarettes—a shot of liquor!!

"These same blood donors (or suckers) are expected to give a new transfusion within two months. Perhaps the above offerings ought to make this entirely possible. Viva La Red Cross!"

The Red Cross, which is the left hand of the Medical Trust, may always be counted on to build up the blood of its victims with *good* white bread, spoiled meat, coffee, *good* white sugar, pasteurized milk, cigarettes, and booze. When the present world madness has ended and the world is being reorganized in a way to prevent its (mis)leaders from creating another hell on earth, the Red Cross must be sent to the same oblivion to which political organizations will go. The Red Cross must be punished by forcing it to spend eternity in the same padded cell with the A.M.A. Who was it dubbed the old harlot, "The Greatest Mother of Them All"?

The present vogue is to transfuse as often as possible and, if this does not result in death, credit the transfusion with recovery. Every recovery following transfusion is attributed to the transfusion. If the patient "fails to rally" and dies, this is due to *other causes*.

Deaths following transfusions are more frequent than the public is aware of and, while it is positive that the transfusions do often kill outright, there is no unquestionable proof that they ever save a life, or, even that they ever result in positive good.

Apparent successful results of transfusions are usually played up for the public, while the evident failures and damages are not given any great flare of publicity. Front page space is for the spectacular.

Blood transfusions were first made from animals. Later human blood was used. At first the blood was caught in a funnel as it spurted from the artery of the donor and sent through a tube into the veins of the patient. Later a method was devised that conveyed the blood directly from the donor's artery to the vein of the receiver. Still later, instead of direct transfusions, "blood banks" were made by taking the blood, mixing it with an anti-clotting chemical and storing it until used. The latest development is that of "blood dust." The blood plasma is dried in huge sausage skins and stored or shipped. Later this dust is mixed with distilled water and pumped into the veins. Or, if distilled water is unavailable, the unopened skins are immersed in ordinary water. The water passes through the skins, which filter out foreign matters from the water. Enough water passes through the skins to create a fluid "plasma."

It should be recognized that the introduction of the blood of one individual into the body of another is the introduction, therein, of a foreign serum. True, it is human serum and, therefore, theoretically at least, should not produce the symptoms or reactions of serum poisoning—*anaphylaxis.* Actually, however, it does this very thing as we shall show often adding a few symptoms that are missing from serum poisoning.

Let me list the symptoms and evils which follow transfusions as given by these great surgeons—chills, nausea, vomiting, muscular pains, dyspnea (difficult breathing), cyanosis (blueness due to heart and circulatory difficulties), urticaria (nettle rash), headache, fatal hemolysis, (breaking up of the red blood cells), spasm of the un-striated (involuntary) muscles, asthmatic symptoms in the lungs, involuntary voiding of the urine and of the feces, acute edema (dropsical accumulation) of the lungs, hemorrhage, embolism (blood clot), and death. Hemolysis may occur without going far enough to result fatally. Some of these surgeons are convinced that in some conditions in which transfusions are employed, generally, those patients who receive the transfusion "will die sooner than those without."

"Fatal anaphylaxis following blood transfusions," "the deaths following usually in a few hours after transfusion" and occurring often in cases where "previous study of the blood had shown that they were *entirely satisfactory*," should convince everyone that blood shown to be "entirely satisfactory" is not really satisfactory. I am sure that no blood would satisfy me which would kill me in a few hours, or, even in a few days.

The damages to the body listed above, as resulting from transfusions may seem to the reader to be enough. Yet there is no reason to doubt that all the tissue damages throughout the body, which result from all serums (foreign proteins), or serum sickness, also result from blood transfusion. The above-listed damages and symptoms are only the most prominent and most important ones among those that have been studied.

Does it not seem a bit strange that a patient who is very low, who perhaps, is thought to be almost at the point of death, and is fighting desperately with the little remaining strength which he has, should be subjected to such damaging, and deadly treatment? It is stranger still when we consider that the authorities themselves consider it to be valueless in most of the conditions in which they employ it and are hopelessly divided in their opinions about which conditions it is, or may be, of limited value in occasional cases.

Dr. Peterson is evidently correct when he says that "a procedure which lends itself so readily to commercial exploitation is apt to come in for a certain amount of abuse."

Lesson 68 - First Aid And Natural Hygiene

- 1. First Aid: The Life Science Approach
- 2. Emergency!!
- 3. Specific Injury Treatments
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1. First Aid: The Life Science Approach

Someday either you or someone you care for may be in a life or death situation. What you do in the next few minutes could either save a life or quickly end it. Should you sacrifice your beliefs and principles at a time like this? Absolutely not. If your beliefs are correct, then your actions will be correct—provided that you have the proper knowledge to act upon.

Unfortunately, some people who think they understand Natural Hygiene or Life Science actually have a mistaken belief when it comes to first aid. One of the first principles of Natural Hygiene is not to interfere with healing. Outside interference with the body's healing processes should always be avoided. In other words, when we are sick or in ill health, we become well again by "intelligently doing nothing."

We don't actually do "nothing" of course. We may fast, improve our diet, take more exercise, or relax. But we don't meddle or interfere with the body by injecting it full of drugs or cutting out diseased organs.

Some Natural Hygienists and Life Scientists make the mistake of believing that "nothing" should also be done in a time of emergency situations where the body might require immediate attention. This is a dangerous belief, and one that may lead to your death.

First aid principles can be applied without violating any of the fundamental facts of Life Science and Natural Hygiene. We must, however, understand what first aid really means in these cases.

1.1 What First Aid Can (and Cannot) Do

First aid simply allows the body a chance to heal itself. Intelligent first aid, quickly applied, can restore the body to its stable state. For example, if you accidently cut an artery with a knife, you could quite possibly bleed to death if the cut was deep and the artery was a major one. If you "intelligently" do nothing in this case, you're stupid.

Simple first aid would be to apply direct pressure to the artery and stop the blood flow. You would use some type of cloth or clay or even pressure to help the blood clot, and then you might even need to have the artery sewed or reconnected.

Then, after all of this, you would do nothing "intelligently." You may fast or rest and let your body replenish its blood supply and conduct its healing. You would not ask for a blood transfusion or for any drugs to "help" you heal. When the body is restored to its stable state, then it will reestablish health and well-being without any additional aid or interference.

"First aid," wrote Dr. Alec Burton, a Natural Hygienic practitioner, "Represents immediate and temporary care. It is not designed to restore health but merely to avert the possibility of further damage or even death."

If you break your leg, there is no drug, medicine, or injection you can take to make the bone knit and heal. However, if you do not have the bone "set" and the leg immobilized, then the natural healing would not be as effective. First aid is for accidental injuries done to the body, and not for chronic illnesses or disease.

1.2 Should "First" Be "Last"?

First aid is called *first* aid because it is the first attention an injured person receives before being taken to a hospital or a doctor.

In most cases, *first* aid should also be last aid. After you take care of the emergency and restore the patient to a stable condition, no additional outside help is needed or required. The body is now on its own, and will conduct its healing as rapidly as possible. Drugs and various other hospital procedures only interfere with natural healing processes.

"First" aid can save a life. The "second," "third," or "fourth" aid a person receives in the hospital or at the hands of a surgeon can end a life. In many cases, first aid should also be the last aid a person needs.

The Natural Hygienic practitioner and student of Life Science must learn to distinguish between those emergency situations which may require additional professional attention and those that do not.

For example, a dog bite on the leg may often be treated safely at home by letting the wound bleed briefly, cleaning it with water, and then stopping the blood flow with a clean cloth. On the other hand, if the dog attacked the person around the face and actually tore an ear half-off, then surgery should be employed to reattach the ear. In neither case, however, should rabies shots be taken or any other injections be received. Rabies is yet another of the "contagion" myths and shots cannot protect you from a myth.

In many cases, your first aid is also the last aid a person needs before allowing the body to heal itself and restore normalcy. There are times, however, when you may need to seek additional help.

Knowing when to seek help and what type of help should be accepted can be difficult for the Natural Hygienist. How do you know when an emergency situation requires additional help?

Unfortunately, there is no easy and absolute way of answering this question for every situation. In most cases, you will have to use your own judgment and be prepared to accept the consequences of your actions. At such times, it is very handy to have a few phone numbers of professional Hygienic practitioners that you can call in an emergency.

There are some emergency situations, however, that will very often require some additional help beyond the "first" aid that you can give.

1.3 When Do You Need Outside Help?

The most obvious emergency situations that require outside and additional help is when a severe mechanical injury is done to the body. In this case, something is "broken" in the body—such as a broken bone, a severed artery, a deep gashing hole, a crushed organ, or some other acute and violent injury.

When these injuries occur, then constructive or emergency surgery may be required. Setting broken limbs and stitching large wounds up are still valid medical practices that allow the body to expediate its healing processes, these types of surgery do not violate the principles of Natural Hygiene, and may be vital to the well-being of the victim.

Giving the patient antibiotics, pain-killers, "vitamin" shots or other drugs, however, does violate the laws of nature and is injurious to the body.

In general, we can say that as long as the emergency treatments remain *mechanical* in nature and do not introduce any poisons or drugs into the body, then they may be tolerated.

As a general consensus, some Natural Hygienic practitioners developed a list of conditions that might require "constructive" or emergency surgery. Such treatment may be advisable (or unavoidable) for these types of situations or emergencies:

1. Repair after accidents.
2. Repair of some congenital (birth) defects.
3. Concealed strangulated hernia in an infant.
4. Some Caesarian sections (approach with great care!).
5. Some cataracts (only after fasting has been tried).
6. Repair of extensive damage to joints and cartilage (after an accident).
7. Tubal pregnancy.
8. Some hernias.
9. Large tumors causing obstruction or pressure on nerves or organs (only after an extended fast has first been attempted).
10. Repair of opening in wall of stomach eaten through by an ulcer of long duration.
11. Removal of organ destroyed by accident.
12. Dental surgery, such as tooth extraction or repair after an accident to the mouth.

All surgery and additional repairs to the body should always be viewed with caution, suspicion, and trepidation. Do not always assume that surgery and medical practices are needed for any type of emergency situation. In some cases, a limited amount of professional attention will be entirely adequate.

For example, if a person is knocked out and loses consciousness, then some additional help may be needed beyond the first aid that you can give. In a book called *Management of Trauma: Pitfalls and Practice*, the doctors have this to say about the treatment of head injuries in emergencies:

"If the person is knocked unconscious for less than five minutes, then the patient should be carefully observed for six to twelve hours. Frequently this can be done in the emergency room and does not require hospitalization. Patients who were unconscious for longer than five minutes may need to be hospitalized overnight."

The same doctors also caution us, however, that: "Merely keeping the patient in a hospital bed or in an emergency room does not imply that he is being adequately observed. All too often patients languish in these areas without being seen by a physician at all."

Like it or not, when an emergency or serious injury happens, you may end up in the hospital or an emergency ward. This is especially true if you are a victim of an accident. (See the supplementary material at the end of this lesson for one Life Scientist's experience after a tragic accident.) What do you do if you are the victim of an emergency?

1.4 If They Take You To The Hospital...

You may be unconscious the first time you are taken to a hospital or an emergency room. Some Life Scientists anticipate this situation and wear a medical tag that says: *I am allergic to all drugs and blood transfusions, and I have no medical insurance.*

Having no insurance may be the best safeguard against unnecessary or "elective" medical and surgical procedures. If the hospital suspects that you cannot pay its charges, it will try to have you discharged as soon as possible.

You may also want to give a sympathetic friend who understands your health preferences the "power of attorney" over matters involving your health care. All this means is that you and your friend go to a lawyer where a letter is drafted that says this person may act on your behalf on matters of health and medical care should you be unconscious or in a coma or unable to speak for yourself. Your friend, then, has the legal right to make sure that the hospital and surgeons do not get to you while you are incapable of making a rational decision.

While you are in the hospital, you cannot be legally forced to take any drugs, shots, transfusions, or whatever. You may be subject to intimidation and threats, and dire warnings that you are "hurting only yourself" by the hospital staff. Stand firm, however; they cannot make you do anything you do not want to do.

You also have the right to *immediate release* from a hospital. To accomplish this, you may have to walk out on your own power, have a friend pick you up, or even get a private ambulance to take you back to your home.

You cannot be forced to sign anything, such as a "discharged against advice" form. In fact, *do not* sign such waivers or forms. These forms serve only to protect the hospital, not you.

You do not need to wait in the hospital while the bill is being drawn up; you can have it mailed to you and you can leave immediately. This is your legal right; do not let empty threats frighten you.

Many times, as soon as a patient is given "bathroom privileges," he is ready to be discharged and nurse the injuries at home.

Make the best of an unavoidable hospital stay. Try to rest and fast. If you eat, try to get only fresh, raw fruits and vegetables. Refuse "feeding" by injection. *Get out as quick as you can*.

2. Emergency!!

First aid is often required at a time of emergency. You need to know two things in an emergency situation: 1) what to do, and 2) how to act. At the end of this section is a general list of things to do for various emergencies, injuries, and accidents. By reading this list and studying other books on general first aid, you can learn *what* to do. But *how* do you act in an emergency?

2.1 Act—Don't React!

You cannot afford to become emotional during an emergency. There is no time for fear, for panic, or emotional outbursts. You must become totally calm, clear, and collected.

Do not panic. Think. Don't react to the blood or pain or tears—act now to save a life.

When you are faced with an emergency, the first question you should ask is: What is the most important thing to do *at the present moment* to help the injured person?

At all times, remain very calm when helping the person. If the victim senses you are afraid, then he too may panic, and cause additional harmful stress. Reassure the injured person.

If possible, send for additional help if you think it necessary. Try to remain with the injured person at ail times, and attend to the most life-threatening injuries (such as uncontrolled bleeding, halted breathing, etc.).

Have some phone numbers handy or with you at all times that you can call for advice. Many Natural Hygienists and Life Scientists carry the phone numbers of one or more professional Hygienic doctors and practitioners that they can call in an emergency. Prepare such phone numbers *ahead of time* so that you may easily call when an emergency does occur.

Realize that even in an emergency, the basic needs for life and health always remain the same: fresh air, pure water, rest, and no drugs. Simply because the body may be seriously injured is no reason to believe that drug use can be safely tolerated.

The one word to describe how to act in an emergency is: think. Use your head, use common sense, and use your knowledge of Life Science. Be confident and be calm and you can handle any emergency.

2.2 First Aid Treatments: Doing No Harm

The following list of emergencies and injuries gives simple and harmless first aid treatments that can be used by anyone. Read the list thoroughly and try to remember as much as you can. Remember, in a real emergency, you will probably not have access to a book or list of things to do. It's important that you know automatically how to act in an emergency.

When faced with an emergency or a seriously injured person, you'll probably first want to take the five basic steps below:

2.3 The Five Basic Steps to First Aid

2.3.1 Step One

DON'T MOVE THE VICTIM. The only exceptions are when the victim would be in further danger if not moved immediately, such as a car accident where their is danger of gasoline explosion. Otherwise, leave him alone. You risk aggravating any injuries by improper moving. Wait until trained rescuers arrive.

2.3.2 Step Two

CHECK FOR BREATHING AND HEARTBEAT. Put your ear to his face and listen, and at the same time watch for the rise and fall of his chest. If the victim is breathing, his heart is beating. If he's not breathing, blow four quick breaths into his mouth, then check his pulse by putting your finger on his neck, just to the side of his Adam's apple. Feel for a pulse for ten seconds. If you're sure there is no pulse, begin cardiopulmonary resuscitation. (See the end of this section.) If his heart is beating but he's still not breathing, continue mouth-to-mouth resuscitation. (See also at the end of this section.)

2.3.3 Step Three

SEND SOMEONE FOR HELP. Don't you go, unless absolutely essential. You're needed to help the victim. Tell the person to call the emergency number for your area or the operator. Give your messenger as much information as possible without causing extensive delay, and tell him to pass everything along.

2.3.3 Step Four

CHECK FOR BLEEDING. The best way to stop bleeding is by applying a clean piece of cloth. Hold the cloth or dressing in place with your hand. Once applied, don't remove it. If that's not enough to stop the bleeding, raise the affected area above the heart. If that's not enough, apply pressure with your fingers to a pressure point between the wound and the heart.

2.3.1 Step Five

TREAT FOR SHOCK. Any person who's been injured can be in shock. The treatment consists of keeping the person lying down and as calm as possible. Make sure he's breathing, elevate the legs slightly (unless he has a head injury or fractured leg), and keep him warm, but not hot. Don't give any liquids.

By following these five steps, you do the victim no harm and, in fact, may save his life.

What other aid you give depends on the specific nature of the injury itself. The next section details various treatments and first aid approaches for the more common injuries and accidents.

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3. Specific Injury Treatments

3.1 Blood Hemorrhages and Excessive Bleeding

For a blood hemorrhage, get a clean dry cloth and cover the area of bleeding. Apply direct pressure. The cloth should make a larger surface to aid in clotting. The blood should start to clot within three minutes if the cut is not too severe. If the cut is deep, and bleeding is severe, then it may take as long as ten minutes for the blood to clot.

If there is massive blood loss, strong spurting of blood, and a weakened pulse or falling blood pressure, then you should carefully apply a tourniquet *between the wound and the heart*. A quick tourniquet can be made from a shirt and belt.

Be careful when applying a. tourniquet that you do not cut off *all* circulation beneath the wound. After twenty minutes of tight pressure, you may release the tourniquet gradually for five minutes and then tighten it again. You do not want to leave a tourniquet on for long periods of time as it may damage the tissue beneath the wounded area.

Excessive bleeding can be a very frightening experience, but remember: You can lose up to half of the blood in your body and still be able to function.

A severe cut or wound may require stitches. Accept the stitches but refuse any injections or treatments for "infections."

In all cases, blood transfusions should not be used. A person who has lost over 50% of his blood will produce more new blood faster if a transfusion is not given. Transfusions can cause serious problems or even death. The blood may be contaminated in handling; hemolytic reactions can occur between two different blood types, resulting in a 50% mortality rate; air in the transfused blood can cause death; blood is often obtained from "paid" donors who often have drugs and other toxins in the blood given for use in transfusions.

3.2 Wounds and Puncture Wounds

Cleanliness is important in treating wounds. Wash the area thoroughly with plain water. Wash or gently scrub to remove all dirt and particles. Do not use soap or antiseptics. If the wound is not too deep or bleeding profusely, leave it open to fresh air and sunlight. If a deep wound, cover it with a porous bandage, such as gauze held with tape. Do not use airtight bandages, or bandaids. Let air circulate through the bandage to the wound.

If the wound is a puncture, such as caused by a nail or glass, you may let the wound bleed freely for a few minutes. If the wound is small and slender (such as made by a nail), gently massage and press around the wound to encourage a *small* amount of bleeding. There is a purpose to bleeding; it acts to carry away foreign particles from the wounded area. If the wound is large and blood is pouring, then suturing may be required.

In no case, however, are anti-tetanus shots required or any other injections for so-called infection. The introduction of poisons (drugs) or bactericides into the bloodstream cannot be of any help to a wounded body. Considerable harm can be done.

3.3 Cuts, Burns, and Scalds

For immediate relief, immerse the burned or scalded area into cool water. Keep the area clean, and protect any open wound with a light moist covering (such as thick gauze dampened with water). Let the burned or wounded area be open to fresh air and open circulation. Keep burns, however, out of direct sunlight. Salves and ointments should not be used. Cool, fresh compresses should be alternated with exposure to open air. Some Hygienists have reported using freshly-pressed celery juice or a compress made from fresh green plants to alleviate the burning sensation and reduce pain.

3.4 Sprains, Strains, and Torn Ligaments

Rest—do not move needlessly. Fix the limb in one position and immobilize the joint for the initial period. If the limb is dislocated, you may need to see an osteopath or orthopedist to get the limb back into place. In any case, refuse all drugs, including pain-killing pills.

If in pain, immerse the affected joint into cool (not ice) water for one to two minutes and then take out. Repeat this five or six times an hour for as long as there is pain.

After pain leaves, stay off the affected limb or do not use it for a period of time. Gradually start exercising, but do not be in a hurry to put a lot of pressure or strain on the limb.

3.5 Poison Ivy, Poison Oak, Skin Rashes

Bathe immediately. Apply copious amounts of cool to cold (not ice cold) water. Do not rub or scrub area. Do not apply salves or ointments. Do not allow direct or intense sunlight to burn or heat the area. Do keep the rash open to fresh air. Rest and relax—the stress that accompanies a skin rash can often aggravate it. Do not worry. Apply cool compresses for itching and do not scratch.

3.6 Snake Bites

A poisonous snake usually makes fang marks. A non-poisonous snake usually makes a U-shaped mark.

If you are sure that the snake is nonpoisonous, then simply wash and clean the punctured area. Allow a small amount of bleeding to occur. Watch the victim for any reactions.

If the snake is poisonous, immediate action is necessary:

1. First, have the person lay down flat and stay calm. Have him/her breathe long, slow, and deeply to slow down the pulse rate and circulation. It is very important that neither you nor the victim show any signs of panic.
2. Next, apply a tourniquet as quickly as possible around the upper arm, leg, or thigh. Twist the tourniquet tight with a stick until you can feel almost no pulse at all in the limb that the tourniquet is applied to. Leave this on tight for twenty minutes, then release for five minutes. This can be done for up to several hours *if you watch the circulation and do not leave a tight tourniquet on for extended periods with no release*.
3. Transport the victim in a vehicle if at all possible; do not allow him to walk or become excited. The venom may be removed from around the area by a suction cup. Anti-venom shots should not

be used.
4. Fast the victim afterwards.

3.7 Spider or Insect Bites

Most insect bites are only slightly poisonous. Do nothing and forget about them. You may wish to fast if you have multiple stings or swelling.

Some insects, such as scorpions and black widow spiders, can cause a numb feeling for up to 24 hours. In this case, a one- to two-day fast will help restore the body to normal.

If the stinger remains in the skin, carefully remove it. Be cautious, however—many stingers that are left in the skin often have a tiny poison sack at one end. If you press this sack when you remove the stinger, more poison will be shot into your skin. Use tweezers or a razor blade along the surface, taking care not to press the stinger or the poison sack.

The pain and itching will soon cease, and there is no need for salves or ointments.

3.8 Poisoning By Swallowing

After a poison is swallowed, you have only 20 to 30 minutes to neutralize it. After that, the poison will be transported throughout the body.

Be careful about inducing vomiting. Some poisons, such as caustic acids, can actually do more harm when they are vomited back up. It is usually best to try to neutralize or dilute the swallowed poison by drinking large amounts of water. Although milk may not be a fit food, it can certainly be used to good effect in neutralizing poisons. Milk can neutralize both acid and alkali poisons. If milk is available, have the victim drink as much as he can hold.

If spontaneous vomiting starts, don't stop it. Similarly, if diarrhea or fever occur after the poisoning, do nothing to stop them, even if the fever reaches 106 degrees or more. If the person is unconscious or is having convulsions, do not attempt to make him/her vomit the poison. He/she may choke to death.

If the mouth appears burned, or if lye or petroleum (like gasoline) products were swallowed, definitely do not allow vomiting to take place. Any products that are thrown up which contain lye or petroleum products can severely damage the esophagus and lungs.

Since vomiting is not to be encouraged in many cases of poisoning, try the following liquids to neutralize the poison's effects:

For acid poisons, drink either milk, olive oil, egg whites, or water containing baking soda.

For alkali poisons, drink either milk, raw eggs, olive oil, or water containing lemon juice or vinegar.

In some cases, the stomach may need to be pumped or, an antidote given. An antidote is of course a foreign substance, but in most cases, it is less dangerous than the poison swallowed and may be the most expeditious way of saving a life.

After neutralizing the poison, rest and fast for several days. Drink only pure water, and let the body heal any internal damage.

3.9 Asphyxiation or Suffocation

Give artificial respiration. Place the person flat on the back, turn the head to one side, and remove any obstructions from the mouth. Make sure that the tongue is not curled up in back of the mouth. Press the victim's nostrils together, and blow into the mouth every four seconds. Pump the arms and lungs as necessary to get the breathing going again. Even if there is no response, continue blowing into the mouth and try to fill up the person's lungs. People have often been kept alive for long periods by simply giving them artificial respiration and not giving up.

3.10 Choking

Someone who is choking won't be able to utter a sound. He may also clutch at his throat. Here's what to do:

1. Stand behind the victim and support him in front. Bend forward and slap him soundly between the shoulder blades to dislodge material from his throat.
2. If that doesn't work, try these steps called the Heimlich Maneuver:
   a. Wrap your arms around the victim's waist from behind.
   b. Make a fist and push it, thumb in, against the victim's stomach, between the belly button and ribs.
   c. Grab the fist with the other hand and pull sharply in and up. If necessary, repeat several times.

3.11 Electrocution and Drowning

Artificial respiration and resuscitation are necessary, just as for asphyxiation. (See the technique on mouth-to-mouth resuscitation in the next section, "Emergency Techniques.")

For an electrocution victim, it may take four to five hours to revive the victim. Do not give up; have some one relieve you, but continue with the artificial respiration until you can get help. For a drowning victim, make sure that the mouth passage is cleared out and that no swallowed water remains in the lung passageway. Continue as above with artificial respiration.

3.12 Convulsions

Make sure that the person cannot injure him or herself. At the first sign of a convulsive fit, place a rolled piece of cloth between the teeth to prevent the tongue from being bitten in the attack. Keep the person under close observation, remove any harmful objects within reach, and simply wait. Convulsions may last from 30 seconds to an hour. Brain damage is more apt to occur because of interference with the convulsions than from the convulsions themselves.

3.13 Appendicitis (Acute)

This is an extremely painful condition, but one that rarely requires surgery unless severely neglected. At the first sign of pain, call a Natural Hygienic practitioner.

Bring the knees up as high as possible to the chest to relieve some of the pain. Do NOT eat. Do NOT drink. Do NOT take enemas. Do NOT press, poke, push, or prod painful area. Do NOT apply heat or cold.

Unless peritonitis develops, you can go through an appendicitis attack without any surgery or outside interference. If, because of neglect and continued dietary errors and excesses, the appendix should rupture, then certain surgery may be necessary to drain the abdominal cavity. When peritonitis does develop, you can tell by the presence of a very high fever and a tremendous rigidity of the abdominal muscles. The stomach area becomes "tight as a drum" and very rigid.

Such an extreme condition would not result if a fast were started at the *first* sign of an appendicitis attack. Most people, however, ignore the first few warnings and continue with their old ways of eating. Appendicitis is due 100% to dietary errors.

3.14 Vomiting and Diarrhea

Do nothing to stop either vomiting or diarrhea. Watch for dehydration if they persist for a long period of time. Drink only water. Stop all food intake. Begin an immediate fast.

3.15 Nosebleeds

Sit the patient in a chair with the head tilted forward.

Moisten a piece of cotton and place inside the bleeding nostril. Press the nostrils together and hold for at least five minutes or more, and have patient breathe through his mouth. After bleeding stops, the cotton should stay in place for several hours.

3.16 Stings by Jellyfish, Wasps, Fire Ants, Etc.

These types of stings are accompanied by a neurotoxin that is injected under the skin. The only serious effect of such an attack is usually great pain. To relieve the pain, try a paste of baking soda and water. In some cases, relief can also be obtained by rubbing lemon juice or vinegar around the bite.

3.17 Dog Bites

Wash the wound well with water only, and let it bleed freely for a few minutes. Clot the blood with a clean cloth. If the area is not so large as to require stitches, then simply forget about it.

Do NOT get rabies shots or treatments. Such treatments are far more dangerous than the bite.

3.18 Foreign Particles in the Eye

Wash your hands and then carefully pull your upper lid down over the lower lid. Wipe the corner of the eye gently with a clean cloth or cotton. Do NOT rub the eye. This may push the particle farther under the lid. Try to get the eye to "cry" or to "tear."

If irritation continues or if a piece of glass is in the eye, then seek professional help in removing it.

3.19 Broken Bones

Do NOT move the victim, unless it is a question of life or death, if the broken bone is in the neck or spine. Wait for outside help if possible. If you cannot wait, make a temporary splint and transport the victim as best you can. For a temporary splint, you can use branches, boards, or even the body itself (e.g., tie broken leg to uninjured one). For a broken ankle, carefully wrap the foot in a pillow, and tie it closed. For any fracture, don't tie anything directly over the wound—tie above and below it. Best procedure, thought, is to wait for help to arrive if you can.

A broken bone is rarely a critical situation; you can usually wait and have it set by an osteopath or orthopedist.

Rolled newspaper splint.

3.20 Heart Attack or Stroke

Some or all of these symptoms can point to a heart attack:

1. Pain, usually in the middle of the chest, or in the left shoulder or arm, or the neck. May feel like a crushing force.
2. Pale and sweaty skin.
3. Feeling of impending doom.

4. Shortness of breath.

Here's what to do:

Place the victim horizontal, and elevate the head slightly. Loosen or remove all constricting clothing. Give artificial respiration and fairly vigorous cardiac massage if the heart appears stopped. (See the "How to Give CPR" in the "Emergency Techniques" section.)

Make sure that fresh air is available, and the patient is kept warm. After the attack, complete resting (including a fast) is essential.

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4. Emergency Techniques

Every person (both child and adult) should be taught the two emergency techniques described below. In the local news was an item about a four-year-old boy who saved the life of his two-year-old brother because he knew how to give mouth-to-mouth resuscitation and CPR. It's never too early (or late) to learn about emergency life-saving techniques.

4.1 How to Give CPR

CPR stands for cardiopulmonary resuscitation. CPR is the only way to save the life of someone whose heart has stopped. To learn it properly, you should take a CPR course. The American Heart Association and the American Red Cross offer excellent CPR courses.

If you've determined that a person has no heartbeat, you must begin CPR. Here's how:

1. Kneel at the person's side.
2. Find the bottom of the breastbone—the bone in the middle of the chest.
3. About two inches above that, place the heel of your hand.
4. Place the other hand over the first hand and lock the fingers.
5. With arms kept straight, push down on the chest, so that it's compressed about 1-1/2 or 2 inches. *You must push fairly hard.*
6. As you push, count out loud: "One, and two, and three, and four, and ..." Keep going a little faster than one push per second until you get to fifteen.
7. After 15 pushes, move quickly back to the person's head, and blow two quick breaths into his mouth.
8. Then go right back to his chest, find the spot two inches above the bottom of the breastbone again, place your hands, and push 15 times again.
9. Keep on with 15 pushes, then two breaths, and so on, until one of these things happens:
    a. You are relieved by someone who can do CPR, or
    b. The person's heart starts beating (check his pulse every minute or so). You may still have to continue mouth-to-mouth resuscitation. Or,
    c. A physician pronounces the person dead.

4.2 How to Give Mouth-to-Mouth Resuscitation

When someone stops breathing, no matter whether it happened because of drowning, electrical shock, heart attack, or anything else, you can breathe for him by giving mouth-to-mouth resuscitation. Here's how:

1. Place victim on his back.
2. Check inside of mouth for material that could block the air passage. Clean out if necessary.
3. Kneeling at the side of his head, place one hand on the forehead and the other under his neck. Tilt the head back (unless you suspect a neck injury) so the jaw is pointed up. This keeps the airway open.
4. With the hand that's on the forehead, pinch the nostrils shut.
5. Blow four quick breaths into the victim's mouth, hard enough to fill lungs. If chest doesn't rise, clear the airway by cleaning out mouth, or roll victim on his side and slap between shoulder blades to dislodge material. Then roll him back and try breathing again.
6. After the four initial breaths, remove your mouth and watch for chest to fall.
7. Continue by blowing one breath into victim's mouth every five seconds until he starts breathing again on his own. (For small children, blow into mouth and nose, one breath every three seconds.)

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5. Accident Prevention: The Life Science Way

First aid can help you when an accident or injury occurs, just as fasting can help when the body starts a disease or illness process. But wouldn't it be nice if we didn't get sick or never become injured?

If you follow a sensible program of exercise, diet, and other health-building practices, then you will have the best health insurance you can buy. But what about accident insurance? Will the Life Science health regimen prevent us from becoming injured or having accidents?

The answer is YES.

It is a fact. A healthy person has fewer accidents and suffers less injuries than the average individual. Maybe you know someone who is "accident prone" or who always seems to be injuring him or herself. On the other hand, you may know someone (perhaps even yourself) who rarely suffers misfortune or injury.

The majority of all accidents and injuries occur because of an error in judgment. In other words, faulty or unclear thinking leads to accidents. A healthy person can think more clearly, make more correct decisions, precise movements, and avoid many of the minor injuries and accidents that happen to most people.

Most injuries and accidents are self-invited, either consciously or unconsciously. They occur because we are not "on top of things" or when we are not at our best. Haven't you noticed that many accidents happen when we are under stress or have been engaging in negative lifestyle patterns?

When you become more healthy, you take charge of your life on all levels. You become more capable and more in control. You don't become "off-centered" or "spaced out." A healthy body seeks to preserve its health. A sick or diseased body is an intoxicated body. It often hurts onward to self-destruction through negative thought patterns, imprecise actions, poor health habits, and, yes, through accidental injuries.

If you cannot quite believe the truth that healthy people have fewer accidents, then you should at least understand that a healthy body can recover more quickly when an injury does occur.

Melvin Kimmel, a Natural Hygienist, had this to say about staying healthy and injuries in an issue of *Dr. Shelton's Hygienic Review*: "The best safeguard for emergency situations is to stay healthy.

Keeping the cells of our body in optimum condition by following the raw food diet, sensible exercise, and so forth can not only save lives, but can minimize accidental injuries." When the body is injured, a healthy person can recover quickly and without the complications that often send others running to the physician."

Accident prevention should be a major concern of every health-seeker. Besides staying healthy, what else can be done to minimize the risk of injuries and accidents? First, do not take unnecessary risks.

Severe injuries often result from such activities and sports as skiing, sky diving, motorcycle riding, etc. Wouldn't it seem intelligent to avoid those sports and activities that have a high-risk factor? This does not mean that we should be afraid to be active or to exercise. It simply means that when we have a choice, we should choose those activities that have a proven history of fewer injury-related incidents. There is no need to expose yourself to unnecessary risks and potential injuries. A person concerned about health will choose jobs, hobbies, activities, and sports that do not have a high-risk factor or past history of frequent accidents.

Another benefit of healthful living is that you will be relatively immune to accidents and injuries that are alcohol or drug related. Over 50% of all traffic accidents, for example, involve alcohol. Alertness can protect you somewhat from a drunk driver. You can spot and avoid erratic drivers.

If we avoid alcohol and all drugs, both legal and illegal, then we can maintain a clarity of judgment and precise actions that will not subject us to injuries.

First aid is fine *after* the accident or injury. But as with disease and illness, wouldn't it be nicer if we did not have accidents in the first place?

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6. Questions & Answers

I'm confused. First you say that first aid may be the last aid a person needs. Then you say that sometimes emergency surgery could be necessary. What I want to know is when do you go to the hospital and when can you stay at home and treat an injury yourself?

> A visit to a hospital or any type of surgery could be in itself a life-threatening episode. If you sincerely feel that your life is in danger, that your condition is deteriorating, and that your own efforts are not enough, then by all means seek additional help! There are some things that the medical profession is helpful for such as setting broken bones and stitching ruptured arteries
>
> As a general rule, seek additional help when the mechanical injuries done to your body are so great that the body (itself cannot effect a repair without some aid. In other words, you must get the condition of the body stable and whole to start the healing process. If the body is stable, sound, and suffers no major mechanical injury, then do not worry about additional help or aid.

You say no drugs. But when I broke my leg, I wanted a pain killer! Aren't anesthetics okay at times like that?

> We have to be practical about this sort of thing. Sometimes it would be impossible to set a bone or repair a major injury without some type of pain killer. If the anesthetic is only given initially while the repair is being made, then it would seem that the advantage would

> outweigh the disadvantage. If, however, you take pain pills after the operation as a regular course of action, or continue to receive injections to deaden you, then that is drug abuse
>
> Anesthetics are not given to speed up healing or to "cure" anything. They are used (or should be used) as a temporary, one-time measure during a crisis
>
> A normal, healthy, and whole body would never need injections or drugs of any kind. An injured broken body is not normal, and while the repair is being made a mild anesthetic may be a practical necessity
>
> I would also strongly suggest investigating acupuncture as an alternative for anesthetic drugs during surgery or repair. A properly-trained acupuncturist (and there are many more nowadays) can deaden nerve paths more safely than drugs for emergency surgery and repair. Acupuncture and acupressure are techniques for distressing a nerve center to induce brain secretion of its endorphins (endogenous morphine).

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Article #1: The Tough Cookie Life Scientist by Peter Gregonis

Natural living is difficult to achieve in our society because we are conditioned from birth to be dependent upon authority. How can a person come to trust the body's self-healing ability when we are hammered with the idea that serums, drugs, vitamins, or physicians will bring us health? Trying to fight against this constant barrage of ideas is like swimming against a rushing stream. It takes tremendous strength and willpower to go it alone.

However, once we realize that the bodily intelligence is supreme in all matters of sickness and health, we can take delight in swimming against the tide of mass opinion and even gain nourishment and strength from this opposition.

How Terry Did It

Let us suppose that you were involved in a serious auto accident and you were hauled unconscious to the hospital. Upon awakening, what would you as a Life Scientist do? Would you order that your badly mauled body be taken out of the hospital to your home?

This happened to T. C. Fry several years ago. Tough Cookie Fry came to, and his first thoughts were to flee the hospital and the doctors. Why let these people ride to glory upon the body's ability to heal itself? So Terry's badly bruised body was taken to his home where he immediately began a fast.

For 14 days T. C. refused food in order to give his body a chance to concentrate all of its energy upon the healing process. The healing process took less than a month; it would have taken twice as long under hospital care.

You too can learn to dispense with physicians and their medical treatments. Join the Life Science movement and trust the highest intelligence of your body.

Article #2: First Aid and Hygiene by Dr. Alec Burton

It is important to understand that the basic principles of Hygiene should not be violated in cases of emergency. The body's needs must be met and its capacity recognized. Obviously, there are conditions which result from injury and accidents that require some immediate and skilled mechanical attention.

In cases where such first aid is necessary, we should still avoid violating the fundamental principles employed in the Hygienic system. We should avoid employing procedures which are likely to be damaging in the long term, even if a short-term end is gained.

In certain situations, such as fracturing a bone, dislocating a joint, or severing an artery, which represent mechanical injuries, then mechanical techniques of correction are necessary and justified. However, these mechanical techniques are only justifiable so far as they go. They have no relation whatsoever to actual healing, nor do they remove causes except in the immediate sense. Healing is a fundamental biological process and we employ some of these techniques—like the reduction of dislocations, the setting of broken bones, and minor surgery— in order to facilitate healing, not to perform it. Artificial respiration certainly may prevent a person from dying and in no way could it be considered as harmful, nor does it attempt to usurp the normal and orderly processes of the organism. It is a temporary mechanical procedure that enables the body to perform the functions of life more satisfactorily under the prevailing conditions. Strictly speaking, the "respiration" is anything but artificial.

You may have heard of the millionaire who came running on to the beach to see his wife who had just been dragged from the water and artificial respiration was being administered. The gentlemen screamed at the man, "That's my wife! What are you doing?" "Well," said the young man, "Your wife almost drowned. We're giving her artificial respiration." "Artificial, be damned," was the reply. "Give her the real thing—I can afford it!"

When we have to resort to surgical or mechanical techniques as may be required, and where tissues are severely damaged after serious injury, it is sometimes necessary to relieve pain and consequently the age-old question of the use of anesthetics arises. I think we have to make a distinction between caring for the sick and facilitating surgical intervention. For example, a victim of a motor accident who requires a limb amputation—it would be unthinkable to approach this surgical onslaught without providing, so far as we are able, freedom from pain. In the case of accident or injury, we are not dealing directly with a problem of health and disease. We are not trying to modify symptoms at the expense of the injured person's future health. We are simply trying to restore a certain mechanical facility to the body. We are attempting to mechanically adjust the body.

Constructive surgery does not in any way violate Hygiene and the use of anesthetics may be justified under these conditions. At the same time, we must realize that, having spent the last two or three thousand years discovering the fact that there is no virtue in remedies, drugs do not change their character with circumstances. The fact that wounds heal when ointments are put on them does not mean that the wound would not have healed if an ointment had not been administered. At best, the use of salves and ointments alike can only fall into the dubious category of, perhaps, affording a little protection for the wound. Certainly, they have no power to heal. The power to heal must always be related to the living body itself as an inherent biological function.

It is so easy to think that when we take a remedy or apply an ointment to a wound and it heals, that the extraneous substance has performed the healing. Finally, the cold disappears and the last thing we took before we got well is thought to have "cured" the cold. It is surprising how many people expect wounds to heal when they continually interfere with them, and this particularly applies to the numerous mechanical problems that people have from injuries they suffer. Continuous interference will often delay and, in some cases, actually prevent healing.

I recall a number of years ago when I had an office practice in England, a gentleman who owned a restaurant on the lower floor of the same building consulted me about his stomach problem. Sometimes in the evenings when I closed my office, we used to walk to the station together. At these times, we used to discuss various things and inevitably his stomach problems would always arise (no pun intended). Never having taken my advice of course, he always had his stomach problems. He used to complain of these severe pains and quite commonly he would stop at the local chemist and get something to relieve the pain in his stomach. He was constantly swallowing antacids and pain relievers.

One day, I put it to him this way, "I don't think your stomach will ever recover. Supposing I were to put my finger on the table and hit it with a hammer and it were to become mangled, bruised, and bleeding, and then were to rub all sorts of ointments over it and bandage it, and then put it back on the table and keep on hitting it with a hammer. How long do you think it would take to heal?" He said, "It would never heal." "Right," I said, "Now, let's take another situation. A man who has a pain in his stomach all the time and continually takes hot, fiery, spicy foods, incompatible combinations, and constantly smothers the various discomforts with powders, antacids, and other drugs that have no business in the stomach whatsoever. How long do you think it would take for that stomach to heal?" My friend did not answer the question and, as far as I know, he continued to take his palliatives.

But I think I made my point that by continual interference, no matter whether the lesion is the evolution of a disease process or whether it is the result of accident or injury, healing cannot be effected. Healing, we must contend, is a fundamental biological process and is directly related to the soundness and general functional vigor of the individual. Certain external factors are required but it must be emphasized that these external factors are secondary to the internal factors. The internal factors are related to our general level of health, our functional efficiency, our basic vitality.

I am sure we all know those people who are in vigorous health and if they suffer an injury, they recover quickly and regain normality. We also know other people who suffer the most serious consequences from what seem trivial wounds and, of course, this is directly related to their degree of health. The fact that we can damage ourselves and recover quickly does not mean that we can violate the laws of life.

The basic principle of cause and effect is always in operation. *There are consequences to every action*.

Now, there are certain objects in first aid. First, to prevent a person from dying and I consider that this is a better way of expressing the fundamental rather than the mendacious euphemism "to save the person's life." Philosophically, I do not believe it is possible to save a person's life. But it is possible to prevent people under certain circumstances from killing themselves. This, then, is the first requisite of applying first aid techniques. We have to try to prevent death from occurring. Secondly, we have to attempt to minimize the suffering. Thirdly, to prepare the sufferer for subsequent care, i.e., to avoid the possibility of complications later.

Some years ago, an acquaintance of mine was involved in a motorcycle accident and dispatched to the hospital. He was discharged some hours later when the initial examinations revealed no serious injury. However, the following day, he collapsed and was returned to the hospital where it was discovered that he had a ruptured spleen. This was not immediately evident but the precaution should have been taken.

When we speak of an emergency, this implies an absolute need for immediate attention. Quite commonly, this is not the case; but an emergency is certainly a time when something actually has to be done.

In Hygiene, we are, I suppose, notorious for our belief in the philosophy of doing nothing intelligently or intelligently leaving things alone; but there are certain conditions, and we are well aware of these, where it is intelligent to do something and that doing something is imperative if we are to prevent deterioration and possible death. However, we must acknowledge that before anything is done, we must be fully aware of what it is that we are doing and what the reasons are for doing it. It is always possible to do something but in many instances whatever we are doing is merely interfering. We are placing obstacles in the path of the body's processes and this is the very thing we must always attempt to avoid. Nevertheless, there are cases where something actually must be done. I recall a few years ago being at the bedside of a young child whose parents were keen Hygienists. This child had been taken rather sick two or three days before, and the parents had placed him on a fast with absolute rest, and yet he was apparently deteriorating. They called me for advice and I discovered that the young child had a strangulated hernia. Obviously, surgical intervention was necessary. Here we had a mechanical problem that, required a mechanical procedure provide the body with favorable conditions for recovery. Doing nothing in this situation was certainly not intelligent. The use of mechanical procedures and surgical techniques in an attempt to remove immediate causes of trouble does not in any way invalidate the fundamental premises on which the Hygienic system is based.

Following accidents and injury, we are dealing with mechanical problems which require mechanical solutions rather than a pathological evolution which has disturbed the body's chemistry and physiological activity. This requires understanding and the removal of cause. Philosophically, I agree there is a fine line of demarcation, and it is easy for the type of remedy-mentality that is common to extend the therapeutic approach to the vast array of illness or symptom complexes that evolve in the sick as a result of their unhealthy lifestyle.

First aid represents immediate and temporary care. It is not designed to restore health but merely to avert the possibility of further damage or even death. Many of the techniques commonly employed provide nothing but interference. Somebody once remarked that experience is something you get from making mistakes. I have always thought that it is much better if we can learn from other people's mistakes. Of course, this is sometimes difficult as we are not prone to learning from other people's mistakes. We always, like to make them for ourselves, and then we know for sure. But gradually, one by one, many of the stimulants such as alcohol, strong tea, sugary drinks, which were employed as a means of dealing with shock, have been abandoned and no doubt as time passes many other measures which are essentially interference will be abandoned as well.

Lesson 69 - Nutritional Approach To Overcoming Addictions

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- 2. Stimulation Effects
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- 4. Foods Must Not Contain Toxins
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- 6. Overeating
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- Article #1: Coffee, Tea, And Cocoa By Dr. Herbert M. Shelton
- Article #2: Effects Of Stimulants By Sylvester Graham, M.D.
- Article #3: The Great Delusion By Dr. Robert Walter
- Article #4: Drug Addiction By Dr. Herbert M. Shelton

1. Introduction

Most addicting habits arise from the desire to suppress symptoms or to overcome the feeling of tiredness. These symptoms appear due to an unhealthful lifestyle. Poisons are often resorted to instead of correcting the cause of the symptoms. All drugs and coffee, tea, chocolate, soft drinks, tobacco, etc., stimulate and give the false sense of well-being but this feeling lasts only a short time when depression occurs and the addict resorts to even higher doses of his poison. So the cycle goes on and on.

The Hygienic approach is a very rational one. To break this self-poisoning cycle, a fast is instituted followed by a normal and physiological pattern of eating. With this approach, the addict will find that it is much easier to discontinue his habit than with any other method. Furthermore, there will be no more desire for the former habit.

2. Stimulation Effects

2.1 Alcohol

Alcohol is absorbed into the blood, principally from the small intestine. It accumulates in the blood because absorption is more rapid than oxidation and elimination. Depression of the central nervous system is a principle effect of alcohol. The CNS is at first stimulated. This is a defensive response by the body to begin action to eliminate this harmful poison. Due to the enervation that invariably follows, exhaustion and depression follow.

People who drink large amounts of alcohol repetitively become somewhat "tolerant" to its effects; later doses seem not to have the same intoxicating effect as earlier ones. This tolerance is not based primarily on changes in drug dispositions or metabolism but is caused by destructive changes in central nervous system cells. Those said to be tolerant to alcohol may have incredibly high blood alcohol concentrations. In this case, the body has become so enervated that it has lost its capacity to react to this drug and eliminate its poisons from the system. The so-called "physical dependence" accompanying tolerance is profound, and withdrawal produces a series of pronounced physical and mental effects. While these symptoms may be severe, the acute period usually only lasts about two days if the alcoholic fasts, but may last as long as ten days under orthodox treatment. Delirium tremens, experienced by many alcoholics, usually ceases after two days on the fast. Since alcohol results in central nervous system stimulation I and its eventual depression, it invariably has similar effects on all bodily parts connected with the CNS and this includes everything. Especially effected is the brain and this is demonstrated in the alcoholic's lack of memory, disorientation, slurred speech, etc.

Also, there is a marked prevalence of vitamin B deficiency, especially thiamine, due partly to the poor diet of the alcoholic and partly due to malabsorption of this vitamin by the impaired gastrointestinal tract of such individuals. Many so-called vitamin deficiencies have been corrected during the fast while no food was being ingested. The body normalizes while on the fast and certain food stored vitamins are utilized. On the Hygienic diet of raw fruits, vegetables and nuts, no thiamine deficiency could be possible because all of these foods contain this vitamin in abundance. Thus, the alcoholic is very greatly benefited by this raw diet since his body will be provided the most ideal conditions for normalcy of function to return. Not only will all nutrients be available for utilization but the proper conditions will be provided for healing.

Usual orthodox treatment includes large doses of vitamin C and B-complex vitamins, particularly thiamine. These inorganic vitamins will not provide any benefit to the alcoholic since the body cannot utilize nutrients in this form. The result will be added toxins and additional problems for the body to deal with. In addition, alcoholics are often given fluids if they are thought to be dehydrated. The usual therapy is 1,000 ml of 5% dextrose in a saline solution followed by 1,000 ml of 10% dextrose in distilled water. This practice is totally anti-life and will result in more stimulation if the body is able to respond defensively. In any case, it is harmful practice.

Drugs are used frequently to treat the alcohol withdrawal symptoms. But trading one drug for another never results in health. It only results in additional sickness and destruction of tissues and cells.

Another treatment given to alcoholics is the administration of Disulfiram. This is a drug that interferes with metabolism of acetaldehyde (an intermediary product in the oxidation of alcohol) so that acetaldehyde accumulates, producing toxic symptoms and great discomfort. Drinking alcohol within twelve hours after taking Disulfiram results in facial flushing in five to fifteen minutes, then intense vasodilation of the face and neck with suffusion of the conjunctivae, throbbing headache, tachycardia, hyperpnea, and swelling. Nausea and vomiting follow in 30 to 60 minutes and may be so intense as to lead to hypotension, dizziness, and sometimes fainting and collapse. The reaction lasts one to three hours. Discomfort is so intense that few patients will risk taking alcohol as long as they are taking Disulfiram. This is obvious an extremely dangerous practice.

We take a more rational approach. It is so much more pleasant (and beneficial) to fast in an atmosphere with fresh air, peace and quiet, and then to enjoy the wonderful raw foods that nature has prepared for us. Following amore natural lifestyle, the alcoholic will never crave this poison again.

2.2 Addictions to Opiate-Type Drugs

Use of opiate-type drugs, such as heroin, results in stimulation of the central nervous system and one of the first noticeable signs is a strong psychic dependence on an overpowering compulsion to continue taking the drug. This dependence may be evident as soon as two to three days after beginning use. Thus, so-called "therapeutic" use of narcotics that are given by some physicians often creates some tolerance and dependence and the user may show symptoms of withdrawal when the drug is discontinued.

The effects of this drug are so damaging and enervating to the nervous system and all systems of the body that a situation is soon created where the body is too enervated to react defensively. In this case, the addict resorts to increased dosages and more frequent dosages until he again achieves the stimulation that he is seeking.

Acute intoxication with opiates is characterized by euphoria, flushing, itching of the skin, abnormal contraction of the pupils, drowsiness, decreased respiratory rate and depth, hypotension, slow heart rate, and decreased body temperature.

The entire body is in an extremely debilitated condition and the only remedy for this situation is rest. That is, total rest until the body can once again begin to function normally. So the addict must fast. Following the fast, the raw foods diet of fruits, vegetables, and nuts will provide the body with the optimum materials to make those desperately needed repairs of the damages that occurred while taking this deadly drug.

Withdrawal symptoms are the opposite of the drug effects (central nervous system hyperactivity). In other words, depression of the CNS occurs. The symptoms may be severe and occur rapidly but are self-limited and the length of their occurrence and their severity will be less while fasting than while eating.

Orthodox treatment often-involves administration of methadone but this results in another type of addiction, so nothing worthwhile has been accomplished. The withdrawal symptoms of methadone are similar to those of heroin.

2.3 Caffeine Addictions

People become addicted to caffeine because of its stimulating effects. Caffeine is a powerful central nervous system stimulator affecting the cortex first, then the medulla, and finally the spinal cord as the dose is increased. Large doses of caffeine may result in impaired motor function. Adverse effects may occur after 150 to 250 mg of caffeine, equivalent to one or two cups of coffee.

Persons who drink large amounts of coffee (fifteen to twenty cups a day) may develop "caffeinism." The symptoms of this illness are insomnia, a slight fever, and irritability.

Children are particularly affected, probably due to their lower body weight.

Caffeine results in stimulation of the heart with tachycardia and arrhythmias. Caffeine also stimulates release of catecholamines from the adrenal medulla, and norepinephrine is released from nerve endings in the heart. Catecholamines have a marked effect on the central nervous system, metabolic rate, temperature, and smooth muscle.

2.4 Cigarette Smoking

Nicotine, in the tobacco, has been found to result in increased heart rate, blood pressure, cardiac output, stroke volume, and velocity of myocardial contraction. An entire lesson was devoted to this pernicious habit so I will not enlarge upon it here, but again, it is a habit endorced for its stimulating effects.

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3. An Illusion

According to the Law of Dual Effect, "The secondary effect upon the living organism of any act, habit, indulgence, or agent is the exact opposite and equal of the primary effect."

This means that when you take a drug of alcochol, caffeine, etc., the first effect will be that of stimulation. But the second and lasting effect will be just the opposite—depression. Enlarging upon this subject, Dr. Shelton states, "Tea, coffee, cocoa, chocolate, spices, meat, etc., which appear to give strength (their first effect), invariably as their secondary and lasting effect, weaken in proportion to the strength they appear to give."

"Alcohol which apparently strengthens and which, for a very brief moment increases function, results in diminished function and weakness. Alcohol, like ether and chloroform, does not add power to the system. It only occasions the expenditure of power already possessed. It is properly classed as a caustic irritant and the exalted function, which first follows its use, is not due to any power it communicates to the body and mind, but to the vital resistance and consequent expenditure of vital power its irritating effects occasion. Its secondary effect is due to the exhaustion of the vital powers and its destructive effects upon the tissues of the body.

"Opium permanently produces sleeplessness, nervousness, and pain because it temporarily relieves these conditions. Give opium to cure a man of pain! Who has pains equal to those of the opium addict? The nomenclature of medicine needs revision. Opium and other anodynes and antispasmodics should be classed as odynes and spasmodics. The whole class of tonics should be classed as atonics. "Stimulants" should be called depressants. These substances should be classed according to their secondary and lasting effects and not according to their primary and temporary effects.

"A cup of coffee will relieve a headache but in so doing it permanently fastens the headache habit upon the patient. It will relieve mental depression, but when the user is deprived of his coffee he becomes doubly depressed. Tobacco steadies the nerves only to unsteady them. Tonics strengthen only to debilitate. Purging produces constipation, diuretics produce inactivity of the kidneys, expectorants result in dryness of the lungs. If the habitual user of any drug will cease its use for a few days, he will experience in their fullness all its secondary effects. If he then returns to his use of the drug, he will be delighted to find that these secondary effects are 'cured' by it. The disease is 'cured' by its cause—coffee appears to cure the headache it produced; whiskey *seems* to restore strength it has wasted; tobacco *seems* to restore steadiness of nerves it has destroyed."

With these facts in mind, we must be sure that our foods do not contain equal stimulating qualities.

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4. Foods Must Not Contain Toxins

All refined foods and all flesh foods contain drug-like stimulating qualities. Like all stimulating substances, the stimulation will eventually lead to depression and enervation.

The normal response of the stomach to food is called stimulation. This increased activity of the stomach is necessary for digesting food and it is normal action. But the food contributes to the renewal of the organism and therefore adds more than it takes away.

Dr. Shelton outlined three types of stimulants:

1. Those substances and forces—light, air, water, food—which supply the materials of renewal and prepare the body for increased activity.
2. Those kindly influences—warmth, coolness, good motives, good feelings, joy, enthusiasm, ambition, determination, will, etc.—that invite or inspire increased action; inspire the body to

exert its power and means in a given direction; enable it to mobilize, organize and redirect its forces.

3. Those substances, forces and influences that provoke or excite defensive action

   The first two are renewers and are beneficial while the last are irritants and do not provide any nutriment or benefit to the individual

   In order for the foods to result in a beneficial renewal of our cells and tissues, they must not contain any toxins.

4.1 Condiments

Dr. Shelton says, "Nature has arranged that natural, unseasoned foods, eaten when required by the body and under proper mental or emotional and physical condition, will occasion the secretion of the digestive fluids in a perfectly natural way and the stimulation they afford is never sufficient to impair the functional vigor of the digestive glands. Artificial 'stimulation' is not necessary, and it is harmful."

All condiments artificially stimulate the appetite due to their irritating quality. The desire for food normally arises out of a real physiological need for food. When there is no need, hunger will be absent. Also, in the absence of hunger, the body is not ready to digest food. Appetite should never be stimulated by the use of condiments.

The use of condiments leads to overeating that eventually leads to a number of problems when excess food is taken. In order to recover from any addiction, you must be sure that your food does not contain such artificial and health-impairing stimulants.

All condiments act as irritants and, as a consequence, induce inflammation in the digestive tract. Their continued use results in hardening of the mucous lining of the digestive tract. This hardening renders the membranes less sensitive to the irritating qualities of condiments but cripples the efficiency of digestion. So the real effect of condiments is just the opposite of what it is thought to be. They result in depression and hinder rather than aid digestion.

Mustard, pepper, pepper-sauce, horseradish, cayenne, and other hot and stimulating substances are highly poisonous due to certain oils that they contain. The first effect is stimulation of the stomach due to increased action but latter the gastric juice secretion is lessened and decreased activity of the stomach follows.

Spices, nutmeg, cloves, ginger, mustard, and all irritating sauces and condiments result in the same kind of impairment and do not improve digestion. Food addictions can result from the artificial stimulation through such additives to our food. Just as the drug addict and alcoholic are seeking stimulation, so is the person who is addicted to such stimulating foods.

So we must be sure that our food does not contain destructive stimulants but is eaten as nature has prepared it for us. Once you break away from the habit of using condiments, you will be pleasantly surprised at how good your food tastes without them.

Dr. Shelton quotes Dr. Oswald and he says, "The carnivora digest their meat without salt; our next relatives, the frugivorous four-handers, detest it. Not one of the countless tonics, cordials, stimulations, pickles and spices, which have become household necessities of modern civilization, is ever touched by animals in a state of nature. A famished wolf would shrink away from a 'deviled gizzard.' To children and frugivorous animals our pickles and pepper sauces are, on the whole, more offensive than meat, and therefore, probably more injurious."

The addict must strive to eat only those foods that do not contain toxins. It is well known that cooked foods are less valuable than raw foods and the cooked foods also contain toxins.

4.2 Cooked Foods

Protein digestibility is decreased by cooking because the protein molecule is so deranged. Sensitive amines are saponified by heat. The amine group is replaced by the hydroxyl group in the foodstuffs and it has been shown that the hydroxides cannot be reaminized by the animal body.

The organic phosphates in the protein foods are transformed into inorganic and therefore become unusable and toxic. While the body is capable of taking the more complex phosphates and reducing them to lower stages, it is unable to reverse the process. Only plants can do this.

The application of heat to fats and oils of all kinds develops free fatty acids which are not only nonassimilable, but are also toxic. This applies not only to free fats, but also to the fats that are present in all foods. There is a small amount of fat in even vegetables and cooking these foods always renders that fat toxic. Likewise, the minerals and vitamins in the foods are changed from their organic and usable form to inorganic form when heat is applied. Since these inorganic minerals are nonusable, they are toxic.

It becomes clear that cooked foods are not suitable for human consumption. It is even more imperative that the addict not consume these foods since his body is already to very toxic. The body must be given every possible chance for complete recovery and we must provide the correct conditions and not add more poisons to interfere with this healing process.

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5. Idealfoods

The best food for the addict, and it does not matter what his particular addiction is, is that food that is easy to digest and assimilate, contains no toxins or overstimulating qualities, contains all nutrients needed for health and can be eaten and relished in its raw state.

Fruits fit into this description perfectly. Sweet fruits are especially valuable since they are so easily digested they expend little energy in digestion, thus reserving energy for other bodily processes such as healing and repair. The body will initiate cleansing where accumulated toxins will be eliminated.

Dr. Shelton says, "The best source of sugar for the body is sweet fruits—grapes, dates, bananas, figs, raisins, etc. These sugars come to us almost predigested and well-balanced with minerals and vitamins. These fruits are wholesome, natural, delicious and are full of life-sustaining qualities. No cook, confectioner or manufacturer can even remotely imitate these delicious products of nature's solar-vital laboratory."

This energy conservation is extremely important for the addict. If he first fasts, he will overcome his poison habit. After the fast, however, there will be a period of rebuilding and it is imperative that the proper materials be provided for this repair. A total fruit diet during this time would be ideal. For a time, even such a wholesome food as nuts could be left off the diet because of the larger amount of energy expenditure that they require for their digestion and assimilation. If you would stay on a total fruit diet for a period of time after the fast and include plenty of the sweet fruits, such as bananas and figs, recovery would be rapid. After that time, raw nuts and vegetables may be added (in reasonable amounts) with benefit. Most of the accumulated wastes and poisons of the body are of a protein nature and when we go on a fruit diet that is very low in protein, these excess proteins are eliminated or reorganized more rapidly within the body and utilized.

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6. Overeating

A person who habitually overeats is no less an addict than the alcoholic. Overeating wears out the vital powers through overstimulation, overworking the digestive organs, the heart, the endocrine system, and the emunctories, by the strain placed on them and gives rise to intoxication through the poisons that these foods generate.

Most people are addicted to overeating on foods that would result in ill health even if they were consumed in moderate amounts. Flesh foods, baked goods—such as pies, pastries, cakes, etc.—bread and all cooked foods are toxic in themselves. Overeating on such foods makes invalids of those who so indulge.

Throughout history, there have been many noteworthy gluttons who always suffered from indigestion and other diseases and soon died from their indiscretions. Dr. Shelton describes a breakfast that was typically eaten by Mr. Bryan, a noted glutton:

"Cantaloupe was first served. Bryan ate a whole one— an immense yellow-meated melon. It was in the fall season—early fall—and quail were on the bill of fare. Bryan ate two. Virginia ham and eggs followed. Bryan ate almost ravenously of this ham in large portions and consumed not less than six eggs, when batter cakes are served, the commoner disposed of a plateful, swimming in butter and then accepted a second helping and got away with that.

"Numerous cups of coffee, potatoes and side dishes of various kinds accompanied the cantaloupe and the ham and eggs and the rest of it."

Bryan had diabetes, hardening of the arteries, heart disease and appoplexy. But the final and real cause of his death was gluttony. He was a sick man who dug his grave with his teeth.

On the other hand, one Dr. Low performed a feat where he lifted 1,000 pounds 1,006 times in thirty-five minutes and four seconds, after a period of training on one meal a day and less. For the first five weeks of his training he ate one meal a day, almost wholly of uncooked foods. During the last three weeks of his training period he ate only four meals a week; the last meal was consumed eleven hours before the lift. It is significant that he abstained from eating 11 hours before the lift as energy was not diverted into the digestive process while needed in muscular activity.

Conservation of energy is the key in health and disease. You must eat enough to supply your body with needed requirements but not so much that there is a great surplus and excessive vital energy is being expanded in disposing of this surplus.

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7. Fasting

Dr. Shelton says, "Nothing enables the alcoholic, the drug fiend, the tobacco addict, to overcome his 'desire' for his accustomed poison and to return to a state of good health, as does fasting."

It becomes easy to understand how and why fasting may be of service in these conditions. It is a period of rest during which the abused organism undergoes needed adjustments and repairs and recuperates its energies. When the fast is ended, the system has been freed of its accumulated toxins, and the nervous system has been restored to health.

Alcoholism is an illness involving structural abnormalities. The thickening and toughening of the membranes of the mouth, throat, and stomach are necessary defensive expediences. Fatty degeneration of the liver or sclerosis of the liver are later developments. When the alcoholic fasts, the thickening membranes are removed and new membranes are formed. The new membrane of the mouth, tongue, throat, and stomach will not be a thickened, seared one, impervious to foods and poisons, but a thin, delicate and sensitive one that permits full appreciation of the fine delicate flavors of foods.

Glands and nerves that have been lashed into impotency by overstimulation, rest into full functional power when given an opportunity. Renewal of their power can come in no other way. The abused organism will heal itself through rest as the broken bone will knit through rest.

When the alcoholic has fully recovered from his illness and hunger has returned, no form of alcoholic drink will tempt him.

Fasting also makes discontinuing the tobacco habit easy. In a few days, the very taste of this poison becomes repulsive. Fasting results in an improved nervous system, and in the regenerated membranes of the smoker's mouth and nose.

Dr. Shelton quotes MacFadden's *Encyclopedia of Physical Culture*: "Fasting is the most valuable of all forms of treatment for overcoming the pathologic conditions of the body brought about by the habitual use of poison. Fasting gives the body an opportunity to readjust itself in a normal way and also hastens the elimination of any poison remaining in the system. The drug fiend has lost his appetite anyway, and by means of a fast will regain a normal condition of the alimentary canal in a fraction of the time that would otherwise be consumed in the process. Especially the mind will clear and gain strength, and he will much sooner find himself in possession of the moral impulse and the will to fight his habit."

Rest—physical, mental and physiological—is the great need. In a remarkably short time, the fasting individual finds his supposed "craving" for drugs or other poisons, has disappeared.

Violent reactions often follow the withdrawal of the drug. For this reason, it is essential to take great care of the individual. Mania following the withdrawal of morphine or opium, or delirium tremens following the withdrawal of alcohol are similar developments. They indicate the gravity of the injury to the nervous system and reveal how important and urgent is the need to get away from the use of the poison.

Violent reactions soon cease as the patient fasts. With the gradual recovery of energy, repair of his damaged nervous system, and regeneration of his membranes, he will soon recover.

Enervation is the basic fact in all addiction. To avoid recultivation of a drug addiction, it is essential that the individual live so that he does not enervate himself. All sources of enervation should be avoided. A well-nourished body, the energies of which are conserved by first-class habits, will not feel the "need" for stimulants and will not "need" to be "relieved" from discomforts and pains.

Dr. James C. Jackson says (*How To Treat the Sick Without Medicine*): "A simple nutrient diet, the use of pure cold water for a drink, and personal cleanliness, with 'abundant sleep, will prove to be the only securities to the reformed drunkard ... Tea, coffee, tobacco, pepper, mustard, salt, and flesh meat will create such a condition of the organic nerves, and of the mucous lining of his stomach, as to reestablish the desire for liquor, and then he will drink, come what may to his pledges or his social position."

8. Vital Force

Vital force is behind the stimulating-effect from poisons and stimulation from foods but the purposes are different. The stimulation experienced from foods, taken in proper amounts, is increased action for the welfare of the body in normal activity. The stimulating effects from poisons is *defensive* action. Vital energy is used without being replaced. Vital energy is used up when food is taken but it replaces more than it uses.

In this regard, Dr. R. T. Trall says, "We see how it is that alcohol is an element of force. It occasions force to be wasted, that is all. If a small draught is taken, only a little force is wasted (not supplied) in defending the system from it, and the individual is but slightly excited; that is, a little feverish. If much is taken, a greater amount of force is necessarily wasted (not supplied) and greater excitement is manifested in stimulation, fever, delirium, madness, etc. The system expends its force to get rid of the alcohol, but never derives any force, great or small, good, bad, or indifferent, from the alcohol. *Stimulation does not impart strength—it wastes it*. Vital power does not go out of the brandy into the patient, but occasions vital power to be exhausted from the patient in expelling the brandy."

Explaining the stimulating effects of alcohol and how it occasions the use of vital energy without eventually restoring force, Dr. Hereward Carrington says, "What is stimulation? We know that it is an induced condition in which the organism can, temporarily, perform a greater amount of muscular, vital, or mental work than would normally be performed in the same period of time, and this increase in its ability to work is undoubtedly traceable to the "stimulus" it has received. There is a greater capacity for work (implying a greater nervous force being expended in such action), and it is generally known that there is invariably a "reaction" or prostration, more or less profound and noticeable, following upon such stimulation."

Under all circumstances, however, vitality or energy of any character is invariably manifested or noticed by us in its expenditure, rather than when it accumulates.

Dr. Robert Walter stated it this way in *Life's Great Law*: "Every particle of living matter in the organized body is endowed with an instinct of self-preservation, sustained by a force inherent in the organism, usually called vital force, the success of whose work is directly proportioned to the amount of the force and inversely as the degree of its activity."

So any stimulant, such as alcohol, drugs, etc., will use up this vital energy to the degree that we use these stimulants. When we fast, we reverse this procedure. Vital energy is conserved, not expended. If you feel weak while fasting, it is only because vital energy is being used for healing and not directed toward the musculature or for digestion. In effect, you are getting stronger.

Dr. Carrington says, "The fear of being obliged to wait passively; the lack of faith in the healing powers of Nature, is one of the greatest causes of medical malpractice of today. We must keep in mind, always, that no *action* can possibly occur without an equal and opposite *reaction*; that the pendulum of human energy cannot, by any possibility, swing in one direction indefinitely; but must, at some time, turn and swing in the other. Rest must always follow effort, and effort rest; and this law of rhythm applies, of course to the human body, so far as its energy is concerned. This being so, is it not most obvious that the digestive organs need their periods of rest—just as all our other organ's call for rest? And is it not obvious, also, that the only way in which such a rest can be furnished is by fasting?"

9. Beaware

The purer your body, the more aware and sensitive you are to things that are harmful. Former habits will be repulsive especially regarding smoking, alcohol, drugs, junk foods, meat, etc. If you become tempted by some former food addiction, think of the results that will occur after partaking in that unHygienic food. After you have fasted, your body will be pure and you will react violently to foods that are unsuited for consumption. Is it worth contaminating your body and feeling sick? No, it is not worth it.

Our natural foods are so delicious in themselves, that soon no other food or drugs will appeal to you. Certainly anyone's sweet tooth can be satisfied by some delicious figs, dates, bananas or any of the other dried and fresh fruits that you may choose from.

According to Dr. Shelton, our poisonous habits are the major cause of kidney impairment. He says that all poisons from decomposed foods as well as the poisons of tobacco, alcohol, tea, coffee, etc., constantly overtax the kidneys and eventually impair them to such an extent as to result in their disintegration. Coffee drinking by itself results in considerable bodily impairment. This is due largely to the caffeine but also to the other toxic substances that it contains., As a result, the stomach, nervous system, heart and kidneys become impaired. This is especially evident in the kidney/s as coffee drinking temporarily increases the amount of urine expelled since the kidneys must get rid of the poisons. The kidneys then eventually become impaired and damaged due to overuse and enervation.

But it is not only the kidneys but all the organs and all the cells of the body that suffer when we indulge in poisonous habits. With this in mind we should avoid all such poisons. Education and knowledge are a great asset in helping to overcome such addictions. A fast will enable us physiologically to overcome these habits but we must also prepare ourselves psychologically. Be determined. Eliminate all negativity and think positively. You do not have to be sick, it is entirely up to you. If you wish to feel great every day with abundant energy and zest for life, you can feel this way. All you have to do is follow the simple requirements for health in regard to proper food and water, exercise, rest, sleep, sunshine, fresh air, and emotional poise.

10. Questions & Answers

Can the addict gradually taper off his drugs while on the fast?

> All drugs must be eliminated the first week of the fast. This is an absolute necessity. After the first few days, the artificial cravings will cease and bodily repair will commence.

Can a person really become addicted to a particular food?

> Yes, this is quite possible. In fact, it occurs frequently. People become addicted to foods that are especially stimulating such as cooked foods with condiments, white sugar, baked goods, junk foods, flesh foods, etc. However, this temporary stimulation soon leads to depression. Then the "junk-food addict" seeks to relieve this depression through more stimulation via the junk foods. It becomes an endless cycle that eventually results in enervation and disease.

Is it true that one stimulating habit often leads to another?

Yes, this is often the case. Once stimulated by candy, ice cream, cookies, and cake, a person often looks for something more stimulating and turns to cigarettes, or perhaps to coffee drinking, alcohol or drugs. You rarely see fruitarians who also smoke or drink alcohol. It does not occur to a person on such a diet to look for stimulation. They are healthy and enjoy life. No poisons are sought to feel "well" or alter moods.

Do certain people have "addictive personalities?"

The "addictive personality" has been described by behavioral scientists, but there is no scientific evidence that characteristic personality factors exist. Some have concluded that addicts are basically escapists, persons who cannot face confronting the realities and who run away. Others have described addicts as schizoid individuals who are fearful, withdrawn, and depressed, and who have a history of frequent suicide attempts and numerous self-inflicted injuries. Addicts have also been described as basically dependent and grasping in their relations and frequently exhibiting overt and unconscious rage and immature sexuality. These descriptions are often used as excuses for a habit but they are irrelevant. We know that these addictions are wrong and must be discontinued. Under a Hygienic program, everyone can overcome their addictions, whatever their personality may be.

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Article #1: Coffee, Tea, And Cocoa by Dr. Herbert M. Shelton

In the United States, which appears to be the most drug-addicted nation of the world, about 96 percent of the families drink coffee daily. Eight out of ten adults drink coffee each day, as do one in four children. At the present time Americans are drinking, on the average, 50 percent more coffee than they did ten years ago. Someone figured that Americans are drinking about one thousand million more gallons of coffee a year than milk.

Within recent years the Indian government, in a land that suffers with perpetual famine, has destroyed whole forests of jack fruit trees to make room for coffee trees. The jack fruit, a large melonlike fruit, is delicious. Both pulp and seeds are edible. But it cannot be exported. When I asked an Indian banker why his government was destroying so many food plants to make room for coffee, his reply was: "Coffee brings in American dollars." This is a striking example of the stupidities of an economy in which production is for profits. It is not conceivable that in an economy devoted to production for use such a stupid action could occur.

In our profit-mad world, millions of acres of land are devoted to the production of tobacco, coffee, tea, and similar poison substances. Millions of tons of grains and fruits are converted into alcoholic drinks, in a world that is even now struggling with the spectre of a population explosion and worldwide food scarcity. It is impossible to conceive of such a thing being carried on in an intelligently ordered social system.

Tea drinking has spread over the earth, apparently from China, in much the same way that coffee and chocolate drinking spread. Tea was introduced into Europe about the same time as coffee.

These three substances, coffee, tea and cocoa Or chocolate, all contains an almost identical alkaloid. Called *caffeine* in coffee, *theine* in tea, and *theobromine* in chocolate, this alkaloid can be fatal to man or animal. Classed by pharmacologists as a stimulant, it is taken by those who think they need stimulation.

We frequently hear it said that tea and coffee "excite the exercise of thought."

Although it is customary to include such *narcotic* habits as tobacco, alcohol, opium, and marijuana under the general designation of *stimulant* habits, this does not seem to be the reason these substances are taken. It is not *stimulation*, but *relief* from discomfort that is sought when they are taken.

On the other hand, when coffee, tea, chocolate and cocoa, and the *stimulating* soft drinks are taken, it would seem to be a different type of *relief* that is sought, relief from weakness and exhaustion. When such stomach *stimulants* (irritants) as pepper, mustard, pungent spices, and pepper sauce, are taken, there would seem to be a *need* for stimulation.

Because there is a tendency for discomfort to grow and for the *relief* afforded by these poisons to decrease, there is a natural and inevitable tendency to increase either the size or the frequency of the dose, or both. As this ultimately fails to provide the desired *relief*, a stronger poison is resorted to. This is the reason that employment of one of these substances can lead to the employment of another. The coffee drinker, the cocoa drinker, the addict to chocolate candy, although himself a tobacco chewer or smoker, may condemn his neighbor for his alcohol habits. When we thus choose *narcotics* or *stimulant* addictions, what right have we to assume superiority to those who choose different *stimulants* or *narcotics*? *All are addicts*, regardless of the nature of the addiction.

The search for relief is the essence of drug addiction. There is no craving for poisons; there is only unease, discomfort, and misery which drive the victim to more frequent and larger doses of his favorite poison in his search for relief. Some addicts have been known to take as much as 96 grains of morphine daily without harmful effects, other than the stupefaction which rendered them oblivious to pain. When the drug is withdrawn, obstinate vomiting, violent purging, and other distressing symptoms follow. These are falsely called *withdrawal symptoms*.

They are, in sober reality, symptoms of poisoning, and are present all the time. But they are kept repressed by repeated doses of the drug. Such symptoms follow, in varying degrees of severity, a discontinuance of any poison habit—tobacco, alcohol, morphine, heroin, marijuana, coffee, tea and chocolate.

Untold thousands of people go about their daily duties so tired they hardly know how to work unless driven by stimulants. They mourn their enthrallment to work and business and wish they could omit these. If they knew enough to discontinue eating wrong foods and desist from stimulant habits, and if they knew enough to supply their bodies with adequate nutrients and secure more rest and sleep, in two months they would find themselves new people. The "coffee break" would no longer seem "necessary" to them. They would soon discover the truth of Dr. Samuel Johnson's remark that it is easier to be abstinent than temperate. They have already learned that the tendency of all poison habits is *progressive*.

The fact that almost every tribe of man has been found addicted to some poison habit has been offered as proof positive that there is a *normal* taste for these poisons, and therefore a natural necessity for their use. How absurd! Why not argue that because lying is such a universal vice, it is necessary and good? Every substance man employs in his vain search for relief from self-caused discomforts is to be judged not by any assumed universal taste for it, but by its ultimate effects.

We are frequently reminded that, since the time of Hippocrates, physicians have considered opium invaluable in alleviating acute human suffering. It is customary to add that, "like many others of God's greatest blessings to mankind," opium must be used with reason or with discretion, or "it will be found to be one of man's greatest curses." It never seems strange to these devotees of the drugging cults that God should wrap his greatest curse in the same package as his greatest blessing. Perhaps God made a mistake or, maybe it is man who makes the mistake. Certainly the effects of habitually taking opium are not desirable.

The cocoa chewer is damaged by his practice scarcely less than the opium eater by his. He is known by his uncertain steps, sallow complexion, his hollow, lusterless, black-rimmed eyes, deeply sunk into his head, trembling lips, incoherent speech and stolid apathy. He is irresolute, suspicious and false; in the prime of life he appears senile and in later years into complete idiocy.

Having asserted that *stimulants* are natural needs of the system, it becomes necessary to find some apology for their employment. So we are told that they are not only foods themselves, but that they aid in the digestion of other foods. That this is false may be seen from the following facts. Even in small quantities, tea completely paralyzes salivary secretion. When the infusion amounts to as much as one-fifth of the contents of the stomach, tea retards stomach digestion. Coffee and cocoa have little effect on salivary digestion, but interefere as much as tea with stomach digestion.

To the alcoholic drinks of the ancients we have added tea, coffee, cocoa, chocolate, tobacco, absinthe, chloral, opium, the pungent spices and a host of other drug habits intended to provide evanescent relief from the discomforts of our wrong eating. The soma drinking, prominently mentioned in the *Rig Veda*, was made from a plant which is today unidentified. The drink was intoxicating and played an important role in the ritual life of early Iranians as well as the Indians. We have gathered our poison habits from all corners of the earth. Every year sees an increase in them.

The feeling of exaltation that follows the taking of a *stimulant* has led to the fallacy that *stimulants* must be good. The depression which follows, and which is in exact proportion to the degree of *stimulation* occasioned, is either ignored or attributed to some other cause. It is likely to be met with another dose of the same *stimulant* that caused it. So imbued are we with the idea that *stimulants* are wholesome, that we are frequently told that "food is a stimulant." This statement is based on a totally wrong conception of the character of *stimulation*.

Stimulation is *irritation*; a stimulant is a substance that temporarily occasions an increased vigor of action by means which exhaust the power of action, thereby actually reducing vigor. When this occurs, there must be a corresponding period of rest and sleep. Exhaustion necessitates depression; *stimulation* must be followed by debility. All of our poison habits have debilitating effects on the organism and increase the precariousness and fragility of life.

Reprinted from Health For The Millions

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Article #2: Effects Of Stimulants by Sylvester Graham, M.D.

In explaining and illustrating the constitutional laws of external relation, I have stated that every substance in nature from which the human body can derive nourishment, possesses specific and peculiar qualities which the human organs have vital powers to perceive and appreciate. Thus the visual properties of things are perceived by the special sense of sight; the auditory properties by the special sense of hearing; the olfactory properties, by the special sense of smell; the gustatory properties, by the special sense of taste; and the tangible properties by the special sense of touch. These external substances have also certain other properties, which are only perceived and appreciated by the special organic senses residing in the organs belonging to the domain of organic life, or the ganglionic system of nerves. These properties, in all proper alimentary substances, are the natural and appropriate stimuli of those nerves of organic sensibility which are adapted by the Creator to perceive and appreciate them, and to convey the impressions received from them to(the special centre which presides over the functions of the particular organ or apparatus, But we have seen that some alimentary substances are much more stimulating than others, in proportion to the quantity of nourishment which they actually afford the system, and that some substances in nature are purely stimulating without affording any nourishment.

The stimulation produced by these various substances is always necessarily exhausting to the vital properties of the tissues on which they act, just in proportion to its degree and duration; and every stimulus impairs the vital susceptibilities and powers, just in proportion as it is un-fitted for the real wants of the vital economy, and unfriendly to the vital interests.

But whatever may be the real character of the stimulus, every stimulation to which the system is accustomed increases, according to the power and extent of its influence, what is called the tone and the action of the parts on which it is exerted, and *while the stimulation lasts, it always increases the feeling of strength and vigor in the system, whether any nourishment be imparted to the system* or not.

Yet by so much as the stimulation exceeds in degree which is necessary for the full and healthy performance of the function or functions of the organs stimulated, by so much the more does the expenditure of vital power and waste of organized substance exceed for the time the replenishing and renovating economy of the system; and, consequently, the exhaustion and indirect debility which succeed the stimulation are always necessarily commensurate with the excess.

Hence, though that food which contains the greatest proportion of stimulating power to its quantity of nourishment causes, while its stimulation continues, a *feeling* of the greatest strength and vigor, it also necessarily produces the greatest exhaustion in the end, which is commensurately importunate and vehement in its demands for relief, by the repetition of the accustomed stimulus; and as the same food, more readily than any other, affords the demanded relief, by supplying the requisite degree of stimulation, our feelings always lead us to believe that it is really the most strengthening.

Hence, whenever a *less* stimulating diet is substituted for a *more* stimulating one, a corresponding physiological depression, or want of tone and action, always necessarily succeeds, varying in degree and duration according to the general condition of the system, and the suddenness and greatness of the change; and this depression is always attended by a feeling of weakness and lassitude, which is immediately removed, and the feeling of strength and vigor restored, by the accustomed *degree* of stimulation, by whatever produced, whether any increase of nourishment is actually afforded to the system or not.

The pure stimulants, therefore, which of themselves afford no nourishment to the system, and only serve to in-. crease the expenditure of vital properties and waste of organized substance, by increasing vital action, cause, while their stimulation lasts, a sense of increased strength and vigor; and thus we are led by our feelings to believe that the pure stimulants are really strengthening; and in the same manner we are deceived by even those pernicious stimulants which not only exhaust by stimulation, but irritate, debilitate', and impair, by their deleterious qualities.

The feeling of *strength* produced by stimulation, therefore, is no proof either that the stimulating substance is nourishing, or that it is salutary, nor even that it is not decidedly baneful.

But we have seen, that those proper alimentary substances whose stimulatory power is barely sufficient to excite a full and healthy performance of the functions of the digestive organs, in the appropriation of their nourishment to the system, are most conducive to the vital welfare of the body in all respects, causing all the processes of assimilation and organization' to be most perfectly performed, without any unnecessary expenditure of vital power, and thus contributing to the most permanent and uniform health and vigor of the body, and to the greatest longevity. For every degree of stimulating power beyond this, necessarily increases the vital exhaustion, without contributing in any measure to the welfare of the body.

With a true application of these well ascertained principles, the physiological evidence in relation to the natural dietetic character of man may be correctly apprehended and accurately estimated; yet the utmost caution and perspicacity and circumspection are requisite at every step, to avoid deception and error in the mazy and delusive paths of human experience and history.

Reprinted from Lectures on the Science of Human Life

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Article #3: The Great Delusion By Dr. Robert Walter

Out of this principle of irritation grows the most important delusion that ever afflicted mankind. Irritation means increased action of the part irritated, and consequently of all parts sympathetically connected therewith, and increased strength. Tonics, nervines, and stimulants produce their effects only through this principle. It is in the this way that alcohol and tobacco increase the action of the brain and nervous system; that calomel and podophyllum apparently improve the functions of the liver; that all other drugs produce their effects; that arsenic and strychnine, nitric, muriatic, hydrochloric, prussic, sulphuric acids, etc., increase the apparent vigor of the whole system, largely through its sympathy with the stomach, which has been termed the great organ of sympathy. For this same reason men often feel more than ordinarily vigorous just previous to a severe attack of sickness: they sometimes retire to bed feeling well, only to wake up in another world. For this reason sudden and violent ailments often follow the most apparently robust health. It is the same delusion that tempts the physician to dose his patient with violent poisons until exhaustion and death close the scene. It is the basis of alcoholic consumption, just as it is the cause of the fearful and monstrous drunkenness, whether by alcohol, opium, or tobacco, which deluges the land. Increased action, apparently increased strength, supposed improved function, the result of the use of irritants deceive both physician and patient, and cause them to become victims of a monstrous delusion.

The delusion pervades all ranks of society, and is the chief explanation of the frequent diseases and sudden and untimely deaths that are everywhere chronicled. When we consider the immense quantities of irritants which are being introduced into human organisms in the guise of food, drink, medicine, etc., the only wonder is that the human constitution endures as long as it does.

But irritation produces a secondary effect, which is quite as important as the primary one, and this is increased flow of blood to the part irritated. Normal exercise does the same thing. Thought induces increased flow of blood to the brain, and labor, to the feet or hands. If this flow be beyond the power of the vessels to send it forward, as in the case of irritation, the blood accumulates, the vessels relax, and we have congestion. This increase of blood at one point of course necessitates a decrease at another point, and hence unbalanced circulation is a concomitant of all diseases.

Reprinted from The Nutritive Cure

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Article #4: Drug Addiction by Dr. Herbert M. Shelton

Science, as medicine is commonly called, is never-ceasing in its search for *cures*. In his syndicated column, Albert Edward Wiggam once wrote that *science* has not discovered a surefire *cure* for alcoholism, but it has found a drug that helps. He said that, after a drunken man sobers up the drug *Equanil* quiets his tense nerves and helps reduce the desire for another drink. This is to say, the drug substitutes for alcohol. The drug is sufficiently dangerous that it can be obtained only upon a physician's prescription.

Drug addiction is frequently an aftermath of the employment of drugs in the treatment of disease. *Sedatives*, *narcotics*, and *stimulants* are employed with which to provide evanescent, but fictional, relief from discomfort and pain. Somatic awareness, no less than psychic awareness, is benumbed by the taking of sedative drugs and the house-cleaning that is so urgently needed is not undertaken. Each repetition of the dose tends to build a drug habit. A rebirth of awareness follows the excretion of the drug. It is then that the drug user becomes aware of his actual condition. His physician will call his symptoms *withdrawal* symptoms. He should realize that they are the outcries of an organism that has been outraged with poisons. Drug addiction grows out of the search for relief from the unease, weakness, discomfort and pain that result from the employment of drugs and is not a genuine demand for a repetition of the drug. There is no craving for a drug, but a subconscious demand for relief.

For fifty years I have insisted that what is called drug addiction arises out of the search for relief from the unease, discomfort, distress and misery caused by prior taking of a drug. The narcotic addict obtains a brief respite from his misery by *renarcotizing* his nerves. The *stimulant* addict receives a brief illusion of renewed strength by goading his nerves with the *stimulant* the prior taking of which is responsibte for his weakness. In July of 1971 a former drunkard was interviewed on television here in San Antonio. When asked what made him drink he stated: "I would drink today to get relief from the misery caused by drinking yesterday." Thus speaking from his personal experience, he confirmed my view.

So persistent and so insistent is the demand for relief from the drug caused misery, the victim of the drug practice finds himself unable to resist the temptation to return again and again to the source of his misery for the temporary "relief" this affords. To provide this "relief" requires a progressive increase both in the size and the frequency of the dose. The standard procedures in such cases continue to revolve around efforts to break the vicious circle by a gradual reduction of the dose, both in size and frequency, and to substitute one addiction for another. Both of these plans have proved very unsatisfactory, for the reason that each of them continues to outrage the nervous system by continuing drugging and the search for relief through drugs. Instead of stopping the drug to which the habitue is addicted, it is continued or an effort is made to substitute another drug—one narcotic for another or one stimulant for another. The addict continues to be smothered in his drug-induced miseries. No effective means of promoting the health of the individual is employed, hence the addict does not recover normal health. In those few cases where apparent recovery from addiction occurs, the tendency to relapse is great.

Diseases and vices, growing out of the same general causes, and being essentially the same, are therefore, to handled on the same general plan. That mode of care that will restore health to the sick man, will just as effectually relieve the vicious man and *vice versa*. If it fails in one, it will fail in both. When either disease or vice becomes thoroughly matured, it is, to a large extent, beyond control of the will. A proper environment and a *Hygienic* life provide the best hope in this case. It is idle to suppose that a man who has violated nature's laws until his sensations are all abnormal, and the mainsprings of his life are all befouled, representing poor diseased conditions and vicious habits, can merely exercise the will to recover, and even recovery would not be at all sufficient unless good habits and a thorough revolution of life follow. To appeal simply to the intellect and moral sense of a tobacco smoker or an opium eater or a drunkard, as a means of inducing him to relinquish his indulgence is generally about as effective as to ask an ague patient to stop shaking.

When Professor Carlson, who was a habitual cigar smoker, underwent a short fast in his studies of hunger, he found that after the second day of abstinence, he did not enjoy smoking. "In fact," he reports, "smoking tended to produce nausea." It is not an unusual experience for the fast to compel the smoker to discontinue the practice. Many have been able to continue smoking through a fast, but all who discontinue smoking at the outset of fast find that after two to three days without food, they have no more craving for the weed. The same is true of other forms (chewing, for example) of tobacco addiction.

A similar experience is seen in other drug addictions. It is a simple matter to give up coffee, tea, marijuana, alcohol, opium, morphine, and similar addictions by fasting at the same time the drug is discontinued. It is best to abandon all addictions at once and abruptly. For example, the average alcoholic also smokes tobacco and drinks coffee. He will find it easier to discontinue the alcohol if he also abandons both the coffee and the tobacco at the same time. This will be easily understood when the true character of addiction is understood.

Most addicts think it will be easier to give up one drug at a time or to give up one drug habit and continue the others. An organization in California has a home where drug addicts are taken in. By a program similar to that employed by Alcoholics Anonymous, they slowly eduate the addict out of his addiction. Frequently two years or more are required to whip the morphine habit. The addicts eat a conventional diet, smoke tobacco and drink freely of coffee. This is the hard way: it is the long way and it probably registers many failures. There cannot be any doubt that their educational program and their cultivation of self-reliance are useful features of the rehabilitation of the addict, but the education program does not go far enough.

Faulty education is the chief, if not the only cause of all drug addiction. It may be and probably is true that individuals with neuropathic tendencies most readily fall prey to so-called habit-forming drugs, but the fact remains that the initial use of drugs arises out of false education. Had the whole population not been wrongly educated from infancy up, they would not turn to drugs to "sustain" them when some unusual circumstance puts a heavy tax upon the nervous system. Pain, sleeplessness, profound and lasting emotions, losses, etc., cause the nervously unstable to turn to those sources of palliation they have been, educated to believe will supply the desired, *relief*. For this false education and all the evils that grow inevitably out of it, we are indebted to the medical profession and to no other.

The legitimate pharmaceutical industry has flooded today's market place with great quantities of addictive drugs which are being sold, especially to the young, through, both legitimate and illegitimate channels. Most of the drugs now being taken by youth are supplied the drug pushers by duly licensed manufacturers of the drugs. If we assume as is popularly done, that these drugs have valid medical usage, we are still faced with the fearful fact that the drug manufacturers are turning out thousands of times more of these drugs than the medical profession can possibly find valid medical use for. So great is their profit hunger that the manufacturers of drugs are willing to destroy the minds of all of today's youth in order to increase their dividends. I marvel at the apathy and indifference of the parents of this country that cause them to sit by and watch the destruction of their children, instead of rising in their collective might and putting an eternal end to the drug industry.

Reprinted from Fasting For Renewal Of Life

Lesson 70 - Colds, Flus, Upper Respiratory Ailments

- 1. The Common Cold
- 2. Influenza
- 3. Other Upper Respiratory Problems
- 4. The Hygienic Rationale
- 5. Questions & Answers
- Article #1: Coryza, The Common Cold By Virginia Vetrano, B.S., D.C.
- Article #2: What To Do In a Cold By Dr. Herbert M. Shelton
- Article #3: Influenza

1. The Common Cold

Almost as common as the "common cold" is the virtually universal misunderstanding as to what a cold really is.

The condition known as a "cold" is characterized by inflammation of the mucous membrane of the nose and throat; there also may be inflammation of the membrane lining the nasal sinuses, the larynx, the pharynx, or the bronchial tubes.

There is a profuse flow of mucus, initially thin and watery, gradually becoming thicker and whitish or greenish. The nasal lining thickens and interferes with breathing. Sneezing sometimes brings some temporary relief to the stopped-up nasal passages, but it is the inflammation that narrows the openings and makes breathing difficult.

There may be a temporary loss of smell and taste. Often there is a raw, sore throat with a flow of mucus from this membrane, a husky voice, and a cough. The eyes and ears may become involved. The person feels miserable, and may have a fever, often a headache. He may progress from "thinking he is going to die" to "being afraid he won't."

Charles Dickens once described his cold thus: "I am at this moment deaf in the ears, hoarse in the throat, red in the nose, green in the gills, damp in the eyes, twitching in the joints, and fractious in temper, from a most intolerant and oppressive cold."

The most common "common cold" is an acute rhinitis—inflammation of the nasal cavity—with rhinorrhea (nasal discharge), nasal obstruction (due to swelling or edema of the mucous membrane of the nasal passage) and sneezing. A disease that can be aborted to 24 to 48 hours lasts for weeks in many cases.

1.1 Symptomatic Treatment of Colds

Everyone who has had a "cold" (and who hasn't?) will agree as to the nature of the symptoms, and the misery they cause. But it is almost incredible to realize that the misunderstanding of colds, and the type of treatment commonly employed today, have changed very little in the last few hundred years.

In the 1500s, British doctors often prescribed tobacco juice, lime juice and emetics (to cause vomiting) for colds. If that didn't work, the patients were bled. Ronald Kotulak, a *Chicago Tribune* columnist, said, "Those who could not afford these ministrations naturally had a higher rate of recovery."

In the 18th century, another Englishman came up with this remedy, "Hang your hat on the bedpost, drink from a bottle of good whiskey until two hats appear, then get into bed and stay there."

The use of "booze" to ease the symptoms is still widespread, and many drug companies include high levels of alcohol in their cold and cough remedies. Nyquil, for instance, contains 25% alcohol by volume, which makes it equivalent to a 50-proof liquor.

1.2 Failure of the Medical Community

The current medical community admits, that it hasn't made much progress in its efforts against the common cold. The American Medical Association and doctors at Harvard Medical School say that colds still resist the best efforts of the world's combined medical research talent.

German scientist Dr. W. Kruse announced in 1914 his discovery that colds were caused by viruses and this was hailed as the first big discovery on colds. After that, research sputtered along, seeking the elusive "cure" that was always just around the corner.

In the 1950s, scientists were hopeful they could develop a vaccine against the "cold virus." But these hopes soon were dashed when more and more cold viruses were discovered. Now there are more than 150 known viruses which are thought (by medical people) to cause the common cold, and a vaccine is admittedly impractical. As Hygienists, we can at least breathe a sign of relief that a "cold vaccine" has not been added to the arsenal of poisonous vaccines being recommended to the gullible public.

Dr. Robert Muldoon, specialist in virology, and professor of medicine at the University of Illinois, said in 1978, "Disgustingly enough, there is not much new about the, common cold. There really isn't much you can do to protect yourself from a cold, and there still isn't anything you can do for it once you get it except to treat the symptoms." (We beg to contradict him!)

Dr. Muldoon took part in a classic experiment at the university with Dr. George Jackson, showing that exposure to cold temperatures or wet feet do *not* increase a person's risk of catching a cold. He said that when a person with a cold sneezes on you, you can expect to receive a direct blast of germs, but your chances of catching his cold are only about one in ten. Dr. Muldoon does not give any explanation as to why he thinks nine out of ten people will not get the cold, even when directly exposed.

A cold research establishment in England has been working for twenty-five years to find a definite cause for the common cold. Everything they have tried has failed, though they have subjected volunteers to every conceivable circumstance in order to find some pattern or combination of factors which produce a cold.

1.3 Understanding Colds

Notwithstanding these conclusions (that no one knows the causes of colds)—I must insist that the causes of colds *are* known, and that the proper method of dealing with a cold has been known for many years. As long ago as 1873, Dr. Robert Walter said, "A cold is simply an effort of the system to relieve itself of its accumulated waste particles."

Failure of the medical community to find the *cause* of colds is due to the fact that researchers are looking for something that isn't there. No *cure* for the common cold has ever been found by the researchers for an excellent reason: the cold itself *is* the "cure."

When the state of nervous energy is lowered, excretion, elimination and digestion are impaired. The two great causes of colds are exhaustion and repletion (surfeit).

When the state of bodily clogging which precedes a cold reaches intolerable proportions, the body organizes for a radical eliminative crisis. The temperature rises, the head and nasal passages become congested, appetite may disappear. The cold may go through various stages of eliminative processes, usually regarded as disease symptoms, instead of being understood as *cleansing* efforts of the body to unburden the vital organs.

If drugs are used to stop these processes, the body may face a more serious situation later on—perhaps influenza, or pneumonia, or possibly problems with other organs or functions.

We have been taught that colds lay the foundation for other more serious diseases. Rather, they are efforts to prevent the development of more serious conditions. The persistence of the causes, or the drug treatment common today, can lay the foundations for future degenerative pathologies. Chronic disease is due to chronic provocation.

Means of eliminating the accumulations must be employed by the troubled organism. Coughing, sneezing, discharge of mucus, all represent efforts on the part of the body to remove the accumulated unexcreted waste. The symptoms represent part of the remedial process, as the body is striving to maintain or restore the status quo—the homeostasis or physiological equilibrium.

When the body produces symptoms of a cold as vicarious elimination of toxic material which is threatening its survival, we should not even consider suppressing them. Why should we try to check a cough that is necessary to remove an obstruction? Why should we try to dam up in the body the noxious matter that the wisdom of the body has determined must be expelled?

1.4 Astronomical Cost of Colds

Americans suffer more than 600,000,000 colds a year. This is worth several billion dollars annually to the drug industry, physicians, pharmacists, and the huge support industries: packaging, advertising, etc.

The Harvard Medical School Health Letter warns that the once common practice of prescribing antibiotics for a cold is useless and potentially dangerous.

Despite the fact that there are no medications available to treat a cold effectively, Americans spend more than five hundred million dollars annually for over-the-counter cold remedies—and that doesn't include aspirin. In addition, coryza (rhinitis), commonly known as a cold, costs the American people untold millions of dollars in loss of time from work and physicians' bills, plus the cost of lowered efficiency and lessened productive power.

But these immediate costs in dollars and cents are dwarfed by the mischief done to the human organism, to some extent by the causes (which produce the necessity for the vicarious elimination), but, primarily, by the treatment.

1.5 Dangers of Cold "Remedies"

Aspirin is the most commonly used cold remedy. Among so-called "health-minded" people, aspirin is often supplanted by vitamin C. Some people take both aspirin and vitamin C. Antihistamines are commonly used.

Neither "booze," nor aspirin, nor antihistamines, nor vitamin C (nor anything else) can possibly "cure" a cold. Whatever temporary symptomatic relief they may afford is expiated later by accentuation and prolongation of the symptoms, and by insidious damage to the organism.

The most common "side effect" of aspirin is internal bleeding. Most people who experience slight gastric bleeding are unaware that it is occurring. Many people do experience overt, often serious, effects including burning mouth, throat and stomach; breathing difficulties and congestion; dizziness; lethargy; tinnitus (ringing of the ears); vomiting; a decrease in blood circulation; gastric bleeding, or hemorrhaging serious enough to cause ulceration or anemia, or to be life threatening.

Aspirin also interferes with the prostaglandin system, the body's key defense against disease-causing elements, and the key to detoxification.

A study by researchers at the Oregon Health Sciences University in Portland reported that five to ten percent of permanent kidney failure is due to damage by aspirin, acetaminophen (e.g., Tylenol), and other analgesics (pain killers). I believe this to be a low estimate—Hygienists have been maintaining for years that drugs subject the kidneys (and the liver) to intolerable stress. The report says that taking three aspirin tablets a day for three years causes renal (kidney) disease, and many people are advised to use much more than that as blood thinners for chronic pain or to relieve arthritis and other inflammatory ailments. Dr. William M. Bennett told a National Kidney Foundation seminar that mixtures of drugs appear to cause more kidney damage than each drug alone. Dr. Bennett said it is not uncommon for people to take analgesics daily in the danger-level amounts, sometimes just to "feel good" or for the mild mood-altering qualities they have.

The mood-altering drugs in coffee and tea also have adverse effects on gastric, cardiac and renal function.

Alcohol, aspirin, antihistamines, and all drugs are designed to stop the body from doing what it is trying to do. The drugs form chemical unions with body tissues, fluids and processes, destroy the body's ability to purify itself, dam up the poisons, and multiply the problems. So-called "natural cures" (herbs, vitamin C, etc.) are also used in an effort to thwart the action of the body.

Some people are under the impression that colds can be prevented or "cured" by megadoses of vitamin C. The publicity generated by Linus Pauling's research and writings helped to perpetuate this belief. *It is particularly unwise to use vitamin C if one is also taking aspirin, because vitamin C tablets intensify the effects of aspirin in the body, such as hemorrhaging and anemia.*

It is true that a diet predominating in raw foods is high in vitamin C, and it is also true that such a diet is a good start in not developing disease. *But vitamin C supplements are not food* (contrary to what vitamin pill advocates are fond of proclaiming). The body's reaction to their use is indisputable proof that they are just another form of drug. They are recognized by the body as acids and irritants, to be expelled as quickly as possible. Large amounts of vitamin C supplements trigger an extraordinary detoxification effort of the body (just as do garlic, mustard, camomille, etc.), at great cost in vitality and energy. Some of the toxins which made the cold necessary will often be borne out of the body, riding out on the "fast train" the body is using as an emergency measure to rid itself of the even more intolerable vitamin C supplements. The cold symptoms may disappear, due to the concurrent elimination of some of the toxins, but primarily due to the diversion of the attention of the body from the toxins causing the cold, to the more urgent necessity for getting rid of the acids and irritants in the vitamin C pills.

Viktoras Kulvinskas says, "Fighting colds with vitamin C results in acidification of mucus, which prevents its elimination via the respiratory system. It must instead be expelled by the kidney. The overall effect is strain on the kidney."

The ultimate result of forcing the symptoms "underground" is insidious damage to the organism, and chronic degenerative disease.

1.6 Causes of Colds

There is nothing mysterious about a cold—it is the body's own cure for an intolerable condition brought about by the errors and omissions inherent in "civilized living." Overeating; overconsumption of refined carbohydrates; too few fresh, uncooked fruits and vegetables; coffee, tea, chocolate; soft drinks, hard drinks (even copious water drinking); insufficient muscular activity; not enough clean, fresh air; too little rest; excessive stress—the more of these mistakes we commit, the more often our bodies require "colds" or other eliminating crises.

Air-tight homes add to the problem. Modern homes outfitted with double- or triple-glazed windows; air-lock vestibules; weather stripping; insulation and plastic vapor barriers in walls, floors and ceilings make a "residential thermos bottle" which traps dangerous pollutants inside. In older, draftier homes, air is replaced by fresh air about once an hour. In today's tightly-sealed homes, inside air is replaced only about once every ten hours."

The net result of "civilized living" is that every cell in the body is filled with and surrounded by waste material, the blood vessels are lined with excesses of food, and the blood itself is overloaded with waste materials and excesses of food. Hygienists call this condition toxemia, and consider this to be the basic cause of disease.

When the cells, tissues and body fluids contain an abnormally high amount of metabolic waste, it is a threat to the organism. When the body reaches its toleration level, it must employ means of eliminating these accumulations.

1.7 A Cold Is Body Action

Since the cells will, at all times, act in their own best interests, individually and cooperatively, they initiate a process to eliminate the wastes and excess food residues. The body speeds up some activities and reduces the level of others. Elimination is accelerated. The increased burning activity of the body in disposing of the excess materials produces greater heat—the body temperature rises and a fever is experienced. Loss of appetite is a self-protective mechanism.

"A cold is an intense and acute activity designed to rapidly, efficiently, and effectively expel accumulated wastes. ... It is pure insanity to suppress the symptoms of a cold as is commonly done. ... A cold is no more nor less than a period of intense housecleaning." (Dr. Immerman) People speak of "catching a cold." People with colds have not "caught" anything—it is just the opposite—they are getting rid of something: they are getting rid of accumulated foul material. A cold is a cleansing, rejuvenating, renovating process.

1.8 Toleration

A cold, or any disease, usually takes a lot of causation. The bodies of most people have taken so much punishment during the time since infancy, their bloodstreams have become so contaminated, that their levels of toleration have gradually increased. A nontoxic, healthy baby (or a truly Hygienic adult) has a relatively uncontaminated bloodstream. Improper feeding of the infant, too little sleep and rest, too much clothing, not enough fresh air and sunshine, results in a retention of toxic material and the baby develops a cold to eliminate wastes in excess of the toleration level.

As the bad habits continue and the child is dosed and drugged and "immunized," the child's body gradually learns to tolerate more toxins and will develop fewer eliminative colds and fevers. When bad habits force the system to learn to live with poisons, the waste products remain to damage the body and pave the way for the development of degenerative disease.

When the body has established high toleration levels, a cold does not eliminate all the toxemia—it only brings it down to a level at which the body has become adapted to functioning.

This adaptation is accomplished by the body as a means of preservation of life, since it could not survive the tremendous and constant elimination required by the mode of eating and living or the frequent interference with its remedial processes by drugs and treatments. So it adapts, sacrificing its level of vitality to the necessity for survival. Most physiological adaptations are regressive, as explained in detail in Lesson No. 66. The adaptation is not toward health; it is away from health. But the body has no alternative.

The toleration point can be returned to its pristine low level by fasting and improving the way of life. The toleration level of the average Hygienist has been reduced. The vitality has been restored to a point where the body will no longer tolerate a large toxic load, and may conduct extraordinary elimination at a level that would allow others to continue insulting their bodies. But if a Hygienist perceives the beginnings of cold symptoms, he knows what to do.

1.9 How to Deal With Colds

It is not true that colds are caused by viruses; that there really isn't anything you can do to not cause a cold; or that there isn't anything you can do for a cold once you get it except treat the symptoms (admittedly with scant success).

My grandchildren have known what to do about colds since they were just a few years old. They know that the way to avoid colds is to avoid junk foods and overeating; and they know that a cold can be eliminated by withholding food completely when the first symptoms appear. They know that if one fasts for 36 or 48 hours (or, at the most, three days), the symptoms will usually disappear, and it will not be necessary to contend with a seven- to fourteen-day period of suffering nor the organic damage that can be caused to the respiratory organs or other parts of the body by a prolongation of the causes and the symptoms.

Such cooperation with the self-healing power of one's own body enables the necessary elimination of toxins to proceed with a minimum of discomfort, a procedure which is quickly consummated.

1.10 Food Must Be Withheld During Acute Stages

"Laboratory experiments have demonstrated that digestion is impaired during the acute stages of a cold, and indigestion and decomposition are inevitable ... Feeding in a cold, when indigestion is inevitable, insures that putrefactive poisons will be absorbed into the system where they will increase toxemia. Continued eating when there is no power of digestion necessitates a supplementary eliminating crisis to expel the noxious material before vital tissues are harmed. Hence, a common cold may develop into other more serious diseases if eating is not discontinued."

Lesson 22 explained the process of digestion, and what happens when food is consumed under conditions which make proper digestion impossible. Proper digestion reduces food to the diffusible state without depriving it of its organic qualities. During the acute stages of a cold (or fever, or emotional upset, or any condition during which digestion is impaired), putrefaction of proteins and fermentation of sugars and starches are known to occur. Food eaten under such conditions, though rendered diffusible, is reduced to an inorganic, useless and toxic state. Digestion results in solution of the food for utilization by the body. Putrefaction and fermentation result in disintegration into toxic substances.

It is not what we eat, but what we *digest* and *assimilate* that produces health and strength. Conditions which disturb or impair digestion produce decomposition, thus poisoning the body instead of supplying it with nutritional elements from the food eaten. Whether or not the individual is aware of overt symptoms of such decomposition, insidious damage occurs.

1.11 Health and Disease

Health and disease are interrelated. Hygienists think of health and disease as fluctuating qualities of the living organism, as a continuum with health at the top. As health becomes less, disease occurs, and, of course, at the bottom of the scale is death. Between health and death are all varieties and conditions.

In a modern environment, it is probably not possible to attain perfect health. The human body is exposed to many toxins daily. Under normal circumstances, it should be possible to eliminate them from the body rapidly. This is the function of the organs of elimination: the kidneys, the liver, the lungs, even the skin. But when the normal level of toxins rises above a certain point, the body is overloaded and the vital energy drops below normal. The organs of depuration, which are regulated by the nervous system, are then unable to maintain their functional efficiency, and the internal environment becomes less stable.

At this point, the condition may be considered a mild functional disturbance, but some remedial steps must be taken to reduce the toxemia. If the individual recognizes the condition and decides to fast and rest, the efficiency and integrity of the body is speedily restored; otherwise, the organism itself takes remedial steps.

1.12 Vicarious Elimination

First, the actions of the normal channels of elimination are intensified. Next, channels of vicarious elimination are employed—most commonly, the mucous membranes, with a deluge of mucus in the upper respiratory tract. When a full-blown remedial activity is in progress, fasting and resting are even more certainly indicated, but recuperation of the body's energies will now require more time.

1.13 Acute Diseases Are Self-Limiting

Acute diseases, such as colds, are debilitating, but they are self-limiting. Most people eventually recover without any treatment, or in spite of the treatment. For that reason, almost anything seems to be a "cure."

When it is fully understood that a cold, or any disease, is body action and not an attack by an external entity, attempts are not instituted to suppress the body's own defensive and remedial processes.

If the body is allowed to continue its cleansing actions, the person will feel much better afterwards. The only helpful means of aborting or shortening the duration of a cold is through fasting, keeping warm, getting plenty of fresh air and as much bed rest as possible.

This methodology will increase elimination of toxic materials through the regular channels of excretion, and will decrease the necessity for vicarious elimination through the nose, throat, eyes, etc. The headache and fever will subside and the other uncomfortable symptoms will be reduced and gradually disappear.

1.14 Too Many Housecleaning Episodes Are Exhausting

People who have frequent colds are conducting beneficial and necessary eliminative processes. Other people, equally toxic (or more toxic) may not have the energy to conduct such housecleaning and may, instead, undergo insidious degeneration.

The wise Hygienist will avoid toxemia, and avoid the necessity for so many housecleaning episodes. If such episodes are too frequent, damage to the channels of vicarious elimination will be inevitable.

Dr. Sidhwa says, "It must be pointed out that too frequent use of the same paths of vicarious elimination will lead to atrophy and degeneration of any path of elimination, as well as a gradual wearing down of the strength of the glands themselves. Although disease, especially acute disease, is a life-saving process, it is also a life-consuming process. Frequent stimulation leads to exhaustion, leading to further enervation of the whole system."

1.15 Rationale of Modern Medicine

The medical profession, for the most part, regards diseases as organized entities that attack the body from without and that must be destroyed. That is why medical students spend such a great percentage of their time studying the pharmacopoeia, the thousands of drugs which are the weapons of choice against the little beasties—the "disease germs" and the mysterious viruses (the drugs that destroy the kidneys, that threaten life itself).

Modern medicine employs the word "virus" to mean an ultra-minute form of life that infects cells and causes maladies. They know not exactly what the viruses are—plants, chemicals, animals or parasites?

Boyd's medical textbook states that "the virus seems to exist in the dim borderland between living things and chemical compounds. It is a submicroscopic unit containing nucleic acid and protein. Unlike bacteria, viruses are "not capable of supporting" life on their own, owing to a lack of enzymes. In order to exist and multiply, they must occupy living cells which provide them with necessary material and energy. It is evident that a virus is a perfect example of a parasite."

Boyd admits that most normal persons can harbor viruses without developing the disease the viruses are supposed to cause, and that enervating influences overcome the body's protective functions and "permit the viruses to usurp the biological activities within the cell."

1.16 Interferon

Interferon, manufactured within the organism in response to colds and other so-called "virus diseases," is the body's means of protecting itself, but it can only operate when we supply the necessary materials and influences which promote health and protection.

In recent years, interferon has been publicized as the bright new hope to fight cancer and "virus diseases." But, although pharmaceutical firms invested millions in synthesizing interferon, the results (as with other magic bullets) have been disappointing and inconclusive.

In 1978, scientists were hailing interferon as a true miracle drug, a century after it was identified. But it has not lived up to its advance billing. Although the price tag for interferon research has hit four hundred million dollars, an FDA spokesman said (May 1983), "There are no real answers yet ... This drug affects a lot of systems in the body and has produced some side effects that include nausea, vomiting, flu-like pains, fevers and chills, confusion and high blood pressure."

Boyd's writings exemplify the medical attitude. Instead of thinking in terms of health improvement, so that the cells can heal themselves, they are seeking a chemical panacea to destroy the virus. Chemicals only make the host more susceptible and less able to deal with toxins in the organism.

1.17 Bacteria and Viruses Are Secondary or Tertiary Factors in Disease

When the body is undergoing a crisis of elimination, virulent bacteria (or viruses) may become involved as secondary or tertiary factors. The use of drugs may produce mutant, more resistant strains. Edwin W. Schultz, M.D., in an article in the *Cyclopedia of Medicine*, states, "It is well established that viruses do undergo variations ... in virulence, in antigenic structure, and in the character of lesions induced ... sometimes of a stable mutation type."

All the newer knowledge about bacteria and viruses substantiate the Hygienic viewpoint: A healthy body will eliminate virulent or threatening influences, making disease unnecessary. Hygienists understand that disease originates inside the body as a result of poor eating and living habits; of physical, mental and emotional practices which subtly and insidiously weaken the organism."

The true role of germs is as scavengers, breaking up and consuming dead and dying cells and other debris. Bacteria perform the same function in the toxic body as they do everywhere in nature.

Viruses, which the medical profession has been incriminating more and more as the cause of so many diseases, are not even living entities in the same sense as bacteria. Bacteria are microorganisms which have the ability to act. A Virus on the other hand, is not a living entity.

The poisonous materials called viruses have no existence apart from a living organism. They are actually the debris of spent cells—the genetic material or nucleic acid (DNA or RNA) from these spent cells. Viruses are in no sense alive, nor do they have any ability to act, but their presence in the body is as toxic as any other retained body waste material, favoring the surfacing and multiplication of bacteria.

Actually, humans live symbiotically with bacteria. We adapt to, and are dependent on, bacterial flora. Health and disease are not antagonistic to each other. Disease does not attack the body, but rather is produced by it as a means of restoring health.

In Lesson No. 66 it was clearly demonstrated that bacteria do not produce disease; that there are no "disease-producing" bacteria, germs, microbes, bacilli or viruses; and that the opposite is the fact. It is the environment—the host—the disease condition—that determines the type of bacteria that proliferate. The germ does not produce the disease. The disease produces the germ by changing nontoxic bacteria into toxic bacteria in a septic environment. This concept is discussed in detail in

Lesson No. 66.

1.18 No Bacteria in Early Stages of a Cold

During the early stages of a cold, the nasal secretions are completely void of bacteria. None are found in the thin watery secretion the first two or three days of the cold. When the thick purulent secretion begins, then pneumococci, staphylococci, or streptococci make their appearance.

Dr. Vetrano says, "Since bacteria are so conspicuously absent at the beginning of a cold, another cause had to be found. The unpopular idea that a person could change his life habits and not develop colds was too preposterous to entertain. The virus saved the day." People don't have to change their ways of life as long as they believe their colds are caused because they "picked up" a very malignant virus.

1.19 Why More Colds Develop in Cold Weather

Colds may develop at any time of the year, but the summer months show fewer colds because most people get more fresh air, sunshine, and exercise, and commonly eat less. As indicated in Lesson 66, the first colds of early winter are not "caught" from someone else with a cold but develop in those most susceptible because of the way they have been living and eating. The added stress of cold temperatures further checks elimination, adds to the general toxemia and enervated condition, and precipitates a crisis.

Leslie Thomson says, "To many people a 'chill' and a 'cold' are almost synonymous. It is an easy error, all the more so because it is not a complete fallacy; rather it is a seriously misplaced emphasis. Many people *do* develop a cold after an unpleasant incident in bad weather, but one should ask a few questions. In most cases the feelings of chill and the development of a cold are only different aspects—or successive stages—of a bodily springcleaning. When the body reaches a state in which retained wastes seriously impede normal vital functioning, the process has been so slow that the individual is only dimly aware of being substandard. Then some circumstance presents his system with an unusual challenge and the tolerance of his vital system is exceeded." There is an inability to keep warm because the normal physical and chemical processes are so retarded that the heart is unable to maintain adequately free circulation. The body must, and does, organize for a thorough cleansing and rejuvenating "crisis"—uncomfortable, to be sure—but necessary—and eminently worthwhile. If no stupid interference occurs, "this wonderfully complex process achieves in a few days a massive ejection of waste and a burning up of combustible rubbish."

1.20 The True Cause of Colds

A summation by Dr. Vetrano is concise and eloquent: "Colds develop and are not 'caught.' Bacteria and viruses have nothing to do with the development of coryza. They may be complicating features or function as saprophytes feeding on the debris. They arrive on the scene when tissues and fluids are abnormal and survive as long as the tissues remains abnormal. They help clean up the debris. Our enervating way of life is the true cause of colds."

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2. Influenza

Influenza is essentially a magnified version of a cold. If you continue to permit so many adverse factors in your daily life that a couple of colds each year are inevitable, then a bout of flu every second or third year may also be unavoidable.

Influenza in itself is no cause for panic. Properly understood, and intelligently handled, influenza is a constructive process. The fear with which so many laymen and doctors regard the flu is due to its violent potential when it is mishandled.

2.1 Consequences of the Treatment

The severity and after-effects of any cold or flu depend upon the treatment. The terrible developments which are ascribed to flu are almost never due to the basic illness. They are the results of the universally-suppressive treatment, the consequences of the drugging.

Dr. James C. Thomson tells about his experiences during the Great Flu Epidemic of 1918: "Reports collected from naturopaths practicing in all parts of the world after the 1918 wave—the most serious in living memory—gave a death rate of under two percent, whilst around them in the same cities, among the same types of people and under almost identical conditions except for the treatment, the death rate was from seven to over thirty percent. In my own practice, I had personal charge of 87 cases. In 86 of these cases, my instructions were faithfully carried out, and in no case was there either death, complication or any lingering sequel. The majority of these patients spent two or three days in bed, felt somewhat shaky in their walking for a further day or two, and, within a week or two, actually felt better than they had before the attack. In the one remaining case my instructions were willfully ignored, and I was forced to discontinue."

2.2 Types of Influenza

Influenza often starts out like a simple cold. Sometimes the first symptoms are vigorous, and arrive without warning,. Suddenly the patient may suffer from fever, nausea, vomiting, severe neuritic pain, severe inflammation, general muscular aching, or other distressing or violent symptoms.

Leslie Thomson (son of Dr. James C. Thomson) describes the four main types of flu. No matter how novel the identifying names given by epidemiologists or immunologists, any particular case consists of either one of these types, or a combination of two or more.

1. *Respiratory*, which starts off with violent, paroxysmal coughing.
2. *Gastro-Intestinal* - nausea, vomiting and abdominal pain are the immediate indications.
3. *Nervous* - headache of unusual severity, often concomitant with pains in neck, chest and upper abdomen. Depression and sleeplessness are common accompaniments.
4. *Febrile* - quite intense fever, sometimes accompanied by disorientation, to the extent of delirium. *In this form, it is imperative that no nourishment whatever be given to the patient until the fever has subsided.*

Leslie Thomson says that how individuals have lived, and the relative strength of the various vital organs—the individual physical makeup and the inherited temperament—are dominant and significant in determining the type and severity of the flu episode. Nobody needs to be "infected" by anyone else to develop flu. Flu is something which originates and is directed within the individual system. "The danger in differential diagnosis lies in the orthodox tendency to apply suitable treatment—i.e., aimed at obstructing or neutralizing the particular activity or discomfort predominating."

2.3 Dealing with Influenza

A couple of days or more of bed rest with nothing taken in except sips of water, is all that is necessary. Plenty of fresh air should be provided, but chilling should be carefully avoided. No attempt should be made to bring down the temperature by prolonged cold bathing, or by applying ice packs, or alcohol, which can be a dangerous interference in the body's processes.

After perhaps forty-eight hours, if the temperature is more or less normal, fresh fruit or small quantities of green salad may be offered. But the patient must continue to rest. There might be a second phase in a few days, during which food should again be withheld or reduced to a minimum. The patient should continue to rest in bed until the fever and shakiness have cleared.

2.4 Vomiting and Diarrhea

If one must vomit, or experience diarrhea, to remove irritants and morbid matter from the body, it is the height of folly to try to block it. The body does not go to the trouble of initiating these modifications in its activities unless they are essential for survival.

Dr. Immerrnan says, "When vomiting and diarrhea occur, it is because there are substances in the digestive tract that the body recognizes as troublesome, and wishes to eliminate. The material may enter the digestive tract via the liver. The liver is the great filter for the blood. It draws waste material from the blood and shunts it into the digestive tract for elimination. Sometimes this material is so toxic that the body will send it 'upstream' where it will only be exposed to three to four feet of tubing (stomach, esophagus), as opposed to going 'downstream' where it will be exposed to thirty feet of tubing (intestines). Once in the stomach, this toxic material will elicit feelings of discomfort and nausea until the stomach violently contracts and ejects the waste. Following this, there is usually a feeling of relief and improved well-being. Diarrhea fundamentally is of the same origin as vomiting. The body recognizes that there is material in the digestive tract and shouldn't be there. In order to more rapidly eliminate this waste, diarrhea will be initiated."

Some waste is directly transferred from the bloodstream through the walls of the intestines into the alimentary canal, and then eliminated via vomiting and diarrhea. Violent diarrhea and vomiting rapidly clear the digestive tract so that it can be temporarily put to rest, and repair, rejuvenation and cleansing are accelerated. To eat while experiencing the flu is sheer insanity.

2.5 Fever

When the body produces fever because of an internal need, why should we panic and seek by heroic means to suppress the fever at all costs? Physicians have prescribed and encouraged the use of antipyretics (fever-reducing drugs) to reduce the temperature as quickly as possible in all cases where the temperature is above the so-called normal temperatures of 98.6 degrees Fahrenheit (37 degrees Celsius). Actually, the medical profession is not universally convinced that fever is altogether harmful. Some medical men have even used fever therapy in an attempt to cure certain diseases.

The human body is delicately balanced and capable of better and safer fever induction than any artificial process of producing fever. Artificially-induced fevers can be dangerous. Artificially reducing fevers interrupts, retards or stops the healing efforts of the body.

The heat of spontaneously-induced fever is produced for the purpose of acceleration of cell activity When the organism perceives that this is necessary. When there is an emergency, the metabolism is accelerated by increasing the amount of heat available. This is controlled by the hypothalamus, which is sort of a human thermostat.

Metabolism consists of the absorption of nutrients and the excretion of wastes. The heat is necessary to accelerate the excretion of wastes which have accumulated beyond the body's ability to tolerate them, and beyond the body's ability to eliminate without some extraordinary modification. Heat acts as a catalyst which causes the toxins to liquefy and pass into the bloodstream, where they are transported to the organs of elimination, and thus out of the body.

Every now and then we hear from the "scientific" community that "fever may be beneficial." An article in the *St. Petersburg Times*, 1/4/83, says; "For more than a century, we've been told to take aspirin to bring down a fever. Now, researchers aren't so sure that's a good idea. Now studies suggest that a moderate fever should be allowed to run its course because it may shorten the illness. Scientists have figured out that fever mobilizes the body's defenses against infectious organisms, and, in some cases, directly inhibits their growth."

Of course, what the studies "suggest" and what the scientists have "figured out" are not being correlated with what Hygienists have been teaching for the last 150 years.

Kenneth S. Jaffrey, in his booklet, *Fever, Nature's Own Healing Process*, says, "Nobody has ever been harmed when a self-induced fever has been managed rationally."

He quotes Vincent Priessnitz (1829), the discoverer of Nature Cure; R.T. Trall (1862), a Hygienic pioneer; and Henry Lindlahr (1920), another pioneer in the field of natural healing; as having agreed that fever is part of the healing effort, a process of purification to relieve the system of morbid matter and to repair injury to living tissues.

In 1928, Herbert M. Shelton said, "Fever is a necessary increase in body temperature designed to enable the body, or some part or parts of it, to effectively meet and destroy some foe of life that is threatening the body and to repair damages."

In 1930, another noted Hygienist, Hereward Carrington, described the condition of fever as the result of the forcible recharging of the body with energy, as an emergency measure, to assist in freeing the body from its dangerously-diseased condition.

Eugene F. Du Bois, professor of Physiology at Cornell, University, in his monograph on fever, stated that antipyretics were abandoned in the early part of this century (although later their use was revived). Cold-tubbing in typhoid was also abandoned. Du Bois said, "Clinicians began to regard high temperature as helpful. This belief was strengthened by the realization that many pathogenic organisms (germs and viruses) were inhibited or killed at temperatures that could be tolerated by the human body." The metabolism and chemical reactions of the body, including enzyme activity, are accelerated by a rise in temperature, thus enhancing the healing process. When fasting is employed during a fever, the metabolism and healing process are even more dramatically multiplied.

2.6 "Immunization"

Many advocates of so-called "immunization" procedures freely admit the futility of efforts to immunize against influenza. A 1977 report by the United States Department of Health, Education and Welfare says that the fragmented nature of the genetic material of the influenza virus is believed now to account for the agent's unique and puzzling ability to undergo periodic changes which render available vaccines useless. Although we cannot agree with the basic premise expressed therein, the fact remains that the vaccines are admittedly useless. Obviously, the credibility of the whole immunization theory is moot, if the particular problem can never be identified or dealt with in time—in view of the admitted futility of efforts to immunize against influenza. Yet, even after the Swine Flu Fiasco of 1976, flu vaccines are still being recommended and administered by the medical profession.

In Lesson No. 66, I went into great detail about the futility of so-called "immunization." In January 1983 (some time after preparing Lesson No. 66), I heard Robert S. Mendelsohn, M.D., on this subject. He said, "I lost my faith in immunizations around the end of the 1960s. My patients started to come back to me with the damage that I had previously inflicted on them."

Polio disappeared in Europe without a vaccine. Dr. Mendelsohn said that Salk doesn't like the Sabin vaccine, and Sabin doesn't like the Salk vaccine. Dr. Mendelsohn continued, "I think they're both right."

He said there are hundreds of cases in the courts due to damage from whooping cough vaccine. He said, "Pediatricians are telling me that they are not immunizing their own children, but they give it to their patients!"

Dr. Mendelsohn is a practicing pediatrician. His credentials (conventional, medical, etc.) are unimpeachable. He has been practicing medicine for about thirty years. He has been national director of Project Head Start's Medical Consultation Service, chairman of the medical licensing committee for the state of Illinois, associate professor of preventive medicine and community health in the School of Medicine of the University of Illinois, and the recipient of numerous awards for excellence in medicine and medical instruction.

He is also a medical heretic. He believes that the greatest danger to your health is usually your own doctor. He argues that modern medicine's methods are rarely effective, and in many instances are more dangerous than the diseases they are designed to diagnose and treat. I would recommend that all students of Natural Hygiene read his book, *Confessions of a Medical Heretic*.

In his book, Dr. Mendelsohn says the entire flu shot effort resembles a massive roulette game. He quotes Dr. John Seal, of the National Institute of Allergy and Infectious Disease, as saying, "We have to go on the basis that any and all flu vaccines are capable of causing Guillain-Barre Syndrome."

A study, conducted at the Minneapolis Veterans Administration Medical Center, was published in the November 19, 1981, *New England Journal of Medicine*. Researchers warned that flu shots can cause overreactions to drugs, producing effects similar to "overdoses" of the drugs. The researchers found the influenza vaccine can change human metabolism, hampering the liver's ability to break down and remove drugs from the body, so that the medicines stay in the body longer.

Thus, the potential damage of drugs is multiplied as a result of the influenza vaccine.

2.7 The Paradoxical Conventional Weapons Against Disease

Both of the paradoxical conventional "weapons" against disease have the same result. Injection of noxious material directly into the bloodstream (vaccinations), and the use of drugs to kill the germs which are busily engaged in cleaning up the mess, are not only in opposition to each other, but are also in opposition to the laws of nature, and contrary to common sense.

They are in opposition to each other, because injection of noxious material initiates defensive body action against disease; drugs curtail defensive body action against disease because of the new emergency —the necessity to deal with the drugs. Injection of diseased material into the bloodstream is manifestly in opposition' to the laws of nature, and certainly contrary to common sense.

Both vaccinations and medications not only add more poison to the already overburdened system, they frustrate nature's attempts to help you, and they prolong and intensify your miseries. In addition, they both Have the more insidious quality of increasing your susceptibility and vulnerability to future chronic and degenerative diseases.

2.8 Frighteningly Impressive Case Histories

Leslie Thomson says, "It is not surprising that orthodox doctors have frighteningly impressive case histories to report. Delirium, peritonitis, pneumonia, neurasthenia, chronic depression, lymphatic enlargements, pulmonary degeneration, cardiac disorders, kidney disease, arthritis, middle ear deafness, and degeneration of the spinal cord, are only some of the sequelae blamed upon influenza. To us, it is undeniably logical that the more the doctor fills the patient with unwanted and unusable nutrients, and obstructs various vital processes with medication, the greater the inevitability of tragic complications."

I have heard a dark joke, to the effect that, since the treatment of influenza still baffles the physicians but they can "successfully" treat pneumonia with antibiotics, why not let the flu develop into pneumonia and simplify the problem?

But the "humor" is becoming even grimmer, since newer announcements admit that "in recent years, drug resistant pneumonias, especially among hospital patients, have been on the increase."

2.9 The Swine Flu Fiasco

Even more ironic is an excerpt from a brochure on flu from the U.S. Department of Health, Education and Welfare: "With identification of a new swine-like influenza virus early in 1976, NIAID (National Institute of Allergy and Infectious Diseases) scientists, grantees, and contractors sprang into action. The technique of recombination was applied to hasten the growth of the vaccine virus; and, in the institute's vaccine centers, medical investigators with years of experience became the nucleus of experts needed to evaluate the new swine flu vaccines in record time. Working closely with the Army, the Center for Disease Control, and the Food and Drug Administration's Bureau of Biologies, NIAID supervised a series of tests to determine the proper vaccine dosages that should give good protection with a minimum of adverse reactions."

They talk about "springing into action," "evaluating the new swine flu vaccines in record time," and "determining proper vaccine dosages for good protection with minimum adverse reactions." *Nothing is said about the fiasco that resulted, or the tragic deaths from the vaccine. Nothing is said about the vaccine-induced Guillain-Barre Syndrome*.

2.10 Good Health Is the Only "Immunity"

Hygienists live to have health, not to prevent certain specific diseases. Good health is immunity against influenza and all diseases. Microorganisms only surface when there is a job for them to do—they help to clean up the debris created by atrocious diet and living habits.

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3. Other Upper Respiratory Problems

Some other upper respiratory ailments are hay fever, sinusitis, postnasal drip, deviated septum, nasal polyps.

Hay fever is not caused by hay and there is no fever. The nasal portion of the respiratory tract is affected, causing the itching, watering, inflamed eyes; nasal obstructions; runny nose; or paroxysms of sneezing. It is usually triggered by pollens from trees, grasses or weeds, or exposure to molds, dust, fur, feathers, animal dander, or orris root, the base of most cosmetics.

The use of nasal sprays for hay fever or colds is a dangerous habit. It produces a rebound nasal congestion, a vicious cycle that is worse than the original problem.

A contributor to Joe Graedon's column made an excellent suggestion for a way to break the habit. She said that the doctor had told her to quit "cold turkey," but she couldn't sleep because she couldn't breathe at night. Instead, she used the spray on only one nostril. After several days, the untreated nostril unclogged. She then repeated the procedure in the other nostril. She said that breaking the nose spray habit was even harder than quitting smoking.

Sometimes hay fever progresses to a more serious condition called asthma. Asthma is not essentially different, except that the bronchial tubes are affected, resulting in labored breathing, wheezing and coughing, slow respiration, sweating, blueness of skin (cyanosis) and coldness of extremities.

When one or more of the four pairs of air-filled cavities in the skull become affected, the condition is called sinusitis.

Nasal polyps are soft, pendulous outgrowths from lining membranes of the nose. If they are of sufficient size to cause obstructive symptoms, a prolonged fast will sometimes reduce or eliminate them. Sometimes, surgery is necessary.

Sinus headaches and postnasal drip will usually be relieved by short periods of fasting.

Hay fever, asthma, sinusitis and polyps are often associated with so-called allergies. Chronic sinus inflammation can result in the formation of polyps.

Lesson No. 71 will go into detail about allergies, hay fever, asthma, emphysema and other chronic conditions involving the respiratory tract, the bronchial tubes and the lungs.

Actually, the primary causes of all these problems are the same as the causes of all other pathologies—the faulty living habits that lead to toxemia and disease.

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4. The Hygienic Rationale

Dr. Sidhwa eloquently expresses the Hygienic rationale concerning health and disease: "When man does not overstep Nature's limits regarding harmful diet and emotional indulgences; when he does not deplete his nerve energy by late nights, overwork, worry, stress, indulgences or by constant stimulation in the form of chemical, thermal, or physical goads, the balance of the life force is maintained, and, with it, good health. Under such Utopian conditions, it is conceivable that disease would be an impossibility. In other words, living within your means, the individual, under the above circumstances, would be immune to disease."

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5. Questions & Answers

Why do people, who eat all the wrong foods and get no exercise still seem to get along well and have very few colds?

> Most likely their bodies have developed such a high tolerance level for morbid material that a weakening of the detoxifying organs has occurred, and these individuals no longer have the vitality to conduct necessary and effective eliminative crises. Some people are blessed with superior genes, and it may take a long time for the body to degenerate into an irreversible condition—but wrong living will eventually produce this outcome, especially if necessary housecleaning does not occur, and the toxins are dammed up in the body.

Why do colds often evolve into more serious illnesses?

> Drugging and feeding produce these sequels to colds. If the individual fasts and rests and takes nothing but water as thirst requires, complications are rare or nonexistent.

What is the best procedure if I fast for a cold (say, two or three days) and the symptoms return when I start eating?

> The best action would be to stop eating and go back to bed for another day or two. If not possible or convenient, confine your diet to fruits only for a few days, followed by an all-raw-food diet, until the symptoms disappear (or stay on raw food permanently, if possible).

Is a diagnosis helpful in determining Hygienic means of caring for a patient?

> Yes, a diagnosis is helpful, but not absolutely necessary. A correct diagnosis supplies clues to the causes of the problem, but it is of very little influence in the management of the illness, except in quite unusual situations. For instance, in acute appendicitis, no water should be taken until the symptoms disappear, but, of course, this would apply to any acute abdominal discomfort.

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Article #1: Coryza, The Common Cold by Virginia Vetrano, B.S., D.C.

Once upon a time there was a beautiful young lady with golden red hair down to her slender waist, and long and shapely legs. Her eyes were a beautiful blue, that scintillated when she laughed. She was lithesome as the fawn in the morning. Her personality sparkled like the cool clear waters of a bubbling spring. There was but one thing that marred the radiant beauty of this lovely young lady. She was continually blowing her nose.

The young lady was well educated. In fact so well "educated" that she could no longer understand the simple things of life. Every new fact or thought had to present itself to her clothed in such heavy scientific garb that anyone trying to comprehend the muss had to peel off layer after layer of nonsense to reach but the core of fallacy. But this type of presentation pleased her. It was scientific, with theory piled upon theory to support a theory, in a long drawn out complicated web of fallacy. It would be highly unbecoming for a woman working on a doctors degree to support or follow any doctrine so simple a child could understand it, even if it would obviate the necessity for rubbing her nose raw blowing all the time.

Let us hope that by the time she receives her doctorate, by wasting so much time with unimportant nonsense such as "proving in what ways mathematically a donut is like a cup," that she will realize that much nonsense passes for science. Let us hope that after so many years of cramming gobbledegook into her head that she will be able to think. Unless she learns that all true sciences always simplify life and thought, instead of complicating them, she is destined to be a snorting horse until some more formidable disease helps her into the henceforth, her life a wasted travesty of education.

We would like to help Miss Nasal Drip but the time is not ripe. She suffers with chronic rhinitis, marked by frequent acute exacerbations, or the common cold. The common cold is an acute rhinitis, or inflammation of the nasal cavities. She suffers with it so often and so long at a time that one can almost say she has a perpetual cold. Her symptoms are typical; rhinorrhea or nasal discharge, nasal obstruction (due to swelling or edema of the mucous membranes of the nasal passages) and sneezing. A disease that may and should abort after twenty-four to forty-eight hours lasts for many weary weeks in this young lady.

In former years Miss Nasal Drip would have said that she "caught" a germ, were it not for the fact that she has learned that the nasal secretions are completely void of bacteria during the early stages of a cold. Many ciliated epithelial cells desquamate and are found in the thin watery secretion the first 2 or 3 days of the cold, but no bacteria make their appearance until the discharge becomes thick and purulent. When the thick purulent secretion begins then pneumococci, staphylococci, or streptococci arrive upon the scene.

Since bacteria are so conspicuously absent at the beginning of a cold, another cause had to be found. The unpopular idea that a person could change his life habits and not develop colds was too preposterous to entertain. The virus saved the day. Miss Nasal Drip doesn't have to change her way of life as long as she believes she "picked up" a very malignant virus. This time her cold happens to be a very tenacious one, and it is progressing into bronchitis. Her medically-oriented mind attributes this to secondary invaders, not to her continual overeating of starches and sugars.

If all the Miss Nasal Drips in the world could understand that they do not have to develop colds any more than they had to develop measles, chicken pox or any other childhood disease. The simple expedient of refusing to eat at the first sign of a stuffy nose would not only abort colds, but all other acute diseases as well. Since laboratory experiments have demonstrated that in such simple diseases as coryza (common cold) digestion is impaired, it would seem that logic would proscribe eating, when indigestion and decomposition are inevitable.

Since the incipient stages of the childhood diseases (rubella, measles, chickenpox, and whooping-cough) are indistinguishable from the ordinary common cold, if one followed the rule to never eat when he has symptoms of a cold, these and other childhood diseases would never develop. Feeding in a cold, when indigestion is inevitable, insures that putrefactive poisons will be absorbed into the system, where they increase toxemia. Continued eating when there is no power of digestion necessitates a supplementary eliminating crisis to expel the noxious material before vital tissues are harmed. Hence, a common cold may develop into other more serious disease if eating is continued.

Miss Nasal Drip thinks she can't breathe because her nose is obstructed with secretion. She blows all the harder to empty it. Actually in the early stages of her cold, the nasal mucosa is red and swollen due to the inflammatory condition. The choanae (the posterior openings of the nasal cavity into the nasal part of the pharynx) are very narrow. The slightest swelling causes difficult breathing. Also due to the fact that the nasal passages are very narrow interiorly, when the nasal cavities are inflamed, and the membranes are swollen (edematous), Miss Drip's nose feels clogged, even though she empties it every few minutes.

Because of the continuity of mucous membranes, each time Miss Nasal Drip develops a spread to adjoining organs. The nasal cavity communicates with the frontal, ethmoidal, sphenoidal and maxillary sinuses, to which the inflammation may spread. This particular cold of Miss Drip spreads downward to the bronchi, also by way of continuous mucous membranes, and she developed the unpleasant symptom of coughing all night, thus preventing sleep.

Her chest became painful, frightening her, so that she listened to me a slight bit, and stopped eating potatoes swarming in butter one evening for dinner. I couldn't get her to quit drinking milk every morning and noon but she did substitute grapefruit for some of the heavier foods she was eating. On the day she omitted potatoes and butter her symptoms abated markedly and she slept better that night. But the next day with the chest pains gone, she lost her fear and resumed her bad eating habits!

We must be patient, she has a lot to unlearn. Just yesterday, she requested the microscope to analyze the water, because the idea came to her that everytime she visits us she "catches" a cold, so "it's due to bacteria in the water here, to which I am unaccustomed." "You don't 'catch' the cold," she said, "because you are adapted to these bacteria."

Adults generally feel lethargic several days before developing a cold, and may have aches in the limbs or back. Children have a tendency to develop more severe symptoms, with a temperature around 102 degrees F and sometimes higher. They are not hungry generally but are encouraged to eat by their parents, hence the frequent development of more formidable disease in children.

Colds may develop at any time of the year, and do not necessarily develop when a person has been chilled or in a draft. When "epidemics" of colds arise, some extra enervating cause happens to be present in the lives of the people of the epidemic area. When large masses of people are surveyed, the summer months show fewer colds. Most people get plenty of fresh air, sunshine, and more exercise, which are highly beneficial to digestion and excretion, and commonly eat less during the summer months. Autumn brings less activity, less fresh air and sunshine, and increased eating, so there is an outburst of colds to rid the system of toxic matter. When midwinter comes, around Christmas and New Year's, cold statistics mount again. Toxemia rises to above the toleration point, due to improper living, excessive eating and drinking and late hours. Therefore, more noses start running, more chests begin coughing, and more eyes turn red.

Miss Drip will argue that colds develop in the autumn because of reopening of schools with the massing together of children indoors. How does she explain the development of colds at Christmas vacation when most children are out of school for about 12 to 14 days? As the incubation period for colds is 12 to 48 hours, the germ and virus theory simply does not account for all the facts.

The fact that chilling does not cause colds has been repeatedly demonstrated to physicians who have observed the so-called immunity of travellers in the Arctic and of men compelled to spend many weeks at sea on rafts or in open boats and who never 'caught' cold. This leads the research workers to believe that "in the absence of the virus no amount of chilling can cause a cold." Since viruses are ubiquitous, it cannot be said that there were no viruses present. They are everywhere. Was it too cold or too hot for the activity of viruses under those conditions? Or was it, that there was a scarcity of food, hence, the men couldn't eat their way into a cold?

We are taught that a number of viruses, or a number of strains, cause the common cold. This should lead us to refine the diagnosis still more, to cold type a, type b, type c, etc. The old theory was that there is a specific cause for each specific disease if we could find it. Not so with colds. A number of viruses are said to be guilty. Those infected may be re-infected with the same virus within three weeks after recovery. The so-called immunity is short-lived. Colds cannot be induced experimentally in most animals.

In 1914, the virus theory of the etiology of colds was introduced by Druse, who it was said repeatedly demonstrated that "filterable agents in throat washings obtained from adult patients with acute coryza were capable of producing colds when introduced into anthropoid apes or susceptible human volunteers."

Volunteers, we are told, developed colds when infected by filtrates of nose and throat washings from those who had colds. A poison, a virus is a poison, or any foreign agent, in contact with the nasal mucous membranes, occasions inflammation, rhinorrhea (running of the nose) redness and swelling, and fever in children. An example of which you can perform yourself, is to run a match stick up into the nostril. The nose will begin to run, sneezing will commence, and if kept there longer inflammation will develop to rid the body of the foreign agent.

Another example is the true story of a child who at three years of age repeatedly developed a high fever, and a cold—one right after the other. Her mother took her to a physician each time the cold developed, and the symptoms were quashed by penicillin injections. Two or three days after the supressive effects of the drug wore off, the cold, high fever and running nose would redevelop. This worried the mother, so she continued taking her child to the pediatrician for more shots. Finally old mother nature won. Despite the continued suppression which interrupted her work, she kept initiating elimination processes until one day, as the child was feverish and nose running still more, the child began picking at her nose in the presence of her mother. To the mother's surprise, a much frayed, and bloody piece of kleenex was pulled out. This was the occasion for the inflammation, fever and runny nose. The three-year-old had undoubtedly pushed the kleenex up her nose at some time in the past and it remained there until the body excreted it. The human organism just doesn't like foreign things in the vital domain, and stubbornly keeps working until it rids itself of them. The child's fever subsided and did not recur.

When viruses are injected to cause colds in "susceptible" invidividuals, it must be remembered that only certain individuals develop symptoms of coryza, and that the great numbers of viruses present are treated as foreign agents and expelled by the only method the nose knows—inflammation and sneezing.

So many viruses have been incriminated as causes of colds that research workers are really very puzzled. After a long discussion of the causative agents of colds, they conclude: "From the foregoing it may be concluded that there is no single viral agent to be incriminated in adult colds and that a variety of agents which produce fairly severe disease in non-immune infants may also occasionally cause coryza in adults."

From the foregoing, it appears, that any virus or bacteria that is present when a cold develops is the guilty party. It is stated in Cecil and Loeb's *Textbook of Medicine* that, "It cannot be said with absolute certainty that under certain conditions the common respiratory pathogenic bacteria do not initiate colds, although the evidence is against this possibility." Paul and Freese who conducted studies in isolated communities in Spitzbergen, implied that, in the absence of the virus, colds "almost wholly disappear. "He is saying colds almost disappear in the absence of viruses, but they don't actually do so because some colds still exist; these he attributes to bacterial infection as follows: It is then presumed that "the residuum of sporadic, noncommunicable colds may be due to bacterial infection." What sophistry! The colds are gone, and they are still there! The remaining colds are of bacterial origin; but are noncommunicable.

Clinical investigators are still puzzled over the role that bacterial inhabitants of the nasopharynx play in the development of colds. Most of the "basal flora" of the upper respiratory tract, they think, consists of nonpathogenic and inconsequential agents. But since such agents that are thought to be true pathogens are often found in the throat washing of patients with colds this leads them to wonder if they do not play some sort of role in the disease known as coryza, or the common cold. "On the other hand," they reason, "hemolytic streptococci, pneumococci, and hemophilus influenzae are recovered in considerable numbers from a patient with a cold, it is tempting to assume that they are playing a role of some sort."

Were Miss Nasal Drip a diligent student she would see how confused and frustrated the laboratory men really are. One time a bacteria is a proved pathogen and yet the next time it doesn't cause symptoms. With only the germ theory from which to reason, no wonder the confusion. The confusion itself would lead intelligent men to start searching in another direction, were they not so deeply rutted in the germ theory. The surmizing continues: "On the other hand, any of these organisms (Group A hemolytic streptococci and h. influenza) may appear in the normal nasopharynx without causing symptoms, and the mere recovery of one of them from a case of coryza may be of little significance. Most authors tend to designate them as 'secondary invaders,' assuming that the cold virus paves the way for their entry into the mucous membranes."

To further befuddle the physicians, when they give antibiotics to kill the germ invaders, it doesn't shorten the course of the disease one bit. Yale Kneeland, Jr. in Cecil and Loeb's Textbook of Medicine states, "Yet when effective antibacterial agents have been used in large-scale controlled experiments on adults with colds, there is little evidence that suppression of the bacterial component alters the average duration of the disease."

Let us review what the physicians are admitting. First, it is not known exactly which virus 'causes' colds. Indeed, it may be numerous ones. Chilling doesn't cause colds in the absence of the virus, yet viruses are ubiquitous. If the virus is sprayed into throats, it causes inflammation in "susceptible" hosts only. The disease doesn't run the same course as it does in those individuals who really develop a cold and whose tissues are not made irritable by foreign agents. So-called respiratory pathogenic bacteria are present in the throat washings of people who never develop symptoms of disease. They are present in some who have colds, but killing them doesn't shorten the period of sickness of the individual. What a mish-mash of contradictions upon which to base a practice.

Yale Kneeland, Jr. sums up the medical viewpoint in the following manner: "It can be stated that the common cold is due to one or more filterable viruses and that only in highly susceptible persons is there an 'etiologic complex,' i.e., a bacterium acting in concert with a virus. The bacterial effect may be either the general intensification of symptoms already referred to or a clear-cut complication, such as purulent sinusitis or otitis."

How much simpler if physicians' befuddled brains could be washed clean of viruses and bacteria or if they could recognize the beneficial effects of bacteria. How lucid would their day be when they would know the truth. Colds develop and are not "caught." Bacteria and viruses have nothing to do with the development of coryza. They may be complicating features or function as saphrophytes feeding on the debris. They arrive on the scene when tissues and fluids are abnormal and survive as long as the tissues remain abnormal. They help clean up the debris. Our enervating way of life is the true cause of colds.

Let us look at the life of Miss Nasal Drip. She is a heavy milk drinker. Never does a day pass that she doesn't drink at least six or more glasses of milk. She is an "early" sleeper, never going to bed before 3 a.m. She overeats on starches, shunning all salads and taking very few fresh fruits. She avoids the sun because it makes her freckle. In general, she leads a very enervating life. When toxemia mounts to above her established tolerance level, which it does quite often, then her nose, like a steam valve, lets out the excess. As she never ceases her heavy starch eating even while she has a cold, but seems to eat even more, sometimes taking as many as eight small red potatoes at a time, and gulping more milk to "soothe" her irritated throat, her colds last anywhere from three to four weeks. They run on and on because cause persists. The fact that her symptoms abated markedly when she ate less food did not teach her anything. Germs and viruses have her complete attention.

When we can control the eating of anyone developing a cold—either get them to cut down or to take only water for a few days—and the symptoms of coryza invariably subside, are we to believe that this invariable phenomenon of nature is due to the whim of a virus? Or, can we safely assume that when you rid the body of the cause, the effect will cease? When favorable results invariably occur, can we not say that we have a truth, or a law of nature? Or, must we continue to bury our heads in the sand and refuse to see the truth because it is not in accord with "scientific" thought?

Shelton, eloquently, gives us the cause of colds: "Toxemia from enervation and excess is the cause of local inflammations. Any enervating influence, any influence that lowers nerve energy, will inhibit elimination and produce toxemia. For this reason, worry or overwork, jealousy or lack of rest and sleep, apprehension or excesses, may help to produce rhinitis.

"Excessive food intake is one of the basic causes of toxemia and its effects. Excesses of starches, sugars, fats and milk are especially likely to result in rhinitis and similar supplementary eliminating processes. Indigestion, whether from food excess, wrong combinations of food, eating when fatigued, eating when worried or under other emotional strain, or eating under other physical, emotional and physiological conditions that inhibit digestion, will produce toxemia."

It is often difficult for people to realize that from their first cold in infancy their tissues and fluids have been saturated with an excessive amount of metabolic wastes. Their way of life prepares their body for a long list of diseases that grow out of an established toxemia. A cold does not eliminate all the toxemia, it only brings it down to a level at which the body has become adapted to functioning.

To make this Hygienic knowledge more clear, let us designate the normal amount of waste products in the body of the nontoxic healthy baby as 1. As the baby grows and is fed improperly, and gets too little sleep and rest, is overclothed, isn't permitted to play in the sun, he becomes toxemic. When toxic material mounts to 1 1/4, the baby develops a cold to eliminate this excess waste material.

As time goes on and enervating habits continue, the baby learns to tolerate more and more toxins in the system. His established toxemia mounts to 2, and he develops a cold only when it rises above 2, then a crisis brings this back to 2, his new toleration point. As he grows older his toleration point continues to mount. He develops fewer and fewer colds and fevers but is paving the way for the development of degenerative diseases. Unfortunately for him, his bad habits of living have forced his system to learn to live with poisons, and only when toxic material rises above his toleration point will he develop a cold. This reduces toxemia to the toleration point or slightly below but doesn't eliminate it completely.

Hence the waste products remain to impair and damage structures. Only by fasting and changing the way of life can the toleration point be returned to its pristine low.

We should not fear colds in the sense that we fear to sit in a draft, or fear to go swimming, or get our feet wet, lest we "catch" cold, but we should not take the fact that we develop frequent colds too lightly. Once we have an established "toleration" for excess toxic material in the system we are paving the road for the development of more serious forms of disease, unless we change our mode of life radically. An excess of waste material produces pathology, even though it is tolerated. Such waste material causes changes in and about vital organs which are away from the ideal and decidedly detrimental to the welfare of the organism. Toleration is passive resistance. The tissues are forced to live in a state of constant toxic saturation and must resist this in the fashion that tissues do. Hardening of tissues develops and other pathologies which lower the level of health of the individual, eventually leading to disease and death.

Under the present system of medical care, cause is not understood, hence the treatment is directed at palliating symptoms, instead of eliminating cause and supplying the body with the conditions of health.

Fasting must be instituted immediately upon the first symptoms of a cold and should proceed much further than the time it takes for the symptoms to subside. In this manner the tissues will be washed sweet and clean and the long-established toxemia will be eliminated, thus raising the standard of health of the individual. Dr. Shelton states: "We should not be satisfied with a mere disappearance of symptoms. Nothing short of a complete elimination of accumulated toxins, full restoration of nerve energy and a thoroughgoing correction of the mode of living should satisfy the intelligent. This will result in genuine health."

Medical treatment is admittedly suppressive and leads to immediate complications. It lowers the body's functioning powers, causing the retention and toleration of more and more toxic wastes. Kneeland, admits that "Up to the present no specific agent has been developed which is effective against the viruses of the common cold. In consequence, therapy is directed at general management, relief of symptoms and the control of complications."

Under medical care, complications are so common that they are expected. The suppressive treatment is a direct cause of these complications. About ten years ago anti-histimenic drugs were introduced and it was claimed that if used early enough, the disease could be aborted. Kneeland states of these drugs: "Subsequent carefully controlled studies have quite failed to substantiate the original claims.

Fortunately these drugs, in the dosages employed, have been singularly innocuous as far as untoward side effects are concerned. Nevertheless, they are not recommended unless there is an allergic element present."

The fact that they are no longer recommended "unless there is an allergic element present" indicates these drugs were not completely harmless. For symptomatic relief, acetylsalicylic acid (aspirin) is used for the very young. In adults, when the cough is troublesome, codeine is added and administered in the form of a cough mixture or in the form of the traditional "grippe capsule" which contains "codeine sulfate, acetylsalicylic acid, phenacetin, and caffeine citrate." Not one of these substances helps eliminate cause. All are directed at suppressing symptoms, and therefore impair and impede the body's efforts at cleansing itself. With such suppressive treatment of colds, is there any wonder that complications such as laryngitis, tracheitis, tracheobronchitis, sinusitis, or otitis media regularly occur?

Hygiene is so much more simple, direct and effective that it is a wonder that people still run to the physician for his bag of poisons, which only increase suffering and disease. When the living habits of the individual arc corrected, he ceases to develop colds. If one feels out of sorts, and thinks a cold may be developing the thing to do is to institute a fast immediately. He should secure more rest, and reassess his way of life. He should try to conform more to the laws of life. In doing this, he is eliminating cause, not suppressing symptoms. By eliminating cause, he obviates the necessity for future colds, and future development of more formidable diseases.

It is hoped that Miss Nasal Drip will see the fallacy of the germ theory and change her mode of living so that she will not be a T.B., asthmatic, or cancer statistic in the future.

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Article #2: What To Do In a Cold by Dr. Herbert M. Shelton

"A cold is simply an effort of the system to relieve itself of its accumulated waste panicles, said accumulation resulting from overeating or inefficient breathing, or breathing of foul air ... "The foregoing words are quoted from an article by Dr. Robert Walter, which appeared in *The Science of Health* in August 1873, and well sums up the Hygienic theory of the nature of a cold and of its cause. We regard the cold as a remedial effort made necessary by a toxic state of the body. It is not surprising, in view of this, that there is no drug known that will "cure" a cold.

The U.S. Public Health Service says that nearly every person in the United States "catches" at least one cold a year, but that the average is about three colds a year. It says that in January and February some sixty million people in America have colds. The cold is the most common of all the diseases with which man suffers. It is said to disable people in this country to such an extent that two billion working days a year are lost. They are said to cost industry five billion dollars annually in lost production, wages and medical expenses.

The Public Health Service says that there is no known drug that will "cure" a cold. So determined are miseducated people to take drugs that they spend over a quarter of a billion dollars each year for cold and cough "remedies." The so-called wonder drugs—the antibiotics and sulfas—are said by the American Medical Association to have no effect on the "cold virus." It is stated that "most remedies do little more than subtract from the pocket book." Drugs that are called pain killers are said to relieve some of the aches and pains, but "do nothing for the cold."

The U.S. Public Health Service says that the best thing the cold sufferer can do is to stay at home, take a hot bath, go to bed, eat a balanced diet and wait for the body to do the rest. This is not good advice, as we will make clear in this article.

Here is a relatively mild disease that is more prevalent than any other disease with which man suffers, and one with which he has suffered throughout history. Millions of dollars have been spent in research trying to find the cause of colds and a remedy for them. Uncounted thousands of cures for colds have been discovered, given a thorough test and discarded. Today, *medical science*, about which we hear so much boasting, stands empty handed and helpless before the cold and can offer the cold sufferer nothing more than a balanced diet.

The advice of the Public Health Service contains the admission that recovery from a cold is the work of the body itself, unaided by so-called remedies. Whatever may be the nature of the cold, and whatever may be its cause, the sufferer must depend upon his own resources for his recovery. So-called medical science can offer him nothing more more than questionable palliation of some of the more annoying symptoms. Palliation is always directed at symptoms and in all cases represents the suppression of symptoms. Palliation is never an attempt to remove the causes of suffering.

For a long time efforts have been made to find a serum or a vaccine that will "immunize" the recipient against colds. Numerous such vaccines and serums have been found and have been tried and, although much money has been made from the administration of such serums and vaccines, they have one and all failed to produce immunity to colds. Often, indeed, those who have been inoculated have suffered more with colds than the uninoculated. It may seem strange to my readers that a relatively mild disease should so long and so persistently defy the efforts of the men of "science," while more formidable and less common diseases yield so readily to their vaccines and serums, to their "wonder" drugs, and to their other efforts. The men of "science" have tried to prove that they can protect us against the crunch of a tiger, but are helpless in protecting us against the bite of a house cat.

Colds are preventable; but before we can learn to prevent them, we have to learn their causes. So long as it is assumed that germs and viruses are the causes of colds, and so long as our efforts at prevention are directed at these microscopic and submicroscopic beings, the cold will not be prevented. So long as we hug the old delusion that a cold is something that we "catch" or that "catches" us, and against which we have to defend ourselves by the employment of some anti-vital and unphysiological substance, whether taken by mouth or by injection, just so long will our efforts at prevention prove futile.

The Hygienic conception of the cause of colds is that these remedial efforts are made necessary by the accumulation in the blood, lymph and tissues of unexcreted metabolic waste and by the absorption from the digestive tract of toxic products of indigestion. The ultimate cause of the cold, therefore, consists of those habits of living and eating that reduce digestive power and check excretion. In a sentence, a cold is due to a way of life that produces enervation, thus checking secretion and excretion and permitting the fouling of 'he internal environment. To use a new phrase, we may call this fouling of the internal environment a physiological smog.

When the toxemic saturation resulting from inhibited excretion and the absorption of toxic materials from the digestive tract reaches a certain intolerable state, the body initiates a process of supplementary elimination, requisitioning the mucous membrane of the nose and throat to do vicarious duty in freeing itself of the accumulated waste. The cold lasts a few hours to several days, depending on the time required to excrete the toxic debris. Due to the fact that the cold is a remedial process the sufferer recovers health in almost every instance and this enables him to credit his recovery to the aspirin he took, to the whiskey he drank, to the quinine he dosed himself with, to the hot foot bath, or to whatever else he did as a "cure." In point of fact, the Public Health Service correctly describes what occurs when it advises the cold sufferer to wait for the body to do the rest.

Aspirin is perhaps the most widely-used drug today for palliating the discomforts of a cold. *Medical News* for November 4, 1966, carried the following statement: "Salicylates (aspirin), phenylbutazone and oral cortisone drugs can cause local erosions of the gastric mucose by direct contact with the tablet, Dr. M. S. Israel told *Medical News* after the Erasmus Wilson Demonstration at the Royal College of Surgeons of England." For a number of years now it has been admitted that aspirin causes bleeding from the stomach; this discovery that the contact of aspirin with the mucous membrane lining the stomach causes an erosion of this membrane explains why the bleeding occurs. It just does not make sense for a man suffering with a cold to dose himself with a drug that produces such damaging effects, along with many other damages. Certainly, he should be better off if cared for by helpful means rather than by means that are productive of damage. It is certain that the depressing effect of aspirin prolongs the cold.

The duration of a cold may be shortened by means that increase toxic elimination through the regular channels of excretion. These means will also decrease the headache, fever, soreness of the throat, huskiness of the voice, sneezing, running of the nose, watering of the eyes, etc., that constitute symptoms of a cold. The best means of promoting elimination is to go to bed in a well-ventilated room, keep warm, and take nothing into the stomach except water and this only as thirst demands. Fasting and rest will not only make the cold sufferer more comfortable and reduce the likelihood of complications, but they will definitely shorten the duration of the cold and do all of this without the production of unwanted side effects. The advice of the Public Health Service to eat a balanced diet completely ignores the lack of physiological demand for food and the absence of the physiological conditions necessary to the efficient digestion of food. Drugging and feeding are the chief causes of complications in colds and the chief reasons that colds frequently evolve into more serious diseases.

Article #3: Influenza

The *San Antonio Express*, December 30, 1959, carried the story that the number of cases of influenza in the city had reached near-epidemic proportions. "The old flu bug, and kindred respiratory and intestinal diseases, have reached near epidemic proportions in San Antonio," are the words of the news item. It adds that a check showed that "patients seeking treatment for virus influenza, pneumonia and similar disorders are crowding hospitals to capacity and swelling the emergency load to record highs."

There is nothing unusual about the great increase in colds, so-called "flu," which is a severe cold, pneumonia and intestinal diseases following upon the heels of the gluttony and the indigestible combinations of the holiday season. What is unusual is the public admission that the standby of the medical profession as a preventive of such suffering is a flop. The news account says that William Foster, administrator of the Bexar County Hospital District, said: "13 of the hospital's 259 employees, including the supervisor of the emergency room and the supervisor of surgery, were downed by the flu despite the fact immunization shots were given against the disease."

The city's largest hospital reported a "high incidence of respiratory and intestinal flu cases from Christmas day on." The hospital physicians stated "flatly," that the situation is "abnormal" and is "approaching an epidemic." From fifty to eighty percent of the patients admitted to this hospital were "flu sufferers." More youngsters than adults were ill. Foster reported that of 182 patients with upper respiratory affections 117 were children.

Physicians offered some free advice through the press about how to prevent the "flu" and how to care for yourself, should their preventive advice come too late. It is the usual hackneyed and ineffective advice, such as avoiding contact with "flu" cases, avoiding overexposure to cold, drink plenty of water and guzzle fruit juice—they did not even bother to advise fresh rather than canned fruit juice. Of course, they agreed that while "immunization shots" are not 100 percent preventive, they "are effective."

There was but one sane statement in all that they said, so far as this appeared in the press. "Intestinal flu, the doctors say, comes from overeating and overcelebrating, with a subsequent loss of rest. It is especially prevalent during the holidays." This is old stuff to Hygienists. For lo! These many years we have been telling people that epidemics follow feasting and revelry.

Reread this statement by the San Antonio physicians and then read again, the following paragraph from the December 1959 issue of the *Hygienic Review* where I say: "It is unfortunate that our seasons of good will and festivities are always seasons of overeating (commonly also of drinking), so that they are followed almost inevitably by colds, coughs, 'flu,' and more severe illness. Beginning with the orgy of Thanksgiving, extending through the revelry of Christmas and ending with the bacchanalia of New Year's, our periods of festivity not only result in hundreds of deaths and much mayhem on the highways, but in more suffering and death from indulgence and excess. More bronchitis follows such indulgences than ever follows exposure. Those who are more moderate in indulgence, those who are least enervated and least toxemic escape the evolution of crises at these times, but often, they escape by the 'skin of their teeth.' "

More children than adults are suffering with "flu" in this near epidemic, not because the adults behave themselves very well, but because they have built less toleration. Candies and cookies and soft drinks make up a great part of the burden they impose upon their digestive tracts and their eliminating organs. With the adults, they go to the dining table and gorge themselves on turkey and dressing, on cranberry sauce and plum pudding or mince meat pie. The amount of putrescence thus generated in the digestive tracts of these youngsters would kill a jungle tiger. It is ridiculous to talk of germs and viruses in the presence of so much poisoning.

No digestive tract known to man is capable of efficiently digesting the food mixtures eaten by children and adults alike in our periods of celebration. It is just possible, as was suggested by Tilden, that the adults save themselves to some extent by their drinking habits. Alcohol inhibits bacterial activity, hence their wine, beer and whiskey prevents more or less decomposition of the indigestible mixtures they swallow at these times.

Late hours, revelry, noise-making, excitement, visits away from home, lack of sleep—these enervating influences inhibit secretion and check excretion. Add the resulting toxemia to the putrescent poisoning from the overloaded digestive tract and you have enough poisoning to produce any so-called disease to which the individual may be diathetically disposed. A people who celebrate the birth of their Savior by getting drunk, making a lot of noise and eating like hogs must expect to pay for their folly, even though they do their celebrating "in a good cause."

To inundate the intestinal putrescence evolved out of such gross eating and out of so much added enervation with large quantities of water and to swill great quantities of fruit juice, these commonly canned and sweetened, is but to add insult to injury.

The physicians advise: "Stay in bed until the disease has run its course. In cases of upper respiratory flu, the sufferer tends to become tired but apparently recovers after a short rest. Arising too soon, he is subject to a serious relapse which makes it easy to go into pneumonia." Rest in bed is vitally important in these cases, but if this is coupled with the water drinking and fruit juice guzzling that is advised, there will be more likelihood of pneumonia evolving out of the putrescence than if a rational plan of care is adopted. Indeed, one may be practically certain that no pneumonia will evolve if he forgets the advice to "drink plenty of water and fruit juice" and will take no food of any kind and will drink only according to the dictates of thirst.

One does not have to come in contact with other cases of "flu" in order to evolve the symptom complex that is labeled influenza when the intestinal tract is a seething mass of putrescence. Nor will avoiding such contact prevent "flu" when the subdiaphragmatic cesspool is filled to overflowing. Colds, pneumonia, intestinal "diseases" and other symptom-complexes are as inevitable under these conditions of acute and chronic poisoning as the explosion of a boiler when the safety valve is stopped down.

How absurd to talk of preventing the evolution of these and similar symptom-complexes in the face of so much poisoning, by the irrational process of shooting more rubbish into the body! Vaccines and serums are efforts to prevent causes from producing their natural effects. They mean that you can be poisoned and not be poisoned. "Immunization" is like trying to prevent drunkenness in the man who drinks. I am reminded, at this point, of the famous serum I invented thirty years ago that I called blisterine. After three inoculations with this serum, a man could sit upon a red hot stove or pass through a firey furnace and not even get hot. He would not burn for he was *immunized*. I was unable to find a manufacturer for my serum, as it was thought that such a serum would put the firefighters out of business.

When we have learned that we are builders of our own miseries, are architects of our own pathologies and makers of our own "diseases," we will be prepared to live sensibly, even during periods of celebration. I enjoyed my oranges on Christmas day and developed no cold or "flu" being out in the cold with only enough clothes on to keep out of jail. More than forty years of going with so little clothes that all of my friends have predicted that I will die of pneumonia (several of them have) and developing no trouble as a consequence has convinced me that "over-exposure to cold" is a minor factor in the evolution of any symptom-complex, unless it is frostbite. I have seen as many as four generations of the same family who suffered with frostbite and am sure that any good geneticist will agree that this was due to a *mutation*.

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Lesson 71 - Allergies, Hay Fever, And Other Chronic Diseases

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1. Introduction

An estimated 40 million Americans have hay fever. Another 9 million suffer from asthma; and between 10 and 20 million have had hives at one time or another. An unknown number have food allergies, reactions to insect stings or occupationally-related allergic disorders. Over 80 million people suffer allergies.

Scientists estimate that one in every three Americans will develop hay fever, asthma, hives or some other allergy at some point in their lives. These scientists say that they believe they will have the "cure" for allergies in perhaps five to ten years. While Hygienists have no "cures," allergy sufferers do not have to wait five to ten years to terminate their suffering. The purpose of this lesson is to enable sufferers to rather quickly overcome their problem. It will explain what to do so that allergy symptoms are never again experienced.

Scientists feel as though allergy is now one of the best understood conditions since they discovered the antibody-antigen theory. One might ask, if they understand this condition so well, why is it that one in every three continue to suffer from this disease under their care? Hygienists do not have allergies. The scientists further say that their treatments for allergies are far better than they have ever been and far more effective. How effective can their treatments be when not one of their patients ever regained their health from such treatment? When they are merely holding forth a hope of a "cure" five to ten years down the road? Scientists claim that they understand allergy is proven a lie by the fact they have no solution. It they understood allergy problems, they'd readily solve them as have Hygienists. Sufferers would be guided to a solution in a few days to a few weeks. This lesson presents a comprehensive solution, and any medic who understands less than this really understands nothing.

The medical community is constantly fighting against germs that "constantly wage war on human flesh." This is a completely false idea since germs or bacteria are a normal and integral part of the body and perform important and useful symbiotic functions. They do not attack us. Instead, bacterial flora work for the welfare of the body. Physicians explain that the "immune" system protects and guards against harmful foreign invaders. Allergies occur, they say, when this "immunological" defense system becomes overzealous and tries to protect us from things that don't actually harm us. Dr. Sheldon Spectner, a Los

Angeles allergy physician says, "When the immune system attacks and destroys a dangerous bacterium or virus, that's great; but when it attacks pollen, dog dander or chocolate ice cream, that's an allergy."

White blood cells do have the property to "engulf" and destroy spent cells, viruses, bacteria and other cellular constituents no longer useful to the organism. Unwholesome foods such as chocolate ice cream will eventually result in toxicosis that will soon create the need for an eliminative crisis which is termed "disease." Mucus, secreted due to toxicosis, will sensitize membranes linings, rendering them more sensitive to elements such as pollen, but the body does not turn against itself. The body always strives toward the welfare of the organism.

A recent newspaper article stated that as many as 4000 people die of asthma each year. This article further stated that nearly 200,000 hospitalized patients suffer allergic drug reactions annually and an additional 50,000 are put into the hospital because of drug reactions. As you can see, the "cure" is much worse than the "disease." Below is a quote from the same newspaper article: "Because allergens are basically harmless, why does the body react to them in such a way as to hurt itself?

"Scientists now think that the IgE antibody defense mechanism originally evolved to protect us from such parasites as hookworm. But, because parasites no longer are a problem for Americans and the peoples of other industrialized nations, the powerful IgE antibodies have turned their attention to pollen and other allergens, mistaking them for parasite-like enemies."

The above statement demonstrates ignorance of physiology and the body's innate wisdom. It is based on superstitious notions from primitive limes when it was believed that evil spirits were the cause of illnesses. Our faculties do not turn against us. If they did, every human and animal would demonstrate these symptoms as we all possess the same mechanisms within our bodies.

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2. Allergies

Most people welcome spring and summer and look forward to these months as the best time of the year. To most people, the first signs of spring brings joy and anticipation of outdoor activities, beautiful spring flowers, the opportunity to garden and enjoy the fresh produce from their backyard. Some, however, dread this time of the year because they merely look forward to feeling miserable and sick until the leaves fall and winter has once again arrived. These people are said to be "allergic." They are sensitive to pollens, weeds, grasses, trees, dust, insects and assorted other things in our normal environment.

Typical symptoms include sneezing, wheezing, watery eyes, itchy eyelids and the like. Other symptoms may include redness and inflammation of the skin with itching and draining of fluid.

2.1 Disease Is Abnormal

All disease, whether it is a cold, flu, asthma or allergies, is abnormal. The body always strives to maintain a state of health which is normal. If the need arises, the body is capable of taking measures to maintain this state through the extraordinary elimination. To effect this, the body institutes a healing crisis which we call illness or disease.

When toxic waste products and toxic *ingesta* accumulate in the tissues beyond the body's toleration point, an effort will be made to expel them through various channels. These channels are the skin, lungs, mucous membranes, bowels; kidneys; etc. Individuals who are said to be "allergic" are experiencing a perpetual "healing crisis" by way of the mucous membranes of the nose, throat, bronchi or through the skin. The toxins being voided via this route sensitize these organs so that pollens, dust, hairs, etc., initiate a defensive reaction such as sneezing, runny nose, etc. The pollen is thus not a primary cause but an exacerbating factor.

2.2 Only Some People Are Sensitive

Does it make sense that people should be "allergic" to things in their normal environment? If pollen, trees, flowers, ragweed, grasses, etc., are poisonous, should not everyone be affected? These items are part of our environment, and we live symbiotically with all plant life and its effluvia. Plants are not something for us to avoid and dread but to enjoy and appreciate for their beauty and usefulness. We also live in harmony with animal life.

During the summer months, the "allergic" individual often seals himself indoors and attempts to remove himself from the substances to which he is sensitive. However, instead of searching out the items to which a person may be sensitive, attempts should be made to discover the reason for this abnormal sensitivity.

2.3 Antibody-Antigen Theory

The development of the antibody-antigen theory was presumed primarily on the idea that bacteria and "viruses" cause disease and that we must somehow create "immunity" from the "invasion" of these agents. The antibody-antigen theory also gave the scientists a basis for the practice of vaccination.

According to the generally accepted medical theory, the "immune" response resists invasion by infectious microorganisms. Two "immune" systems are distinguished; in each a different population of lymphocytes is activated and a different agent combats the invasion. In one, the B-cell system, the response is mediated by proteins, called antibodies. In the other, the T-cell system, the response is mediated by specialized cells sensitized to foreign substances. The B-cell system is said to be most effective against acute bacterial "infections," such as those caused by streptococci, pneumococci, and some "influenza" bacilli and meningococci, and against "viral reinfections." The T-cell system is most active in combating "viruses," fungi and bacteria causing chronic "infections." This theory is misleading.

Disease is the consequence of an accumulation of toxic materials in the tissues due to unhealthful living. We cannot make ourselves immune to such consequences while we still persist in unhealthful living habits. The body initiates the disease (healing) process to eliminate toxins in order to preserve health. There is no "immunity" against this healing process. Also, bacteria and viruses do not cause disease. As explained, disease is a vital process of healing and bacteria have a role to perform in this process. They act as scavengers cleaning up toxic debris and as soon as their role is completed, their, numbers will decline. For this reason, they are associated with disease processes, but are not its cause. They no more cause disease than flies cause garbage. "Viruses" are cellular debris—they are the genetic material from dead cells. As dead material, viruses are toxic and pathogenic but not malevolent.

The entire theory of antibody-antigen is based on false ideas concerning the nature of disease. It is said that both B- and T-cells are lymphocytes and are produced in the red bone marrow and thymus gland. These cells are said to be found in the lymph, the bloodstream, and lymphoid tissue, which constitute the bulk of lymphoid organs. Lymphocytes are white blood cells which are present in the blood of all healthy individuals. Like all white blood cells, they perform important defensive functions, however, creating "immunity" to body-initiated disease is not one of their functions.

The triggering agents of the so-called immune response are called antigens. Antigens are said to provoke rapid cell division, with the formation of distinct clones (colonies of cells arising from a single parent cell) in lymphoid tissue. The cells thus produced by successive cell division are said to become more and more specialized. The end result of B-cell proliferation is the formation of cells, called plasma cells, that manufacture identical antibodies constructed to combine selectively with the triggering antigen.

It is thought that if a person was inoculated with a specific antigen, production of antibodies would occur to build up "immunity" against that particular antigen. This is the theory behind vaccinations. However, there is a wealth of documented evidence that many more deaths resulted from the vaccines themselves than from the diseases they were supposed to prevent. Vaccines are composed of poisonous materials and are always harmful when injected into the bloodstream. Also, with the knowledge of the true nature of disease and the need for this healing process, it makes the vaccination theory even more invalid.

Since antibodies are proteins classified as globulins and are said to have immunological properties, they are called immunoglobins. There are supposed to be five classes of immunoglobulins but the so-called IgE is the most common. IgE antibodies are called reagins; antigens that react with IgE are called allergens. When allergens enter the body and react with reagins which are affixed to mast cells, the mast cells rupture and release massive amounts of histamine and other substances. This reaction is said to be the cause of the symptoms of allergic reactions such as the swelling in the nasal passages with hay fever and in the skin with hives.

Histamine is a substance secreted as a normal part of the inflammatory reaction which is part of a healing process. This substance is kept in proper balance by the body's homeostatic controls. When too much histamine is present (in the body, a substance called histaminase will be released to reduce the amount of histamine in the blood or tissues.

The entire concept of the antibody-antigen reaction was created on erroneous concepts of the germ theory, immunity and vaccinations. It is not valid as you'll see.

2.4 Underlying Cause of Allergies

It is more important to know what makes one sensitive than to know what he is sensitive to. Most allergy sufferers have chronic catarrh and have had it for many years, even before manifesting signs of sensitivity. Even after the "allergy season" has past they still suffer from catarrh and experience frequent colds during the winter.

What caused the chronic need for the body to eliminate its toxins in this manner? The causes may be many but basically it is unhealthful living that creates the problem. Overeating or eating in unsuitable combinations, lack of exercise, impure drinking water, living in unventilated houses or working and living in smoke-filled rooms, lack of sleep and rest or stress and emotional upsets may be the underlying factors in the development of catarrh in the mucous membranes, resulting in sensitivity to certain irritants. The lining of the membranes become inflamed and very sensitive to irritation. Inflammation that renders the membrane abnormally sensitive to the normal elements of man's environment.

Inflammation is a symptom of healing and if causes are removed, healing will be swiftly completed. If a person continues to live healthfully thereafter, there will be no further need for the disease (healing) process.

2.5 What Not To Do

Many allergy sufferers are given anti-inflammatory drugs to suppress the uncomfortable symptoms that they are experiencing. Cortisone is one drug often prescribed and most often given, through injection, by the physician. At best, cortisone only reduces the symptoms for a brief length of time after which symptoms reappear and another injection is given. Much harm is done through this poisonous practice.

When hormones are injected into the body from without, the body's delicate balance of action and reaction to maintain homeostasis is disrupted. Anti-inflammatory corticoids include cortisol and cortisone which are secreted by the adrenal glands that are located on top of each kidney. Normally these hormones are secreted when a messenger lets them know that they are needed. This messenger is called ACTH (adrenocorticotrophic hormone) which is secreted by the pituitary gland. The adrenals can also produce pro-inflammatory corticoids; but this is regulated by a variety of complex factors, among which

ACTH plays only a minor role compared to renal blood pressure regulators and electrolytes.

By changing the proportion between pro- and anti-inflammatory stimuli, the body can regulate inflammation in response to local injury.

All other outside agents such as antihistamines, decongestants, etc., are harmful and suppress (depress) the healing ability of the body. Inasmuch as they do not remove the causes of allergy, there can be no correction.

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3. Bronchial Asthma

Bronchial asthma is defined as "a disease marked by difficulty in breathing, coughing, and a sense of constriction, due to bronchial spasm and a swelling of the bronchial mucous membrane." Asthma can occur secondarily to a variety of stimuli. Mechanisms responsible for attacks of wheezing may be an imbalance of adrenal hormones or poor nerve control of airway diameter. These imbalances do not occur in a healthy individual but usually occur after drug therapy or other unhealthful practices.

Persons whose asthma is preceded by exposure to airborne pollens and molds, house dust or animal danders are said to have allergic asthma.

3.1 Symptoms

Individuals with asthma differ greatly in the frequency and degree of their symptoms. Some have only an occasional episode, mild in degree and of brief duration. Others have mild coughing and wheezing much of the time punctuated by severe increase of symptoms following exposure to known allergens, exercise or other irritants.

An asthma attack may begin suddenly with episodes of wheezing, coughing, and shortness of breath, or slowly with increasing symptoms and signs of respiratory distress. In either case, the patient usually first notices the onset of lack of breath, rapid breathing, coughing, and tightness or pressure in the chest, and may even notice audible wheezes. All of this may subside quickly or persist for hours to days.

3.2 Treatment

The usual medical approach for the treatment of bronchial asthma is to attempt to identify and control the environmental irritants. This is followed by drug therapy. Frequently used drugs include epinephrine, isoproterenol, ephedrine and corticosteroids, among others.

These drugs should never be used; they result in enervation and poisoning of all the organs, especially the central nervous system, and result in some measure of damage and disorder to every organ of the body. Among all the deadly drugs, some of the worst include the above named hormone-derived drugs. The notion of "cures" is an illusion. The only healing that can be experienced comes from within. Only the body possesses this capability. To realize healing the body merely has to be given a chance to perform its normal functions without interference.

Little good will be achieved by searching for the various irritating environmental agents if the source of the sensitivity is not eliminated. If we continue to build a state of toxicosis, the need for disease will always remain with us.

3.3 Cause of Asthma

According to medical writers, the cause of asthma is "hypersensitivity," and they divide this sensitivity into two classes: (1) Those sensitive to ingested substances such as oysters, meat, eggs, etc., and (2) Those sensitive to air-carried irritants—pollens, emanations from horses, cats, dogs, feathers, dust, etc.

According to Dr. Shelton, this protein hypersensitivity or allergy is merely another name for protein poisoning, that is, overconsumption of protein foods in those of a neurotic diathesis.

The immediate cause of the bronchial spasm, according to Dr. Shelton, is an irritation of the nerve endings of the vagus nerve which supplies the bronchi. Drugs, some foods, gas and indigestion, occasion reflex irritation of the nerve endings in the bronchi and bring on a paroxysm of asthma.

Breathing cold air, dust, pollens, gasses, foul odors, and other such things, produces a direct irritation of nerve endings in the lungs and brings on the symptoms.

If water, irritating foods, drugs, pollens and other things which are in our normal environment were the primary or direct causes of asthma, everyone would be afflicted with this condition. The underlying cause of asthma is that which sensitizes the nerves and the bronchial membranes.

The underlying cause of bronchial asthma is a state of toxicosis. If asthmatics were not enervated and their tissues were not saturated with toxins, there would be no hypersensitivity. All asthmatics have a chronic catarrhal condition. Those individuals with a neurotic diathesis will have asthma, while other individuals may develop colds or flu or other eliminative symptoms.

Asthma is brought on by overeating wrong foods or wrong combinations of foods or by other enervating indulgences which are wrong. The body's eliminative abilities are taxed beyond its capacities, and toxins build up in the blood and tissues.

In asthmatics, the finer bronchial tubes and the air cells of the lungs contract, and air entry into the lungs is severely reduced. The entire volume of blood cannot be sufficiently oxygenated and purified. Palliative treatment in the form of drugs only adds to the enervation and toxicosis while the underlying cause is not corrected.

When the underlying toxic condition is eliminated, all forms of sensitization disappear. When the asthmatic gets rid of toxemia, he automatically rids himself of all sensitivity to dogs, cats, horses, pollen, dust, etc.

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4. Eczema

Eczema is a chronic form of dermatitis (inflammation of the skin). The skin becomes red, and fluid-filled pimples, called vesicles, may form, or crusts and scales may develop on the skin surface. Usually the area itches. Scratching the skin destroys the pimples or removes the crusts and scales. For this reason, the appearance of the area changes.

Doctors believe eczema is usually a form of allergy that results from extreme sensitivity to some substance. The substance may be in something the person eats, or it may be found in his surroundings.

Some of the more common substances which are said to cause eczema are plants and trees, citrus fruits and onions, chemicals, medications, cosmetics, household detergents and polishes; and a number of fabrics including wool, silk, synthetic fibers, leather, fur, and dyed goods.

Contact dermatitis may be caused by a primary chemical irritant or may be what the physicians describe as "delayed hypersensitivity reaction."

Direct irritants may damage normal skin or irritate an existing dermatitis. Weak or marginal irritants, such as soap, may take several days of exposure to cause visually recognizable changes. Many soaps, deodorants, detergents, etc., contain harsh chemicals which are poisonous and may be absorbed through the skin. The body recognizes these poisons and tries to stop them from entering the system by initiating an inflammation response to local and "encapsulate" these poisons. Strong irritants, such as acids and alkalis, cause observable changes within a few minutes. These actually cause direct damage to the skin and the inflammatory response is immediate.

Medications, cosmetics, household cleaners, etc., all contain poisonous substances which are rejected and eliminated by the body. In certain individuals, this elimination occurs through the skin in the form of eczema. The wisest thing to do is simply not to use these toxic chemicals. Cosmetics are not needed as the skin of the healthy individual has a beautiful color which cannot be enhanced by cosmetics. Care should be taken in choosing household cleaners. Use only those which do not have harmful ingredients. Shakley's Basic H is quite good.

Allergic contact dermatitis is also said to be due to delayed hypersensitivity and requires a latent period ranging from five to six days to years between the time of first exposure and re-exposure that preceded that dermatitis.

Topical medications most often used include antibiotics, antihistamines, anesthetics, antiseptics and stabilizers. These are poisons and result in toxicosis. The reason that the symptoms of eczema do not appear immediately is that these toxins are often stored in the tissues and accumulate there until a saturation point is reached. At this point, the body initiates a "housecleaning" and begins to eliminate these toxins, and the skin is one route taken. At this time, eczema appears. It has really nothing to do with being "allergic." These toxins are eliminated through the skin in some individuals; in others the route would be elsewhere and termed a different disease.

Avoid toxin-building practices, and the need for eczema will not exist. It has been contended that eczema is also due to allergic reactions to normal elements in our environment, and is associated with the presence of IgE antibodies and peripheral eosinophilia. First of all, the underlying cause of eczema is the same—toxicosis. Secondly, the presence of numerous white blood cells including lymphocytes and eosinophils indicates that an inflammatory response is in progress and healing is taking place. All we must do is to allow the healing to take place and not add any further toxins to impair the body.

Hypersensitivity to wholesome foods, such as citrus fruits, is always due to a state of toxicosis and steps should be made to remove the need for eczema through a more healthful lifestyle.

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5. Hives

Acute hives is generally recognized among the medical community as an antibody-antigen reaction limited to the skin and subcutaneous tissue. It is often due to drug allergy, insect stings or bites, desensitization injections, or ingestion of certain foods, especially eggs and shellfish, some food reactions occur explosively following ingestion of only minute amounts. Others may occur only after over-indulgences.

It is thought by many physicians that hives may accompany, or even be the first symptom of, several "viral infections," including hepatitis, "infectious" mononucleosis and rubella. However, such diseases only follow hives after, they have been suppressed by drugs and the body finds other outlets for its toxin load. The secondary diseases are worse, as more toxins have accumulated and vital energy has been lowered through treatments. Chronic hives is due to the use of drugs, preservatives, dyes or other food additives which have overtaxed the body and resulted in chronic toxicosis.

5.1 Symptoms

In hives, severe itching is followed shortly by the appearance of wheals that may remain small or may enlarge. The larger ones tend to clear in the center and may be noticed first as large rings of redness and edema. Ordinarly, crops of hives come and go. A lesion may remain in one site for several hours, then may disappear, only to reappear elsewhere.

Hives may occur following drug treatment or after ingesting unwholesome foods such as eggs or shellfish. These agents possess toxic substances which the body must eliminate in order to preserve life. In some individuals, this elimination occurs through the skin in the manner called hives. This again, is a healing crisis—one which we should cooperate with and never meddle with. In a more chronic form, this skin "disease" is due to toxicosis which has built up over a period of time due to unhealthful living habits.

Often the symptoms may occur after an emotional upset, but this is not the primary cause. An emotional disturbance will not elicit hives in a healthy individual. Toxicosis must be present in order for this skin reaction to occur.

This inflammatory reaction is associated with a number of white blood cells which are a part of all inflammatory processes. They are a part of healing and not "turning against the body" as is said. This is a false idea—the body does not turn against itself but always strives toward what is best for the body as a whole.

5.2 Chemicals and Processed Foods

Many people demonstrate symptoms of hives after ingesting foods containing chemical additives. This is especially true of people who have hives nearly all the time. In a study at the University of Uppsala, Sweden, persons who had frequent cases of hives were tested with various substances. Half of them had adverse reactions to food dyes and preservatives in amounts that could easily be present in the conventional daily diet. Most of those who were hypersensitive to dyes and preservatives also reacted to aspirin.

The chemicals which are added to processed foods are poisons. Those people who showed symptoms of hives were eliminating these poisons through the skin. Others will eliminate these poisons through other means and a healing crisis will be in the form of a cold or flu or something else. Processed foods, whether they have chemical additives or not, will result in toxicosis when ingested.

They are unbalanced and most, if not all, of their valuable nutrients have been destroyed. You should certainly not partake of processed foods.

The symptoms of hives should not be suppressed through ointments or by any other means. We should, instead, remove the need for this disease by avoiding all processed foods and drugs and by obeying the laws of health.

6. Gastrointestinal Allergy (Food Allergy)

Food allergy is defined in the medical textbooks as "an uncommon symptom complex due to ingestion of specific food or drug allergens, manifested by nausea, vomiting, crampy abdominal pain, and diarrhea." According to *The Merck Manual*, gastrointestinal symptoms from food are often secondary to digestive enzyme defects as in celiac disease and disaccharidase deficiency.

Celiac disease is intestinal malabsorption characterized by diarrhea, malnutrition, a bleeding tendency and low calcium in the blood. The presence of this disease is just another symptom of toxicosis and an enervated state of the body. When the need for this "disease" is eliminated by the body, this condition will be corrected along with allergy symptoms.

Disaccharides are complex carbohydrates which must be broken down into two monosaccharides in order to be absorbed. This is accomplished by certain enzymes which are always present in healthy individuals. If a person is enervated and toxic, bodily functions are impaired and malabsorption may occur. If we remove the causes, the body will heal.

6.1 Symptoms

The severe but rare acute reactions to food are characterized by nausea, vomiting, diarrhea and violent abdominal pains. Less severe reactions—chronic crampy pain, diarrhea and, Often, skin rash—are more common.

These are typical signs of not only food poisoning but any kind of poisoning where the body rejects this substance to protect its integrity.

6.2 Normal Digestion Entails Neither Indigestion Nor Allergy

Such affections as hay fever, asthma, eczema, certain cases of sinusitis, headache and other troubles are often attributed to food allergy. These symptoms indicate acute eliminative response involving a great tax upon the body and requiring the cooperative efforts of several organs. The chief concern is not with the character of the reaction but with the causes of the need for the reaction.

Dr. Shelton points out that if undigested proteins are injected into the body, they produce disease, while the same protein taken into the bloodstream after thorough digestion produces no trouble. He concludes that food allergy is due to failure of the digestive system to properly prepare the food for introduction into the blood. This failure may be due to the following reasons:

1. Weakness of the digestive function. Putrefactive bacteria in the intestinal tract decompose proteins and form toxic substances which may be absorbed. Toxicosis is present in all cases of allergy.
2. Unfitness of certain types of protein food for assimilative purposes. Many of the proteins of our conventional diet require a large amount of breaking down by the digestive juices, a task often beyond their powers. It taxes the strongest powers of digestion to deal, with the highly-complex animal albumens—the more complex these are, the more tax they place upon the organism. Allergy has never been observed as the result of a fruitarian diet.
3. Food taken in excess of the normal capacity of the digestive enzymes. All allergies result from a long-standing poisoning of the body by protein excess.
4. Foods taken under physical or psychological stress will not be digested properly. Wrong combinations of food, work, fatigue, fever, pain, fear, worry, anxiety and other emotional factors inhibit the digestive functions.
5. Proteins, if cooked, coagulate and do not digest. Their subsequent putrefaction results in many

toxic byproducts.

Hygienists know that protein allergy is the outgrowth of toxicosis. An impairment of the nervous system due to toxicosis results in impaired digestion, checked elimination and a derangement of all of the nutritive and defensive faculties of the body.

Many of the organs of the body produce a substance called histaminase, which serves to neutralize histamine, thus defending the body against its influence. Any derangement of the nervous system and any general toxic state will result in the inability of the various organs and tissues to produce the neutralizing substances necessary to counteract the poisons entering the body from the digestive tract. Allergy is impossible in the healthy individual.

6.3 How Not to Create Food Allergies

In order not to have food allergies, you should take these simple measures:

1. Restore and maintain the efficiency of the digestive system. This can best be done by giving the digestive tract a thorough rest through a fast. After that, healthful living will maintain efficiency.
2. Eat only such protein foods to which we are biologically adapted. This would consist of the proteins found in fruits, vegetables, nuts and seeds.
3. Do not consume proteins in excess of digestive capacity. When nuts or seeds are eaten, they should be limited to a maximum of 4 ounces per day. We can do very well on less than this, however.
4. Eat all foods in proper combinations and under such physical and emotional conditions that will not inhibit digestion.

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7. Allergy And Hyperactivity In Children

7.1 History

As early as 1908, reports were published in medical literature stating that some children were noted to be fretful, irritable, restless and unable to sleep if they ate certain foods. It was wondered if some children had an allergy that affected their brain or nervous system rather than the lungs as in asthma or the nose as in hay fever. Early investigators often described some children as being extremely tired or fatigued rather than overactive. Sometimes the same child was too tired at certain times and too hyperactive at other times. Others noted that foods seemed to change some children's behavior so that they acted depressed, hostile or irritable. As the years passed, it was observed that pollens, dust, molds and certain odors such as perfumes could cause similar reactions in some patients.

In 1930, Albert Rowe described a condition which he called "food toxemia." In a book entitled *Food Allergy*, he and his son recounted numerous patients who had drowsiness, irritability, fatigue, weakness, slowness and inability to behave. He devised very strict diets that appeared to help many patients who had typical forms of allergy, as well as nervous-system problems. Dr. Rowe firmly believed that foods, as well as pollens and dust, could contribute to psychological and nervous-system problems in some patients.

During the 1940s and 1950s more and more reports described similar patients. Dr. Theron Randolph described "allergic fatigue." He stressed that, at times, affected children and adults acted normal, but after eating certain foods or being exposed to offending odors or chemical substances, their behavior became distinctly abnormal. Some became very tired, others hyperactive. He noted affected individuals often had a rather pale face but were not anemic, and had swelling and black circles under their eyes.

In 1975, Dr. Ben F. Feingold of San Francisco wrote a book entitled *Why Your Child Is Hyperactive*, which was publicized quickly throughout the nation. In this book, he states that he believes hyperactivity is mainly due to artificial food coloring, artificial flavors, and salicylates.

Hygienists know that foods do not have the property to act upon the body. However, unwholesome foods such as those which are highly processed and contaminated with chemicals can intoxicate the body. In certain individuals who are prone to nervous conditions, the accumulation of these toxins could result in hyperactivity and other abnormal behavior. In these individuals, the brain and nervous systems demonstrate the effects of unhealthful living.

7.2 Symptoms

In her book, *Allergies and the Hyperactive Child*, Dr. Doris J. Rapp describes the symptoms of children who are considered to be allergic and have a central nervous system diathesis.

Nervous System Symptoms

1. Hyperactive, wild, unrestrained
2. Talkative (explosive, stuttering, constant)
3. Inattentive, disruptive, impulsive
4. Short attention span
5. Restless legs, finger tapping
6. Clumsiness, incoordination, tremor
7. Insomnia, nightmares, inability to fall asleep
8. Nervous, irritable, upset, short-tempered
9. High-strung, excitable, agitated
10. Moody, tired, weak, weary, exhausted, listless, depressed
11. Easily moved to tears, easily hurt
12. Highly sensitive to odor, light, sound, pain, and cold

Other Physiological Symptoms

1. Nose: year-round stuffiness, watery nose, sneezing, nose rubbing
2. Aches: head, back, neck, muscles, or joints, or aches unrelated to exercise
3. Stomach problems: stomach aches, nausea, upset stomach, bloating, bad breath, gassy stomach, belching, vomiting, diarrhea, constipation
4. Bladder problems: wetting pants in daytime or in bed, need to rush to urinate, burning or pain with urination
5. Face: pale, dark eye circles, puffiness below eyes
6. Glands: swelling of lymph nodes of neck
7. Ear problems: repeated formation of fluid behind eardrums, ringing ears, dizziness
8. Excessive perspiration
9. Low-grade fever

The above symptoms are all indications of toxicosis. Clearly, the body is attempting to eliminate toxins through the many and varied channels that it has for this purpose. Toxins are thus eliminated through the mucous membranes of the nose, through the urine via the kidneys, through the glands, etc. Indigestion from eating wrong foods results in pain, nausea, and other symptoms listed.

7.3 Determining the Cause

Great effort is made to determine what foods these children are allergic to. Finding these individual foods does not remedy the problem if the underlying cause still persists.

Dr. Rapp suggests going through a certain procedure to determine which foods are causing the adverse reactions. Once this is determined, this food is diluted into homeopathic doses, and given back to the child with an eye-dropper under his tongue. One drop is usually given. The child is then allowed to eat the food he was allergic to without restriction. This procedure cannot restore health.

All children who demonstrate food "allergies" have a history of consuming large amounts of junk foods: highly-processed food such as potato chips, salty french fries, candy, cakes, soda pop, etc. These foods quickly contribute to a toxic condition and the body must eliminate them in order to maintain balance.

The foods to which Dr. Rapp found most children "allergic" include milk, wheat, sugar, eggs, chocolate and food dyes. All of these foods contain toxic properties and will result in toxicosis in everyone who consumes them. Some children with neurotic diathesis become hyperactive, others may develop colds, others may develop asthma or tonsilitis or something else.

Mother's breast milk is the perfect food for babies, but after weaning they don't need it, *especially* not cow's milk. We lose the ability to properly digest milk because of the lack of the enzyme lactase to convert the lactose in in milk to glucose and galactose. Improperly-digested milk ferments in the stomach and contributes to toxicosis.

Wheat is a highly acid-forming product. It is almost always ground into flour, made into bread and pastries and combined with other unwholesome and incompatible substances.

We all know sugar is bad for us. It is a highly-refined product totally without nutrients and therefore *depletes* needed minerals from our bones and tissues. It is one of the main causes of many degenerative diseases such as osteoporosis, arthritis, heart disease, diabetes, hypoglycemia and others.

Eggs are hard to digest, have a high-cholesterol level. and contain many toxic elements including avidin which binds biotin, (a B-vitamin) and makes it unavailable for use within the body.

Chocolate and cocoa interfere with calcium assimilation in the body and contain theobromine which has the same bad effects as caffeine. Food dyes are poisons and should never be consumed. All of the aforementioned foods are harmful to everyone and should never be eaten. It is therefore useless to try to determine which is the worst offender. They are all bad.

7.4 Finding the Cause Behind the Cause

While living near Buffalo, New York, I attended a lecture given by Dr. Doris Rapp on "Hyperactivity in Children." During the lecture, she showed movies of children who were under her care and who demonstrated severe reactions to certain foods. One child was shown calmly playing with some toys in her office. He was then given a slice of "Wonder Bread" and was instructed to eat the entire slice. Before the child had it half eaten, he started throwing "temper tantrums"—crying, whining, etc. He would throw things across the room and, at one point, he tried to hit his mother and was apparently almost entirely out of control.

What would cause such a sudden change in behavior. The food had not even had time to begin digestion and enter into the bloodstream. Why would the child exhibit such behavior, when another child would not, after eating the same food?

This child's body was in such a toxic condition and his nervous system and brain had become so sensitized, that an immediate severe reaction took place as soon as the exciting agent entered the body. What caused this toxic condition? This is where we get to the underlying reason for this child's "allergy." The primary cause is unhealthful living—wrong food is usually a major consideration. No child who eats only fresh fruits, vegetables, nuts and seeds in their raw and unadulterated form will demonstrate such abnormal behavior. In addition to this, it is important that all of the other conditions for health are met. These are proper rest and sleep, exercise, sunshine, fresh air and pure water. When these conditions are met, the body will heal and maintain a healthy state.

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8. Hay Fever

Hey fever is a chronic catarrhal inflammation of the mucous membrane (Schneiderian membrane) of the nose often involving the lining membrane of the eyes, throat, pharynx, larynx and bronchial tubes. The catarrh is continue us but is particularly subject to increase in severity of symptoms in the months of May, June, July and August.

According to *The Merck Manual*, hay fever is generally induced by wind-borne pollens. The spring type is said to he due to tree pollens (e.g., oak, elm, maple, alder, birch, cotton wood); the summer type is due to grass pollens (e.g., sheep sorrel, English plantain); the fall type is due to weed pollens (eg., ragweed). Occasionally, hay fever is said to be due to airborne fungus spores. Geographic differences are said to have an effect.

These agents are only exciting causes which, when they come in contact with overly-sensitive mucous membranes of the nose, occasion irritation with profuse drainage, runny nose, etc. Changing location and climate will not eliminate the sensitivity even though the exciting cause has been avoided. Health has not been restored since the underlying cause of the sensitivity has not been dealt with.

8.1 Symptoms

The nose, roof of the mouth, pharynx and eyes begin to itch gradually or abruptly after the onset of pollen season. Secretion of tears, sneezing and clear, watery nasal discharge accompany or soon follow the severe itching. Frontal headaches, irritability, loss of appetite, depression and insomnia may appear. The mucous membrane which lines the eyelid is involved, and the nasal mucous membranes are swollen and bluish red. Coughing and asthmatic wheezing may develop as the season progresses. Many eosinophils are present in the nasal mucus during the season.

8.2 Eosinophil Cells

Eosinophil cells are somewhat larger white blood cells, and have received their name because they stain very easily with a dye called eosin. This coloring agent is frequently used for histologic studies to make cells more visible under the microscope. The function of the eosinophils is also still debated, but they seem to be related to inflammatory reactions, as seen in allergy, because their number increases remarkably when a person suffers from asthma, hay fever or similar conditions.

Scientists have found that the presence of pro-inflammatory corticoid hormones in the blood is accompanied by increase in eosinophil cells, and the presence of anti-inflammatory corticoides are associated with relative absence of eosinophils. These cells play an important part in this inflammatory process, which is a healing process. Increase of these cells during "disease" is a positive sign that healing is taking place.

8.3 Treatment

The usual treatment which is given by most physicians involves the employment of various drugs. The most widely-used ones include antihistamines, decongestants, epinephrine and corticosteroid treatments.

All of these drugs are poisonous. They contribute to enervation and add toxins to the body. They also interfere with many physiologic homeostatic mechanisms which result in impaired health of all bodily organs. They never have any beneficial effects and cannot play any role in healing.

The ideal treatment is no treatment at all. If the body is given the proper conditions, healing will be carried on uninterrupted and health will be restored. When the underlying cause of hay fever is removed, these symptoms will not reoccur.

8.4 Causes

Although it is true that dust, pollen, emanations from horses, cats, dogs, birds, etc., and even cold air, will occasion more suffering, this does not prove them to be causes of hay fever. Anything that irritates a sensitive mucous membrane occasions a rush of blood to the point of irritation and the pouring out of an exudation to flush way the irritant.

The mistake is made to consider normal elements in our environment such as pollen or dust as *causes* of hay fever. It this were true, we would all exhibit these symptoms. The basic cause is that which gave rise to the sensitization of the membranes that are not normally sensitive to these triggering factors.

Two people may have catarrh and one develops hay fever and one does not. Both of the individuals are highly toxic, but the one who develops hay fever is subject to nervous problems.

Hay fever rests on a basis of enervation and toxemia. Enervating habits render the individual highly toxic due to inhibition of full and normal elimination within the body of normal body wastes. When the toxic accumulation reaches the saturation point, certain areas of mucous membranes are called upon to do various duties in excreting these toxins. When this condition becomes chronic, symptoms of hay fever become evident.

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9. What To Do If You Have Symptoms Of Allergies

We know that the underlying cause of allergies is toxicosis. If the body did not need to eliminate this toxic material, there would be no allergic symptoms. It is the body's way of preserving health and healing.

The most efficient and quickest way to eliminate these toxins is through the fast. This means a total fast where no food is taken and only water is drunk according to thirst. The length of the fast depends upon the individual and his or her state of ill health. It is wise to consult with a Hygienic professional if it is your first fast. He will advise you how long to fast, how to conduct the fast, how to break the fast, etc.

After you have fasted and eliminated much toxic matter, you must then live in such a way so as to not create the need for "disease" again. This can simply be achieved by following all of the conditions for health outlined in the previous lessons.

10. Questions & Answers

I suffer from eczema, and my hands and arms are very itchy and red with fluid oozing from certain places. Is there anything I can do for this discomfort while I am changing to a more healthful lifestyle?

> The fluid coming from the skin eruption is of an acid nature which results in itching and burning on the skin. You could wash those areas with distilled water to remove some of the fluid. Until these toxins are eliminated, this condition will persist; but do not suppress these symptoms. The body will heal, and soon the skin will again be smooth. A few days fast should speed up this healing crisis.

I began a more healthful program and changed my diet to all raw fruits, vegetables, nuts, and seeds. In a few days, my allergy symptoms got worse. What am I doing wrong?

> You are not doing anything wrong. This may sound strange but it is a good sign for the symptoms to intensify. This indicates increased vitality and a more aggressive effort to *eliminate* accumulated toxins. This is a healing process. Do not worry, but be patient. Your symptoms will soon subside if you persist with your healthier regime, and you will feel much better than before the symptoms began.

I have a child who is hyperactive and it was determined that he is allergic to all citrus fruits. Why would he be allergic to such natural foods as oranges or grapefruit?

> He has a very toxic condition, but his body will normalize when given a chance. Meanwhile, there are plenty of other fruits and vegetables he can eat. Keep him on an all-raw diet of fruits, vegetables, nuts and seeds; but for the time being, eliminate the citrus fruits. After a few months, you can gradually add some fruits to his diet as long as they are fully ripe. I believe that he will react favorably.

I have asthma, and every time I try to do any vigorous exercises I have an "attack" and have to stop. Since exercise is a part of the healthful living regime, how can I attain health without this important aspect of the program?

> You must take first things first. My advice would be to go on a fast in order to eliminate some of the toxic buildup in your body. After the fast, adhere strictly to an all-raw Hygienic diet, and then gradually build up to a vigorous exercise program. This must be done slowly, so you must be patient. Do not exercise to the point of exhaustion as this will do more harm than good. You should feel invigorated and energetic after exercising. Just take it easy, and the rewards will come in increased vigor and health.

Article #1: Hay Fever and Asthma by Dr. Robert Gross

The term "allergy" denotes that the allergic person reacts to contact—either through the mouth, nose or skin—with certain substances in a way that is different from the response of normal people. It is said that his body tissues have greater sensitivity than those of nonallergics. When he is exposed to offending allergens, his "changed reaction" reveals itself in characteristic symptoms—red eyes, running nose, rashes, headaches, of abdominal distress. To most people, a plate of strawberries or tomatoes is an innocent and delicious repast. Yet in certain men, women and even small babies, these foods cause a severe rash, swollen eyes or an asthmatic attack. It is considered that these people are otherwise healthy, energetic folk, but in the language of the day, "allergic to strawberries or tomatoes." The term "allergy" is a catch-all term which is now generally used to describe the cause of all symptoms whose existence otherwise baffles the practitioners. It has been said that many individuals are "allergic" to their own bodies and hence get sick because of this.

There are no essential differences between hay fever and asthma; in the one, hay fever, the nasal portion of the respiratory tract is affected; in the other, the bronchi (air tubes) are affected. In many instances, both are affected. Hay fever is inaccurately named, for the condition is not caused by hay and there is no fever. Its well-known symptoms—itching eyes, nose and roof of mouth; nasal obstruction; paroxysms of sneezing; inflamed eyes; and a watery discharge are "triggered'" by the airborne pollens of various plants, especially ragweed and grasses. Molds, dust, particularly house dust; hair of dogs, cats, horses and cows; feathers of chickens, ducks, and geese: and orris root, the base of almost all cosmetic powders, are other triggering agents.

Asthma is labored breathing occurring in paroxysms upon expiration and is accompanied by wheezing, coughing, slow respiration, sweating, blueness of skin (cyanosis) and coldness of extremities. The muscular coats of the bronchi become spastic (tightened and contracted) and occlude the lumen (bore) or the air tubes thus causing difficulty in expiration. These acute paroxysms occur at varying intervals and degrees of severity. Night "attacks'" are common. The "attack" may last only for minutes, or it may continue for many hours or days. Between "attacks" the patient is seemingly quite well.

The medical profession believes that the fundamental cause of allergy is the powerful body chemical, histamine; this is the trigger that supposedly touches off the allergic attack. Irritated by offending pollen or food, histamine, it is said, lights the fuse for an explosion of sneezing, wheezing, coughing or itching. The profession has not yet found an explanation of why certain people become hypersensitive to certain irritants. It is believed that this reaction is due to some defect in the allergic person's tissues which cause the production of too much histamine when in contact with allergenic substances.

Despite the use of anti-histamines, adrenalin, nasal sprays, injections and drops, ephedrine, A.C.T.H., cortisone, inoculations and "patch tests," "allergies" are growing increasingly wider in scope and more aggravating symptomatically.

These drugs are complicating the symptoms, causing chronicity and precipitating the appearance of so-called "side effects": heart palpitation, nausea, nervousness, skin rashes, dizziness, sleepiness, stupor, chills, and headaches. Their poison effects are more devastating than the "disease" they are supposed to "cure."

Throughout the entire body—in the skin, mucous membrane of the nose, mouth and eyes; joints, muscles, tendons and ligaments, and most organs and glands—there exist tiny, microscopic nerve-end receptors. These infinitesimal nerve receptors mediate, variably, sensations of pain, touch, pressure, heat and cold to the deeper-lying nerves and spinal cord of the body. Some of these sensations are transmitted to the brain for conscious perception. When we live incorrectly by indulging in wrong food habits, wrong thinking and getting insufficient sleep, fresh air and exercise, our bodies become depleted of nerve energy. This state of enervation leads to lowered metabolism and elimination of the wastes, and the tissues, bloodstream, organs and nerve-end receptors become toxemic. The latter may be "weak links" (susceptibility) in the body due to many factors. If this is so, the individual will become hypersensitive to all the triggering elements mentioned above and hay fever and asthma will be manifested. Thus, the basic cause of these derangements, as in all other disease states, is the mode of life pursued which leads to vital energy depletion with consequent toxemia formation. So-called heredity plays some part in these processes, where hay fever and asthma come down on one side of the family.

These families are likely to violate natural laws in the same manner from generation to generation. If the unhygienic living habits of the family were changed, the hypersensitivity or "allergy" would cease.

Most of these who have acquired this shortcoming began gathering these undesirable conditions unto themselves as children by their manner of living. This is not their fault but the fault of parents who stuff them with milk and devitalized products until they become catarrhal and "diseased" in other ways. They become so acidic that health is impossible; hypersensitivity is produced and causes hay fever and asthma.

When we live correctly, our bodies maintain a normal alkaline balance and we are free from all sickness. Wrong eating, wrong drinking and wrong living in all areas produce subnormal health.

Health is the characteristic of people who live according to nature's principles and who eat "good foods." The latter are foods which are very close to their natural state and not, as is the case with most of the food of civilized peoples today, the end products of a whole series of disruptive processes of refining and preserving. All these meddlings break up the foods and divorce them from their natural state and composition.

Abstention from all food (fasting) for several days has marked beneficial results with these "allergies." Improvement might be said to be extremely dramatic. Only ingestion of distilled water is permitted during this time. Following the fast, freshly-expressed fruit arid vegetable juices are given in minimal quantities for a few days, followed by a fresh, raw fruit, vegetable, nut and seed regimen. Fresh air is a necessary factor in returning vibrant health as well as is a correct mental attitude. By taking the mental attitude of healthfulness, one can often ward things off. But if one takes the attitude that a certain calamity is to befall, one mentally cooperates to bring it about. We have seen people apparently sick due to fear, worry and depression, and yet when the mind was diverted into constructive channels, they become happy and hopeful within a few minutes. The conditions were not changed; the thoughts of the sick person were re-routed.

It you or a loved one or a friend are victims of your transgressions and have developed hay fever or asthma, you can surely become free of these annoying and debilitating manifestations by ceasing your faulty living habits and adopting the principles of nature. Only in this manner will you gain efficiency, effectiveness and true happiness.

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Article #2: Allergy by Dr. Herbert M. Shelton

The press of the country has recently been full of items and articles about what is called *allergy*, which is defined as an abnormal sensitivity to substances which are harmless to most people. Hay fever, asthma and hives are among the most common forms of suffering that are said to be due to allergy. Migraine headache is also classed as an allergic phenomenon.

The *American Weekly*, a Sunday magazine supplement of the Hearst papers, once carried a lengthy article on allergy.

We learn from this article that most microscopic fragments of a woman's hair, specks of skin, or powder and dandruff scales may cause cold symptoms, sneezing and other discomforts, and are told that cold water (as in cold bathing) can bring on allergic reactions.

The author of the article informs us that approximately one in ten of our population in the United States have hay fever or other allergic symptoms. Many of these people "have been suffering since early spring from the pollen of successive plants which have come into bloom, such as the grasses, trees, and weeds. The peak of misery has come to them since the middle of August." In August, ragweed and cedar trees begin to shed their pollens.

The writer tells us that while the rich can get away to less pollen-infested regions, or install air-conditioning units with pollen filters in their homes and go "into virtual retirement during the annual hay fever season, most of the victims of hay fever have been tied to their jobs and to their everyday way of life and have sneezed and suffered and cursed their fate." Others, he reminds us "have tried the nose filters which cut down the amount of offending pollen inhaled at each living breath."

The article contains a brief outline of a fantastic and chimerical theory of the cast of allergy, which seems to be taken from a book, *Your Allergy and What To Do About It*, by Dr. Milion B. Cohen and his daughter, June Cohen.

Briefly stated, this theory is that the body manufactures antibodies to destroy germs and the toxins these produce, so once the body has discovered the ability to produce antibodies, it will supposedly react to any foreign substance—whether "dangerous living disease germs," or "substances that are inanimate and of themselves harmless"—by the production of antibodies, and thus make us sick. The article says:

> *Whatever the reason, it is unfortunate that in certain people some nonliving harmless things cause the cells of the body to release a substance which is poisonous. This kind of poisoning, resulting from the action of antibodies on harmless nonliving things, is called an allergic reaction*
>
> *In hay fever, the harmless thing attacked with ferocity by the body is the pollen of various plants, particularly ragweed*
>
> *What has been said about the development of immunity from a disease like typhoid fever applies in the development of an allergy, except that it is the second—rather than the first—exposure to the allergic material which creates the symptoms*
>
> *Let us go back to Mr. Smith again—or to you— and see what happens if it develops that you are allergic to eggs. You eat some eggs and absorb some of the protein called albumen into your bloodstream. This is a foreign protein. Ordinarily it would do nothing, for it is nonliving and will not grow and propagate itself*
>
> *However, the antibodies of the body against this foreign protein begin to be created. But, by the time they have been created, the albumen has disappeared and they have nothing to contend with. They are ready to fight but have no opponent*
>
> *When a dose of egg albumen is absorbed a second time, however, your cells are ready to act for they have attached to them the antibodies that attack egg albumen. Pouncing on their harmless foes, they produce poisons which cause the well-known allergic shock. This type of reaction can occur in anyone.*

In one of his syndicated articles, Dr. Irving S. Cutter says: "almost any plant along the roadside or in the woods may affect you or me." It seems man does not belong on earth. His whole environment seems to be opposed to him.

Now, "for the first time," says the article in the *American Weekly*, "science really knows what happens when you have 'allergies'." We are to understand that the above absurdities constitute this knowledge possessed by "science." There is no science about it—it is a mass of baseless speculation. No doubt this theory will stimulate the production of "cures" that do not cure, and the so-called victims of allergy will not be helped.

No plan of care based on the theory that hay fever, asthma, hives, migraine, eczema, etc., are allergic manifestations has ever provided more than a temporary and questionable palliation. Dr. Cohen is "barking up the wrong tree" if he imagines he has tracked down the cause of allergy (sensitivity). His speculations follow the well-known medical pattern and this pattern has always been barren of worthy results.

Sensitivity is not cause. It is but a link in a chain. Even assuming that his fanciful theory is correct, it must be recognized that the production of antibodies to fight harmless things is abnormal, and this abnormality is not causeless.

Let us quote again from the article in the American Weekly:

> *There is a famous case reported to the American Medical Association in which a husband went into a severe and real fit of coughing from asthma whenever his wife came near him. His physician reported: "His attacks are of the severe asthmatic type, which require epinephrine for relief, and this he must lake nightly if his wife is at home. For a few years, it has been impossible for them to sleep in the same bed at night. It has been suggested that the wife's hair might be the offending cause. Is this likely?"*
>
> *The A.M.A. suggested a continuation of skin tests for allergic and offending materials and said that several hundred materials ought to be studied as the possible cause. That was over a year ago. No report on the case has been brought to public attention since that time.*

How futile is this study of "several hundred materials" to find what the "offending" materials are. It has been repeated in thousands of cases and nothing more than evanescent and more often than otherwise, harmful palliation, has come from it.

It is more important to know what makes one sensitive than to know what he is sensitive to. Let us dismiss the nonsense with which Dr. and June Cohen have filled a book, and look for a minute at a case of hay fever.

Examining the case, we discover that the lining membrane of the nose is inflamed, hence very sensitive to irritation. It is inflammation that renders the membrane abnormally sensitive—that is, sensitive to the normal elements of man's environment.

Continuing with our investigation, we learn that the sufferer has chronic catarrh and had it, in fact, for several years before hay fever symptoms developed. We find that when the hay fever season is over and the symptoms characteristic of this trouble are no longer present, the sufferer *still* has catarrh. Frequent colds are suffered through the winter.

Carrying our investigation still deeper we find indigestion (gastritis) with constant fermentation and putrefaction in the digestive tract. The first development of acute gastritis came in infancy following a period of overeating, or following upon the heels of too much excitement or other enervating influences. Due to wrong care and imprudent feeding, gastritis became chronic, and frequent nose colds were followed by chronic nasal catarrh and, finally, hay fever.

The sufferer from asthma has followed practically the same line of pathological evolution except that frequent chest colds and bronchitis have finally developed into chronic bronchitis with the same inflammatory sensitization of the bronchial membranes that is seen in the nasal membrane in hay fever.

To get rid of asthma and hay fever, get rid of the chronic catarrh that forms their foundation. To get rid of the catarrh, remove its cause. Toxemia is its cause and toxemia has many causes.

Six years ago a resident of Brooklyn, New" York, who had spent five years in Arizona in a vain effort to cure asthma with the magic of climate, came to the Health School. After he had been here less than three weeks, his boy entered the solarium, where the man was having a sunbath. The boy was carrying a cat. The man took the cat in his hands and stroked it a few times then handed it back to the boy. He took a deep breath and then, with a sigh of relief said, "Before I came here, if that cat had merely entered the room where I was, I would have had an attack of asthma."

How much better to get rid of the cause of sensitivity than to spend your whole life running from cats, dogs, horses, flowers and trees! Even if you can afford to air condition your home and put in special pollen filters, do you want to spend the rest of your life in the house? Or, do you want to wear a filter on your nose for the next ten to sixty years? Can you afford to leave your work or your business each "hay fever season" and go away to the mountains or to the sea.

Only the rich can afford most of these programs, and these, by palliating their symptoms and ignoring their causes, allow their whole bodies to give down before these causes. While the writer in the American Weekly assures us that "it is sheer fate which makes them (hay fever sufferers) suffer their tortures where normal people are completely well and untouched," we assert that abnormality has definite and ascertainable causes.

In 1918, I cared for my first patient with hay fever. It was summer in San Antonio and she was suffering with a severe form of hay fever. She had so suffered for several years prior thereto.

She made a speedy recovery right in her own home, with no attention given to pollens, cats, dogs," feather pillows, face powders or her husband's dandruff. She has remained free of hay fever to this day and has spent all these intervening years in San Antonio. All cases of bronchial asthma and hay fever may recover in the same permanent manner by overcoming their chronic toxemia. How do we know this? We know because we have seen it done in hundreds of cases, even in cases of asthma that had persisted for twenty years.

What about "egg allergy?" It is due to impaired digestion, or to eating beyond digestive capacity. The normal digestive tract, if not overloaded, will not permit any undigested egg protein to enter the bloodstream.

All proteins must be digested before they can be used by the body. After they are digested, they are transformed during their passage through the intestinal wall into human therefore no longer foreign) proteins. All proteins are foreign proteins and are poisonous if they get into the body without undergoing these digestive and transforming processes.

All serums are foreign proteins, and they can produce anaphylactic shock, which is just another name for serum poisoning or protein poisoning. The "allergic" symptoms produced by serums are worse than any ever produced by eggs that are eaten.

We do not consider eggs good human food and do not advocate their use, but we know that when toxemia is eliminated and nerve energy restored, so that digestion and metabolism are normal, former sensitivity to eggs ceases to annoy. To restore good health ends all the annoying symptoms arid reactions that are based on impaired health.

The normal man is adjusted to his natural environment. The normal elements in man's natural environment become sources of discomfort only after resistance has been broken down. When resistance is restored to normal, the former discomforts come to an immediate end.

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Article #3: Why Suffer With Hay Fever? by Dr. Herbert M. Shelton

What we now call hay fever got its name, rose cold, nearly four centuries ago. In his commentary on medical practice, Botallus, who was royal physician to the city of Asta, wrote:

"I know for a certainty of men, who at the smell of roses were seized with a loathing as against their chief enemy and that to such an extent to be subject to headaches or a sneezing fit or a running at the nostrils so that for two days it could not be stopped by rubbing."

In 1691, in Dr. J. Constantino de Rebecque's *Storehouse of Medicine of the Swiss or Treasury of Drugs and Most Choice and Rare Medical Observations* (Geneva), are these words:

> "I have thought it useful to relate the effects which roses have, on me. From my thirteenth year, at the rose-blooming time, each year, I am attacked by a running catarrh in which for many days a thin and sharp fluid flows from the nostrils, and the eyes are also affected so that tears are caused to flow. This state lasts as long as the rose season. When the rose season is over, this condition stops of itself. In the first year, I thought this was due not to roses but to the warm summer, but after more careful consideration of the affair I have found out that it is due solely to the roses."

"Rose cold" and "rose fever" are still used with reference to hay fever that develops in the spring, though it is now well-known that roses have nothing to do with the production of hay fever. Rose pollen is not an airborne pollen.

The strong and pleasant perfume of roses and related flowers suggests their attractiveness to insects and their dependence upon these, rather than upon the wind, to transport their pollens for purposes of cross-fertilization. In no part of the United States and other countries where such studies have been made, has the pollen of roses ever been found in the air. On the other hand, many of our cultivated varieties of roses are almost entirely devoid of pollen-bearing organs.

The pollens that irritate sensitive membranes in April, May, June and early July come from other flowers and from grasses that are abundant at this season. Blue grass (June grass), timothy and other such cultivated grasses shed their pollens at this time. Indeed, in most parts of the north temperate region, pollens from many plants are abundantly present in the air during rose-blossom time.

We have no intention of attempting to list all of the flowers, weeds, grasses and trees, the pollens of which are held responsible for hay fever. Ragweed, one of the most widely distributed of these, is, perhaps, best known to the average reader. Cedar trees in the fall and hundreds of other plants are held responsible for the development of hay fever.

These pollens are present in tie air of all who breathe— non-hay fever sufferers among mankind and the lower animals, as well as hay fever sufferers all around us. If they are the real cause of hay fever all who come in contact with them, including the animal world, should develop hay fever. The fact is that less than 10% of men and women have hay fever and no lower animals have it at all.

The systemic condition back of sensitized membranes and the sensitive membranes art present before the plants shed their pollens. With most hay fever sufferers, these conditions are present all the year round. They do not become conscious of the sensitivity of their membranes until these are brought into contact with outside irritants.

Pollens irritate sensitive membranes; they do not make the membranes sensitive. The real cause of hay fever is the cause that sensitizes the membranes. Until this cause is recognized, understood and dealt with intelligently, no permanent relief from hay fever is possible.

When this cause is understood, it may be removed and when it is removed, the hay fever ceases without attention being given to the theoretically-offending pollens. There is then no need to run away from pollens, to live in air-conditioned houses, to wear air filters on the nose, to seek to "immunize" sufferers with allergens, to destroy pollen-bearing plants or to do any of the other things the mad "scientists" have done and are doing.

Restore the hay fever sufferer to health, and he will live in the same environment with the rest of us and react to its normal elements in a perfectly normal way. Healthy men and women do not suffer with hay fever. It should be known that when health is restored, previously sensitive membranes soon lose their sensitiveness. The problems presented by hay fever are simple and easily solved once the subject has been stripped of the mystery thrown around it by the mystery-mongering professionals. At the Health School hay fever does not last long.

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Lesson 72 - Rheumatic Diseases

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1. Introduction

"Rheumatism" is derived from the Greek word rheumatismos, that designated mucus (catarrh) as an evil humor that was thought to flow from the brain to the joints and other portions of the body, producing pain. Studies have shown that an alteration of an important constituent of the joint mucin (the mucopolysaccharide: hyaluronic acid) occurs in some of the "rheumatic diseases." The rheumatic diseases are those conditions where pain and stiffness of some portion of the musculoskeletal system are prominent. These include diseases of connective tissue. The connective tissue diseases exist because of unhealthful living habits. Toxic matter that was not eliminated by the body is often stored in these tissues.

Arthritis is the general term used when the joints themselves become inflamed. Sufferers of arthritis experience pain, stiffness, and swelling in their joints. Many people become crippled. In the United States, more than 31 million persons of all ages and backgrounds suffer from this disease.

Many, different forms of joint diseases are distinguished. Physicians say that some forms of arthritis are caused by known agents, others from unknown factors. All disease is abnormal. A healthy person does not suddenly become stricken with arthritis or any other disease. The factors behind all forms of rheumatic diseases are known. That is, there must be an underlying toxicosis before the symptoms of arthritis appear. Many forms of acute arthritis pass into a subacute or chronic state because of drug therapy and continued unhealthful lifestyle.

Most physicians categorize arthritis into one of five major groups:

1. Infections caused by a specific microorganism.
2. Cases that are possibly infectious but of unproved etiology.
3. Cases representing degenerative forms of joint diesease (sometimes termed arthroses).
4. Cases in which the arthritis results from direct trauma to the joint (chondromalacia).
5. Cases of metabolic arthritis (e.g., gout).

The above five groups will be discussed in this lesson and refuted. They are all based on erroneous concepts concerning the nature of disease.

2. Structure And Function Of Joints

The joints allow controlled and almost frictionless movement. The human skeletal system (the bones and joints) provide structural support and protection to vital parts, yet allow sufficient directed movement for the functions of locomotion and the ability to grasp or seize objects.

The joint space, articular cartilage, and synovial membrane allow the wide ranges of motion necessary for these functions. The synovial joints comprise the majority of the body's moveable joints. On each end of the bones near a joint there is a thin plate of dense bone. Tightly attached to these bony plates are the hyaline articular cartilages. These are specialized structures made up of connective tissue that acts as the bearing and gliding surfaces of the joints. In the joint cavity there is a space that contains the synovial fluid. The ligaments and muscles around the joint offer support for the joint. Normal synovial fluid is clear, pale yellow, and viscous. It is normally present in very small amounts. One to four milliliters is found in the human knee, and less in smaller joints. Its purpose is lubrication of the joint. The synovial membrane surrounds the weight-bearing cartilage and secretes the synovial fluid. The synovial tissue does not have a structural barrier between its blood vessel space. Therefore, substances from the blood are easily carried directly into the joint fluid. All of the many impurities that circulate in the blood at various times due to toxins arising from fermentation or putrefaction of food in the stomach due to improper food or combinations of food; food additives and chemicals; or uneliminated metabolic wastes, may pass directly into the joints from the blood. Once inside the joints, these substances may precipitate arthritis by irritating the inner lining of the joints.

Proper lubrication is vital to the function of the joints since it serves to keep the opposing cartilage surfaces from touching each other. If the cartilage surfaces touch, immediate destruction begins.

The lubrication fluid must also have the right chemical makeup. The fluid consists of large and small molecules which change constantly in their concentrations. As weight is put on the joint, the smaller molecules are pushed into the cartilage leaving behind the larger molecules of hyaluronic acid to bear the weight and to keep the cartilage surfaces from touching.

A molecule consisting of carbohydrate and protein is responsible primarily for joint lubrication. In the cartilage, the protein structure is the critical component of these molecules since its digestion by enzymes called proteases results in an "uncoupling" of the proteoglycan (combination of protein and carbohydrate) from the cartilage and its subsequent loss. This loss from the cartilage results in a stiffer material and is more easily damaged by wear and tear. These proteases are activated at acid pH.

Anything that tends to make the joints more acid will cause an increased rate of destruction by speeding the removal of the proteoglycans from the cartilage. Lack of exercise, eating refined foods or sugar and meats tend to make the joints more acid.

3. Types Of Arthritis

3.1 Osteoarthritis

Osteoarthritis is a noninflammatory disorder of the moveable joints. Those joints most frequently affected are the hands, hips, knees, lower back, and neck. This disease is characterized by deterioration and abrasion of articular cartilage (that cartilage which covers the ends of the bones forming the joint) and also by formation of new bone at the joint surfaces. Severe disability may result, especially if the conditions have progressed far.

People with osteoarthritis suffer pain in the afflicted area and may feel a grating sensation when they move. Knobs of bone and of hardening bits of cartilage may develop in the joint, causing swelling and deformity.

3.2 Rheumatoid Arthritis

Rheumatoid arthritis is a systemic inflammatory disease. Being systemic, all the organs of the body are affected (as they are in all diseases), but the outstanding feature is the progressive deformity of the involved joints. Usually more than one joint is diseased and it is symmetrical; that is, if one hip is involved, the other usually is also. It usually begins in the small joints of the hands and feet, but it commonly affects the wrists, elbows, ankles, hips, knees, and spine. The synovial membrane becomes inflamed and develops into a mass of swollen and inflamed tissue. It becomes what is known as a pannus and it is thought that this is what eventually destroys the articular cartilage. It also extends to the joint capsule that surrounds the joint and the supporting ligaments and weakens the entire joint. It eventually destroys the articular cartilage, then the bone. In the later stages of the disease, the articular surface is eroded and the joint space is obliterated. In the final stages of rheumatoid arthritis, adhesions of fibrous tissue or bony ankylosis prevent the joint from moving.

3.3 Bursitis

Bursae are closed sacs, lined with a cellular membrane resembling synovium. They serve to facilitate motion of tendons and muscles over bony prominences. Inflammation of a bursa, or bursitis may occur in any part of the body where bursae exist (there are approximately 78 bursae on each side of the body), but most frequently occurs in the shoulder. Bursitis does not necessarily always involve a joint but because it often does, it is considered here.

Repeated irritation of certain areas where bursae already exist are contributing factors in what is called "traumatic bursitis." The predominant cause is toxicosis. "Tennis elbow" is a common example of overuse and stress contributing to this condition. Couple this with enervation from poor living habits and the foundation is laid for the development of bursitis.

3.4 Gout

Gout sufferers experience repeated flare-ups of painful swelling. The bunion joint, which connects the big toe and the foot, is affected first in most cases. Gout is associated with the presence of too much uric acid in the blood due to improper diet such as meat eating. Sugar and sugar-starch combinations are also contributing factors. Uric acid takes the form of needle-shaped crystals in the joints. These crystals irritate the surrounding areas and cause severe pain.

3.5 Chondromalacia of the Knee

Chondromalacia is a softening of a cartilage. It most often occurs in athletes and is frequently seen in runners and competitive cyclists. It is a softening, fissuring, and degenerative process of the articular surface of the knee cap. It is thought to be due primarily to overuse and stress to the joint. While this is a contributing factor, the predominant cause is toxicosis.

There are many other forms of arthritis, but the above-named ones are those most often experienced by the majority of arthritis sufferers.

4. Why You Have Arthritis

Despite the many forms that arthritis may have, the underlying cause remains the same for all types. A joint may be injured and the development of arthritis follows. The joint didn't heal perfectly but remained stiff and painful with the end result being a weakened, or even crippled, limb.

The reason for the failure of the injured joint to heal is that the individual is already toxemic and the stage is set for the development of arthritis. Chondromalacia develops in athletes whose activities place a great strain on their joints, although it is not likely that these strains do more than determine the location of the development. The excesses in eating, especially wrong combinations and refined foods, for which athletes are noted, are the more likely causes.

Arthritis may develop at any season of the year in any climate. In many people, the cold weather seems to make the symptoms worse but this does not indicate that the cold, damp weather is the cause of the arthritis. This may be a secondary factor but often during the winter months, people tend to stay indoors, depriving themselves of fresh air and eating larger amounts of richer foods. These influences produce enervation and check excretion, resulting in toxicosis.

4.1 Poor Eating Habits

4.1.1 Uric Acid in Flesh Foods

Arthritis is often associated with uric acid poisoning. Flesh-eating animals secrete hydrochloric acid about twelve times as strong as that of humans. Carnivores also have an enzyme called uncase, that breaks down uric acid into allantoin. Man does not possess this enzyme. Vegetable proteins, including fruits and nuts, contain enough carbohydrates to make this enzyme unnecessary. Beef contains about fourteen grains of uric acid per pound. If you are eating meat, you are consuming a lot of this poisonous end product without having the means of breaking it down and disposing of it. It is therefore deposited in tissues and can readily be carried into the tissues of the joints where they accumulate along with other toxins.

4.1.2 Purines in Food

Purines are catabolized to uric acid in the body. Besides flesh foods, other foods that contain a significant amount of purine include dry beans, dry peas, lentils, spinach, sugar, cereals, bread, eggs, cheese, and milk. Below is a table that indicates the amount of purines in certain foods.

Group A: High concentrations (150-1000 mg per 100 grams)

Liver	Sardines
Kidney	Meat extracts
Sweetbreads	Consomme
Brains	Gravies

Heart	Fish roes
Anchovies	Herring

Group B: Moderate amounts (50-150 mg. per 100 grams)

Meat, game, and fish other than those in Group A	
Fowl	Asparagus
Lentils	Mushrooms
Whole grain cereals	Spinach
Beans, dry	Peas, dry

Group C: Very small amounts

Milk	Coffee
Cheese	Tea
Eggs	Chocolate
Fats*	Carbonated beverages

Refined cereals, spaghetti and macaroni, sugars and sweets, tapioca, yeast

*Fats interfere with the urinary excretion of urates and thus should be limited so as not to interfere with excretion of uric acid.

4.1.3 Sugar-Starch and Starch-Protein Combinations

Members of the legume family consist of a protein-starch combination. This combination is handled poorly by the body resulting in putrefaction. The end result is the formation of many toxins that contribute to toxicosis (the underlying factor in all arthritis). This is in addition to the formation of uric acid.

All refined sugars including white sugar, honey, molasses, maple syrup should not be included in the diet. They are unbalanced and "borrow" needed minerals from the bones and tissues. This is a contributing factor in osteo-arthritis where a degeneration of bone is evident. In addition to this, many toxic byproducts from the refinement process are found in these products that also contribute to toxicosis.

All cereals, including grains and bread, are not digested efficiently since humans are not biologically equipped to deal with large amounts of starches. We do possess the enzyme ptyalin in the saliva and starch digestion will begin if food is chewed proper. However, this enzyme will not be secreted if the starch food is combined with protein foods such as bread and peanut butter or cereal and milk. The starch is not digested at all and *fermentation* occurs in the digestive tract.

Sugar-starch combinations will also result in fermentation. As in protein-starch combinations, when sugar is eaten with starches such as bread and jelly or fruit with cereal, no ptyalin is secreted for starch digestion. Monosaccharides and disaccharides ferment more quickly than the polysaccharides (in starches). No digestion of sugars takes place in the mouth or stomach. The sugars are delayed in the stomach awaiting the digestion of starch and fermentation is the inevitable result.

Toxins resulting from fermentation of starches and sugars, and putrefaction of proteins, enter the bloodstream. Some are eliminated by the body in the urine or through other channels and some toxins are deposited in the tissues such as the connective tissues of joints and muscles. The stage is now set for arthritic diseases.

4.2 Enervating Habits

Any enervating habit such as smoking, alcohol, coffee drinking, etc. contributes to toxicosis and may result in arthritis.

It is known that cigarette smoke contains approximately one to five percent carbon monoxide (a poisonous gas) and the concentration of this gas increases as the cigarette burns down. The carbon monoxide combines with hemoglobin in the blood to form a union called carboxy-hemoglobin (COHb). Heavy cigarette smokers reach levels of five to fifteen percent COHb concentrations. The nicotine in the tobacco is also a deadly poison. These agents, together with many other poisonous products found in tobacco, contribute to overall toxicosis. Some of these toxins are inevitably deposited in the joints.

Alcohol results in damage to all tissues where it comes in contact. The presence of this substance in the blood results in enervation and toxicosis of all organs and tissues in the entire body. The ability of the body to heal and eliminate normal metabolic waste products is greatly reduced and degenerative diseases result when such habits are continued.

Caffeine in coffee, cocoa, and soft drinks results in stimulation of the central nervous system and impairment of all bodily functions. It has a deterimental effect on the entire endocrine system and has been proven to alter release of certain hormones which are associated with arthritic conditions.

4.3 Lack of Exercise

While arthritis is frequently observed among athletes, a lack of exercise may also contribute to its causation. It is impossible to obtain optimum health without adequately meeting the normal needs of life. A sedentary lifestyle lowers the tone and functioning vigor of the body. If you are inactive, your circulation will be sluggish. This prevents normal tissue renewal and nutrition. The ground is thus prepared for the development of disease (a healing crisis).

4.4 Insufficient Sleep

Only a vital organism can perform all physiological functions with the utmost efficiency. If you get insufficient rest and sleep, all bodily functions become sluggish. This enervated condition always leads to toxicosis. Sleep is a great restorer of vitality and is essential for our general well-being. Rest is the means of restoring normal nerve energy—rest of the body and mind. Physiological rest (fasting) is the surest, best, and most satisfactory means of promoting the excretion of accumulated toxins.

4.5 Fresh Air and Sunshine

Respiration involves the exchange of oxygen and carbon dioxide. The body rids itself of a poisonous waste product (carbon dioxide) and takes in oxygen. Oxygen is required for all cellular functions and if this air is impure, our cells will be correspondingly contaminated. It is important that our homes are well-ventilated so there is a constant flow of fresh air from outdoors. Stay away from smoke-filled rooms as much as possible. This is also harmful, even if you yourself don't smoke.

A daily walk in the fresh air and sunshine is a healthful activity. Besides the vitamin D that is synthesized in the skin from the sunlight, being outdoors in the sun (even for short intervals) is very beneficial. Research is still being done on this subject and details concerning all the benefits of sunlight still need to be discovered. However, this is one component of healthful living that should not be neglected.

4.6 Emotions and Stress

Emotions and stress are physiological occurrences. Under a stressful situation, the body responds by initiating a series of hormones to maintain stability. Repeated stress could exhaust this homeostatic mechanism and the entire endocrine system may be affected. The adrenals secrete anti-inflammatory hormones. If the adrenals were not performing normally, there would be a lack of this and other hormones in the body. This could lead to many abnormal conditions throughout the body and arthritis is one possible outcome.

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5. Treatments

There are many different treatments given to arthritis sufferers. Most involve drug therapy, some involve massage, whirlpool baths, herbs, or superstitious practices which have no beneficial effects.

5.1 Aspirin and Nonsteroidal Drugs

The nonsteroidal anti-inflammatory drugs are agents that suppress the signs and symptoms of inflammation. Examples include aspirin, phenylbutazone, indomethacin, ibuprofen, fenoprofen, anproxen, and toletin. These drugs are totally ineffective for arthritis. While the pain may be somewhat lessened during their use, the symptoms return as soon as they are discontinued. Meanwhile, damage to the joints continues to occur while these drugs are being administered and no good has been accomplished.

While these drugs have no ability to heal, their use can result in general adverse effects throughout the entire body. This accounts for their so-called "side effects" which are really general effects. They are poisons that contribute to arthritis and their use makes the disease worse.

5.2 Corticosteroids

Glucocorticoids are a class of naturally-occurring adrenal corticosteroid hormones which are so named because of characteristic effects on the intermediary metabolism of glucose. These steroids are often manufactured in the laboratory or extracted from animals and injected into the joints of arthritis sufferers for their anti-inflammatory properties.

Inflammation is associated with most arthritic conditions. But do we want to suppress or halt inflammation? When you suppress inflammation, you are also stopping a healing process. Physicians will tell you that there is no "cure" for arthritis and they are correct. However, if the arthritis has not progressed to the point where bones become fused, the body can and does heal when the correct conditions are provided.

Administration of glucorticoids produces systemic effects. Mechanisms throughout the entire body are adversely affected and no good ever comes from this practice.

Mark Bricklin, author of *The Practical Encyclopedia of Natural Healing*, cites a case of a lady who had been on corticosteroid medication for a number of years. She bumped her arm against a table and discovered a few days later that she had broken a bone. At this point, her doctor informed her, "Well, that's what happens when you take corticosteroids for a long time. Your bones go." This is a common effect of this drug which results in calcium wasting from the bones.

There have also been cases of diabetes-like increases in blood sugar, of hairy growths on the faces of women, and rounding of the face and watery accumulations in children and adults, of high blood pressure, skin eruptions, emotional upsets, even giddy gaiety or depression of manic mental illness. These effects disappear when the hormone is stopped.

5.3 Other Therapies

Other treatments have been used for arthritis including massage, orthopedic shoes, megavitamins, mineral supplements, hypnosis, acupuncture, alfalfa, and many more. Not one of these therapies are beneficial. The underlying cause of this abnormal condition has not been corrected. The unhealthful diet and other contributing factors in toxicosis should be corrected so that the body can proceed in healing. Only then can a healthy state be restored.

6. Erroneuous Theories

As stated earlier, most physicians categorize arthritis into one of five major groups:

1. Infectious cases caused by a specific microorganism.
2. Cases that are possibly infectious but of unproved etiology.
3. Cases representing degenerative forms of joint disease (sometimes termed arthroses).
4. Cases in which the arthritis results from direct trauma to the joint (e.g., chondromalacia).
5. Cases of metabolic arthritis (e.g., gout).

The first two groups are based on the germ theory of disease. Although bacteria is associated with different diseases, they do not cause that disease. All disease is a vital effort on the part of the organism to heal. It is a bodily response undertaken in order to correct conditions that are harmful. When toxicosis exists and threatens the well-being of the organism, the body responds by eliminating those toxins and the symptoms of disease are felt. Bacteria are present to "clean up" decaying tissues, cells, toxins, etc., and are a useful part of this healing process. Arthritis is not a condition that is inflicted upon people in an indiscriminate manner by bacteria or viruses. It is a condition that has developed within the body due to unhealthful living practices.

The third group consists of degenerative forms of joint diseases that would include osteoarthritis and rheumatoid arthritis. When you persist in unhealthful living habits and suppress symptoms of disease with drugs or other means, degenerative diseases result. According to your particular diathesis, you may develop arthritis, heart disease, kidney disease, etc. Even though the various types of arthritis are different, the cause remains the same for all forms. Accumulation of toxins irritates and weakens the membranes and tissues in the joint. Irritants or toxic substances degenerate cartilage. Then the body deposits, through a process of ossification, mineral salts in the joints. These salts are mostly calcium urates, created by the body's neutralization of uric acid with its own calcium. Calcium is thus depleted from the bones and wasting is seen. Mineral deposits in these joints harden and the final result would be fusion of the entire joint.

The fourth group consists of arthritis resulting from direct trauma to a joint. In a healthy individual, arthritis would most likely not occur due to use, such as in running. The joints must first be weakened by toxic accumulations and mineral deposits. The trauma then initiates the onset of the disease. If a joint would be greatly overworked, as in a series of marathons, inflammation may occur. However, if the individual were healthy, healing would occur after resting the joint involved, and there would be no lasting adverse effects.

The fifth group consists of metabolic disorders. Gout is a disease that is associated with high amounts of uric acid in the blood. It is also associated with high amounts of uric acid in the urine. The physiology books will tell you that this is common and quite innocuous. This may be true, but it is not normal. The body rids itself of this poisonous material through the kidneys, but the fact that it exists in high amounts in the urine indicates errors in diet. The presence of uric acid in the blood of gouty individuals is considered by many physicians as a primary disease that arises without extrinsic cause. However, this condition would not occur in anyone who lived healthfully. The extrinsic cause that results in high levels of uric acid lies in eating foods that are unsuitable. Flesh foods are main contributors but also consumption of alcohol is a major factor. These conditions must be corrected if health is to be restored.

6.1 The "Immune" Theory

Our system normally comprises various types of white blood cells and molecules made by those cells. These cells and molecules normally reside in the lymph tissues and bloodstream and migrate to certain areas when needed to perform their specialized duties (such as in inflammation as the result of an injury).

Most of these cells and compounds have now been identified in human joints actively afflicted with rheumatoid arthritis. They include monocytes, macrophages, neutrophils, etc. The scientists do not know why these cells congregate in the rheumatoid-diseased joint. The reason, however, is not so baffling when you realize that the body initiated an inflammatory process in its attempts to heal. All inflammatory processes are associated with the above-named white blood cells. It is their duty to engulf and destroy all foreign matter and "clean up" the area along with other important functions. The scientists speculate that it is these white blood cells that inflict disease but they admit that they do not know why or how they accomplish this matter. The truth is that these white blood cells do not inflict disease even though they are identified with this disease process. In fact, they are "helpers" in the healing process.

It is generally believed that neutrophils (white blood cells) produce proteases that destroy cartilage in the joint. This enzyme may destroy the cartilage eventually, but it is not the cause of the disease. This situation would not occur if the pH of the area were not too acid from excessive meat eating and sugar eating. About 1/6th of meat is composed of uric acid. The body cannot digest and utilize animal wastes. So it neutralizes these harmful acids with base materials, such as calcium. Calcium urates form and are deposited in joints or muscular tissue around the joints. Meanwhile, the joints are being destroyed by the leaching of minerals from the bones and calcium deposits form in the joints irritating the tissues resulting in inflammation, pain, and swelling.

Based on these erroneous conceptions of the immune system working against the body, various drugs are given to suppress the activities of these cells. Aspirin is given to suppress the inflammation but it also suppresses healing, the formation of prostaglandins that also play a role in healing, and many other physiological functions.

Injectable gold is given to arthritis sufferers, but patients suffer itching, stomach discomfort, anemia, and platelet disorders. A drug called D-penicillamine results in bone marrow suppression or kidney disease in many people. Benoxaprofen was given to inhibit the migration of monocytes (a normal occurrence). This drug did not only offer no benefits but had to be removed from the market by Eli Lilly Company for an indefinite period of time because it had been linked with 61 deaths among elderly patients in Great Britain.

You cannot be poisoned into health nor can health be achieved through interference with normal, cellular activities. Once underlying causes are removed and corrected, the body will heal. If the disease has progressed to the point where the joints have become fused, complete recovery may not be achieved, but improvement will be made. Further joint destruction will be halted and general health will greatly improve.

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7. What To Do If You Have Arthritis

7.1 The Fast

Dr. Shelton describes a case where a lady with arthritis, recovered completely after a fast: "Mrs. G. was forty-four years old. Her arthritis was of but a few months standing, but it was painful and crippled her movements. Mrs. G's physician could promise her nothing but temporary relief which was aspirin or cortisone for the rest of her life. He told her there would be a probable spreading and increase of pain. She journeyed to the United States from Canada and underwent a fast. The fast lasted only three weeks, but it freed her of all pain and inflammation and restored normal movement to her joints." After the fast she remained free of the pain and inflammation of arthritis.

The body has remarkable recuperative powers. The body's ability to heal can be enhanced if the remedies and the causes that have built the disease are removed. The body must be given an opportunity to eliminate its toxic accumulation by means of a fast and then given an opportunity to alter its blood chemistry by means of a change in the plan of eating.

During a fast, the chemistry of the body (especially its fluids and secretions) undergoes a rapid change and returns to a normal healthy state. Fasting relieves the pains of arthritis more effectively than drugs and does it without risk or harm. It is not because the fast itself did anything. Fasting did nothing. But it provided the best condition for the body to heal and repair itself. This is why you fast.

The duration of the fast in arthritis depends on individual circumstances and should only be undertaken under the personal supervision of one who is thoroughly familiar with the techniques of fasting.

Recovery from chronic arthritis is a slow process out of a state of ill health and into a state of biochemical normalcy and health. According to Dr. Shelton, recovery depends on many factors—age, weight, extent of the disease, its duration, degrees of joint destruction, the amount of ankylosis, previous habits of living and eating, the amount of nerve energy in reserve, the character of complications that exist (such as heart disease), the occupation, disposition and environment of the patient. All of these factors determine the extent of recovery possible and the rapidity with which recovery can take place.

While some joints may be permanently ankylosed, the fast can still result in improved health in all cases. A higher state of health will result overall.

7.2 After the Fast

After the fast you should try to implement a more healthful diet into your daily life. The best diet for all humans is one that consists of all raw fruits, vegetables, nuts and seeds, organically grown. On this diet, arthritis sufferers have had the most success in recovery and maintaining health thereafter. This is a diet that contains no harmful toxins that would create the conditions for any disease to exist. When eaten in correct combinations, there will be no fermentation or putrefaction that results in the presence of toxins in the body. These foods are easily digested, supply us with all nutrient needs, and will provide, the correct conditions for health.

You must keep in mind that the body always strives toward health and will always heal and repair itself even in seemingly hopeless cases when the proper conditions are provided.

Besides fasting, and proper diet, all of the other conditions must also be provided (proper rest and sleep, exercise, etc.).

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8. Questions & Answers

Will elimination of nightshade fruits cure arthritis?

> The nightshade fruits (tomatoes, eggplants, peppers, and potatoes) will not cause arthritis and their elimination will not "cure" it. There are no cures. Adhering to a healthful lifestyle will enable the body to heal and this is the only road to health.

I read that vibrators are good for the relief of arthritis. Is this true?

> The federal government ruled that it is illegal to offer vibrators for the relief or prevention of arthritis or rheumatism. In spite of this fact, 14 out of 100 arthritics use a device of this kind. The machines have been proven ineffective. In some instances, where rest of the affected parts is desirable, use of a device may have harmful effects. Nevertheless, thousands are being sold annually to arthritics eager to grasp at any offer of relief. Do not be fooled into believing that any device will relieve arthritis.

Are liniments effective in treating arthritis?

> Liniments, ointments, and lotions are entirely ineffective in relieving arthritis. Anything outside of the human body has no ability to heal. These agents may be harmful if they are absorbed through the skin and they may aggravate the condition rather than help it.

I have rheumatoid arthritis in my hands and all the joints are very swollen and painful. My doctor told me to melt parafin wax with mineral oil and coat my hands with this mixture twice a day. Will this help my condition?

> No, this treatment is ineffective in relieving pain. Furthermore, it is very stressful for the arthritis sufferer and results in further enervation. Your hands are already extremely sensitive due to the inflammation in the joints. Placing them in hot wax will result in even more discomfort. Disregard this practice and try a more healthful lifestyle beginning with a fast. The results will be positive with no adverse effects.

Years ago I heard about "immune milk" as a remedy for arthritis. Can I still purchase this

product?

Several years ago "immune milk" was widely advertised as a remedy for arthritis. According to Dr. Ronald W. Lamond-Havers, medical director of the Arthritis and Rheumatism Foundation, "scientifically-controlled studies of the product show it has absolutely no effect on the disease."
The so-called "immune milk" allegedly gets its "immunity" to rheumatoid arthritis from antibodies produced in the udders of cows injected with streptococcus and staphylococcus vaccines. The victim of the disease, according to the theory, then gets his "immunity" or "cure" by drinking a quart of the "milk" a day

Dr. Lamont-Havers points out there there is no evidence that streptococci or any other agent directly causes rheumatoid arthritis, and that treating patients by injecting such vaccines was tried and discarded

Any product which promises "immunity" to arthritis or any disease is fooling the public into purchasing the product under false theories. Stay away from all such products and vaccines.

Will fasting "cure "arthritis?

This question is best answered by quoting Dr. Shelton from *The Science and Fine Art of Fasting*, he says:

"We do not-claim that fasting "cures" disease, but simply that it enables the organism to heal itself. What, then, does fasting do?

1. It gives the vital organs a complete rest.
2. It stops the intake of foods that decompose in the intestines and further poison the body.
3. It empties the digestive tract and disposes of putrefactive bacteria.
4. It gives the organs of elimination an opportunity to catch up with their work and promotes elimination.
5. It reestablishes normal physiological chemistry and normal secretions.
6. It promotes the breaking down and absorption of exudates, effusions, deposits, "diseased" tissues, and abnormal growths.
7. It restores a youthful condition of the cells and tissues and rejuvenates the body.
8. It permits the conservation and recanalization of energy.
9. It increases the powers of digestion and assimilation.
10. It clears and strengthens the mind.
11. It improves function throughout the body

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Article #1: Why You Have Arthritis by Dr. Herbert M. Shelton

Years ago when a man or woman had pains and inflammation in the muscles and/or joints, the diagnosis was likely to have been rheumatism.

Rheumatism took many forms, such as inflammatory, muscular and joint rheumatism. In the lower back it may have been called lumbago. Rheumatism of the chest muscles received the name pleurodynia. Sometimes this was mistaken for pleurisy. Then there was the acute form that was known as rheumatic fever.

Today, the term rheumatic is not used so much. The "old disease" has been fragmented into arthritis, of which several varieties are listed: lumbago, bursitis, sciatica and other so-called diseases. Chronic rheumatism of the joints (rheumatoid arthritis) is said to sometimes follow a cold, acute rheumatism, tonsillitis, and to sometimes develop independently of these "diseases." It may develop in any joint in the body and slowly extend to other joints, but has a tendency to develop first in joints that have been injured.

In persons past forty, sprains and other injuries are sometimes followed by the development of arthritis. The joints don't heal perfectly but remain stiff and even painful, with the result that the limb is weakened or even crippled.

The reason for the failure of the injured joint to heal is that the individual is already toxemic and ripe for the development of arthritis. Such a development may receive the name *traumatic arthritis*. Arthritis is a frequent development in athletes whose activities place a great strain on their joints, although it is not likely that these strains do more than determine the location of the development. The eating excesses and indulgences for which some athletes are known are the more likely causes.

Arthritis may develop at any season of the year but is more often developed in the winter season, and cold seems to make the symptoms worse. The disease is much more prevalent in cold climates than in warm ones. However, there is no reason to think that climate, per se, is a cause of the disease. It is more probable that the inactivity of the indoor life, the lack of fresh air and the overeating of the richer foods that characterize winter living are the chief causes. It should not have to be repeated that any influence that produces enervation and checks excretion will contribute to cause.

All so-called rheumatic conditions were once attributed to the accumulation of uric acid within the body. There are those who still hold to this older theory. This acid is one of the end products of protein metabolism, but is unlikely that any one of the end products of metabolism (this is to say, any one of the wastes of the body) is solely responsible for the disease. There may be some deposit of uric acid crystals in the capillaries but this does not seem to be the cause of arthritic diseases.

The idea that arthritis and other "rheumatic" diseases are caused by the accumulation in the body of uric acid led to the idea that flesh eating causes or helps to cause such affections. The fact is that excessive starch and sugar eating seems to have more to do with the evolution of arthritis than does flesh eating. But we cannot lay such developments to any one habit of life or to any one article or one class of food. The total enervating mode of living and the total toxic load carried by the individual must be regarded as cause.

Fermentation in the stomach and intestines (indigestion) resulting from wrong combinations is perhaps more important as a factor in causing this condition than the food itself. In most, if not all, cases of arthritis there is a long history of indigestion preceding the development of the joint inflammation. (Inflammation of a joint is the meaning of the term arthritis.)

Food combinations that do not digest readily favor fermentation and putrefaction. If elimination is also checked as a result of an enervating mode of living, the toxins absorbed from the digestive tract tend to accumulate in the body. This results in the evolution of disease in line with the individual diathesis.

Indigestion, whether resulting from wrong combining or from any other cause, favors the evolution of serious disease. The liver and kidneys are constantly taxed beyond their limit in excreting the poisons that come from indigestion. It becomes impossible for them to keep the blood and tissues free of waste and the absorbed poisons. The resulting accumulation of toxins from the tissues and from the digestive tract cause disease.

While arthritis is frequent among athletes and physical laborers, a *lack* of exercise may also contribute to its causation. It is impossible to have normal health without adequately meeting the normal needs of life. A sedentary existence is itself a cause of a general lowering of the tone and functioning vigor of the body. The inactive person has sluggish circulation. This prevents normal tissue renewal. The ground is thus prepared for the development of disease.

Among the most common causes of indigestion are overeating, drinking with meals, eating when fatigued, eating immediately before engaging in heavy work, eating when emotionally stressed, eating between meals, lack of sleep and taking drugs. Among the common causes of enervation, a state that both checks excretion and impairs digestion are all drug habits—the coffee, tea, chocolate, alcohol, tobacco, antacid tablets, headache pills, sleeping pills, etc., and poor physical habits—overworking, excesses, oversunning, overbathing and all other indulgences. Overworked emotions are one of the main causes of enervation.

It is said that "rheumatism" almost always weakens the heart. Great numbers of cases of so-called "rheumatic heart" are credited to "rheumatic fever" in infancy and early childhood. It has been known for over eighty years that the salicylates (aspirin) damage the heart. Yet when this drug is freely given in so-called rheumatic fever and in arthritis and the heart is damaged, the effects of the drug are ignored. It is doubtful if heart damage will occur in cases not treated with drugs.

Many years ago Sir William Osier said in his *Principles and Practices of Medicine*, "The salicylates (a class of drugs which we have previously pointed out is employed in almost all treatment of the so-called rheumatic diseases) are useless." They are employed to relieve pain and for no other purpose. The patient pays a fearful price for a brief respite from pain, for it is necessary to repeat the dose at intervals and to increase both the frequency and the size of dose as the use of the drug discontinued.

It is freely admitted by the profession (an admission that even the vendors of patent medicines keep echoing) that there is no *cure* for arthritis. All the drugs employed in the treatment of arthritic sufferers are employed as palliatives. Cortisone has replaced the old standby of yesteryear—potassium iodide. It may be less damaging than the older drug but is no longer thought of as anything more than palliative. It has very harmful "side effects" and will sooner or later be abandoned.

The climate cure, the Turkish bath *cure*, the hot springs and mineral springs *cure*, massage, etc., have been and are popular in treating arthritis. They have no other apparent benefits than that of temporarily palliating symptoms. As palliatives they are less damaging than drugs. This is the best that can be said of them. The sweat baths, hot baths, prolonged baths, massage and similar treatments add to the enervation of the patient and help to prolong the disease.

Nothing short of *the removal and correction of the causes of enervation* assures a re-establishment of health. Rest is the means of restoring normal nerve energy—rest of body and mind. Physiological rest (fasting) is the surest, best and most satisfactory means of promoting the excretion of accumulated toxins. A corrected mode of living after the fast will prevent a return of the toxemic state and promote the evolution of good health. The arthritic who as a remedy mentality will search in vain for a remedy that will restore him to health; the intelligent individual may easily live himself into good health. Health is an evolution of healthful living; it is not the product of "cures."

Chronic rheumatoid arthritis is a state from which recovery (full and lasting recovery) is easily possible if a Hygienic program is fitted to the individual's needs before irreparable damages have occurred in the joint tissues. Even apparently hopeless cases make full recovery. There are, in many advanced cases, tissue changes that cannot be undone. This makes it all the more important that Hygiene be adopted early.

Article #2: Arthritis by Dr. Robert R. Gross

Arthritis is a "disease" caused principally by impaired metabolism and toxemia (poisons in the blood and tissues), acid pattern is eventually developed in the joints by the type of food eaten and the faulty habits experienced. A fibrositis (fiber inflammation) followed by a hardening of tissues surrounding the joint occurs. All the structures composing a joint-articular cartilage, synovial membrane, synovial fluid, articular capsule, ligaments, tendons, and muscle endings may become involved. Blood circulation to the parts is obstructed and calcium tends to infiltrate and precipitate in any of the areas. Mobility is reduced, and, ultimately, the joints may become locked (ankylosis) and deformed.

Arthritis is classified by physicians into different forms: osteoarthritis, rheumatoid arthritis, gouty arthritis and rheumatic fever arthritis. All these afflictions are basically the same type in the joint. The cause is the same (toxemia) and the care is the same. This abnormal state exemplifies typically the Natural Hygienic axiom of the unity of disease.

Pathology texts describe osteoarthritis as the hypertrophic form (joint enlargement) and rheumatoid arthritis as the atrophic form (wasting). I have seen innumerable cases wherein both forms were combined in the same joint. As a matter of fact, it is impossible that one form exist as an entity unto itself without involving some joint disturbance attributed to the other.

Medicine likes to classify health deviations down to impractical differences whereas all derangements are practically the same. The use of "medical jargon," descriptive Latin and Greek names, and utilization of imposing-looking diagnostic instruments and laboratory procedures lend an aura of "science" to the practice of drugging. These adornments and embelishments are so much "eyewash" and serve to detract from the actual cause-and-effect relationship of all disease processes and their care.

Cause of Arthritis

The inflammation, pain and stiffness, lime deposits, deformity, ultimate destruction of the normal joint structures, and "locking" of the joint all stem from a form of life destructive to general health. Poor eating habits; smoking; consumption of alcohol and coffee; insufficient sleep, sunshine, fresh air and exercise; emotional intemperance; use of medicine and pills and other factors cause nutritional impairment, intestinal poisoning and chronic toxemia with arthritis.

The results of drugging and therapeutic abuses have made arthritis a hopeless condition. There is tremendously more harm, suffering, inconvenience and abuse caused by the treatment employed than by the arthritis itself. The evils of cortisone: ACTH, phenylbutazone, aspirin, gold salts and x-ray radiation have made hopeless cripples of mild arthritic sufferers. *Persistence in ignoring causes of disease and refusal to remove them is the greatest evil of medical treatment.*

Hygienic Care of Arthritis

Arthritis is not the hopeless condition that medical men make of it. It must not be permitted to advance beyond the possibility of vital redemption before Natural Hygienic care be instituted. In all cases that have not advanced to joint destruction and ankylosis, recovery may be experienced to varied degrees if the sufferer will forego the destructive way of life causing the derangement. He must be willing to adopt, and persist in, a regime from which normal health will evolve.

I have had innumerable arthritics recover normal joint function through fasting followed by a vegetable, fruit and raw nut regime. The fast promotes detoxification of the body, and marked improvement, both in general and local conditions, follows. Relief from excruciating pain is gained within only a few days after the fast is instituted. Marked reduction of the swelling and enlargement of the joints, restoration of motion in the stiffened parts and great comfort and ease are immediately enjoyed.

Some cases require two or more fasts before accumulated poisons are ejected and full recovery is accomplished. In advanced cases one or two years may be required before normal joint movement is obtained. The patient must be persistent and cooperative with nature's infinite wisdom in the self-healing powers of the body. If he will do this, he will not only recover health but he will retain good health.

Faulty habits of living dangerously reduce nerve functioning power and maintain it at a level inconsistent with high-grade health. This substandard functioning power is the antecedent of all disease irrespective of by what name it goes and no matter what complicating causes may be superadded to them. The body does not possess unlimited power of recuperation, thus, diseased states in any degree should be immediately subjected to Natural Hygienic care.

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Article #3: Well! You Wanted to Know! by V. V. Vetrano, B.S., D.C., M.D.

How does rheumatoid arthritis differ from other arthritis and what can be done about it?

> Arthritis is a general term referring to any inflammatory disease involving a joint. There are many different types of arthritis, their names being based upon different things, such as whether or not it is acute or chronic, its cause, or etiology, the specific joints involved, etc.
>
> Suppurative arthritis is a condition where the inflammation is associated with the formation of pus. It is thought that this type of arthritis is due to direct bacterial invasion, sometimes causing the white blood cell count to reach 200,000 mm3. It is usually limited to one joint. As the process advances, this type of arthritis can destroy the structures of the joint just as badly as does rheumatoid arthritis. The only difference is that in rheumatoid arthritis multiple joints are involved and pus does not form.
>
> Tuberculous arthritis sometimes develops as a complication of pulmonary tuberculosis. This type of arthritis is even more destructive than suppurative arthritis and frequently normal tissues of the joint are replaced with scar (fibrous) tissue. Calcification (ankylosis) of the joint also takes place.
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> Rheumatic fever is always associated with a type of migratory arthritis. This type of arthritis usually subsides without injury to the joint. It is well known, however, that the heart is often damaged. It is the belief of Hygienists, however, that the heart damage is probably due to the drugs used to treat the problem rather than bacteria or the disease.
>
> In arthritis associated with gout, which is a systemic disorder of uric acid metabolism, urates will be deposited in and about the joints. This kind of arthritis leads to extensive destruction of the articular surfaces. It is very chronic and extremely painful. It is so severe in some people that the least movement or just the touch, of a sheet will send the sick one into agonizing pains.
>
> Rheumatoid arthritis is a systemic inflammatory disease of *unknown* etiology according to physicians. However, the etiology is not unknown to Hygienists. Being systemic, all the organs of the body are affected, but the outstanding feature is the progressive deformity of the involved joints. Usually more than one joint is diseased and it is symmetrical; that is, if

one hip is involved, the other usually is also. It usually begins in the small joints of the hands and feet, but it commonly affects the wrists, elbows, ankles, hips, knees and spine. The synovial membrane (the membrane which secretes the joint fluid) becomes inflamed and develops into a mass of swollen and inflamed tissue with tags protruding out into the joint itself. It becomes what is known as a pannus and it is thought that this is what eventually destroys the articular cartilage. It also extends to the joint capsule which surrounds the joint and the supporting ligaments and weakens the entire joint. It eventually destroys the articular cartilage, then the bone. In the latter stages of the disease, the articular surface is eroded and the joint space is obliterated. In the final stages of rheumatoid arthritis, adhesions of fibrous tissue or bony ankylosis prevent the joint from moving. Complete confinement to the wheel chair is the final outcome of those who do not learn about Hygiene before this destruction takes place.

Osteoporosis is different in that it occurs principally in weight bearing joints, and is very slowly progressive. The current thought is that the condition is essentially a "wear and tear" or aging phenomenon and should not be called arthritis because it is not basically an inflammation. Pathologists who desire to be technically correct call the problem degenerative joint disease. Degenerative joint disease may appear in younger people when the joint has been injured.

All types of arthritis develop from chronic toxemia. Even with an arthritic tendency one does not necessarily have to develop the disease. A correct mode of living will prevent the development of the disease even in those predisposed to it. Physicians are still ignorant of the cause as is stressed in the following quotation: "It is depressing to relate again, as with so many diseases, that the cause of osteoarthritis is unknown." It is thought that laxity or instability of the supporting tissues of a joint, whether because of previous injury or aging, predisposes one to osteoarthritis. Trauma, slowing of the body's ability to repair as one ages, and anatomical and biochemical changes are all given as possible causes when the real cause is a biochemical perversion from wrong ways of living. As long as the tissues of the joint are normal and all the metabolic wastes are carried away as fast as they are formed, the joint will repair itself even of gross and microtraumas of long years standing.

The primary difference between the two great types of arthritis, rheumatoid and osteo, is that the joints most commonly affected in osteoarthritis are those most active, such as the articulations of the vertebrae, hips, knees, and the distal interphalangeal joints of the fingers. The wrists, elbows, and shoulders and the proximal interphalangeal joints are seldom involved.

Actually, osteoarthritis differs greatly from rheumatoid arthritis in almost every way. It is equally common in both sexes, however, and it develops most often later in life. In osteoarthritis, "there is no evidence of a toxic factor; the large joints are commonly involved, often only one joint; there is no true ankylosis." In osteoarthritis, movement is limited by bony outgrowths, but the two bones never become joined together (ankylosis) as in rheumatoid arthritis. Women especially are prone to the development of Heberden's nodes. I'm sure you have all seen the knobby hands of some older women, especially the bumps on the last joint of the fingers. These are known as Heberden's nodes and they arise because of degeneration of the tissues around the joint after which they are subsequently ossified.

Article #4: How to Deal With Bursitis by Dr. Herbert M. Shelton

At intervals, *U.S. News and World Report*, which conceives it a duty to the public to keep them informed on the "progress" of medical mischievousness, has one of its reporters interview some little *gutta percha* god of medicine on some subject and give the results to its readers. In its issue of January 11, 1960, it published an interview with Joseph J. Bunim, M.D., of the National Institute of Health, under the misleading title: "Bursitis: Latest on its Cause and Cure." It declares Bunim to be one of the "nation's top notch authorities on rheumatic diseases," a distinction he seems to have acquired by being ignorant of the "diseases" in which he has specialized. His "latest" is old stuff that has been to the cleaners.

Our grandfathers used to suffer with what was called rheumatism. Rheumatism was a blanket term that covered a wide variety of pains and inflammations in various parts of the body. They had "muscular rheumatism," "articular rheumatism," "sciatica," "lumbago," "pleurodynia," and other "forms" of rheumatism. Nobody has rheumatism today, for the old "disease" has been run through a food chopper and so fragmentized that today we have a whole variety of "diseases" as substitutes for rheumatism. We have "neuralgia," "neuritis," "sciatica" (which is a neuritis), "fibrosis," "arthritis," "myositis" "bursitis," etc. Just as *arthritis* may develop in any movable joint and *neuritis* may develop along the course of any nerve, so *fibrositis* may develop in any fibrous tissue, *myositis* may develop in any muscular tissue and *bursitis* may develop in any bursa. "Itis" is a little Greek word meaning inflammation, which is used as-a suffix. When added to the name of an organ or part, it indicates inflammation in that organ or part. Thus, all of these separate *diseases*, in many different locations are but local inflammations. Their names do not seem to be important.

I quote the following words from a standard textbook on the practice of medicine: "The etiology (cause) is unknown." This is the gist of the statements concerning cause that one finds in all of the standard texts and reference works dealing with these so-called diseases. Sometimes we get such stupidities as "many patients notice a direct relation between exacerbations of muscular symptoms and infections of the upper respiratory tract, influenza, exposure to damp and cold weather, fatigue and overexertion." The authors of these ponderous works devote much attention to "diagnosis" and "differential diagnosis" and recommend measures of treatment that, at their best, are merely palliative; at their worst, are more harmful than the cause of the disease for which they are administered. Never do they suggest removing cause—how could they, when they confess ignorance of cause? They advise protecting these patients against respiratory *infections*, but neglect to explain how this is to be done.

Bursitis is one of these "rheumatic diseases" that have taken the place of the rheumatism of our grandfathers. It is inflammation of a bursa. A bursa is a small sac interposed between movable parts for purposes of lubrication. Bunim explains that a bursa is "a small sac containing fluid, which is usually situated between a tendon and the bone over which the tendon glides." He says that "tennis elbow" and "housemaid's knee" are good examples of bursitis. He differentiates bursitis from arthritis by saying that arthritis is inflammation of the intrinsic structure of a joint, such as the lining of the joint, or the cartilage or the capsule, whereas, the bursa lies outside of the joint and is not part of the joint. This means that, while bursitis is contiguous to the joint, and often seems to be in the joint, it is only close to the joint.

When asked if "we" are getting closer to an answer to bursitis, Bunim declared that "we" know much more about bursitis as a result of research which has been done on changes in the body's tissues in the areas of bursitis. This only means that they have made more extensive studies of local pathology, not that they know any more about inflammation now than they did ten years ago. He says that they hope to learn more about the process which results in bursitis and adds that during the past ten years more research has been done on this subject than during the previous century. What he failed to add is that, with all' this research, they are still ignorant of the cause of bursitis. Injury and overstrain and aging are about' the only "causes" they recognize.

"There is no cure, as yet," he says, but he states that there are several measures that can be utilized for relief of pain. Every time we read a medical treatise on any so-called disease, we run up against the same state of affairs. "There is no cure," but we can provide evanescent "relief." Medicine is a system of spectacular palliation. When asked if he thought that medical research will find "an answer to bursitis," Dr. Bunim stated that he is not sure that they will find an immediate answer, but "we certainly hope to learn more about the process which results in bursitis from a greater knowledge of the chemistry and metabolism of connective tissue, because the basic trouble is degeneration of connective tissue." There seems to me to be a note of pessimism and doubt in that answer. There is also the fallacy that the "basic trouble" is the end point of the process. Tissue degeneration is not cause. It is effect—long-range effect.

Dr. Bunim says that "since we do not yet have means for eliminating the cause" they cannot *cure* bursitis. So they treat the local area with X rays, with surgery, apply heat, administer aspirin or other analgesic (pain killer or patient-killer, depending on the point of view), but they cannot provide more than temporary relief by such measures. There is a lot of guess work, as he frankly admits, connected with the physician's care of the patient with bursitis and they guess about how the "relief" they afford is accomplished. He is sure that the steroids (probably ACTH and cortisone) that have been recently employed in the treatment of arthritis may be used in bursitis, but they are not to be given orally. They must be injected at the site of the inflammation. If they are no more successful in bursitis than in arthritis, one can only wonder why they should be used.

When asked: "Is there research aimed at developing drugs specifically for bursitis?" he replied: "There is. Research for new drugs is continuing all the time in hopes of finding a drug which would be as effective or as potent an agent as the steroids which are now in use, but would have less toxic effects or would not have the potential hazards and the undesirable side effects that the current steroids have."

That about sums it up. They are searching for a drug. The medical mind can think only in terms of drugs. They must have a drug; they hope to find one that will be effective as a means of "relief" or *cure* and will not have side effects, will not be poisonous. They are forever engaged in searching for that which does not exist. Whether it is bursitis, arthritis, the common cold, pneumonia or any other so-called disease, they are searching for a drug. For twenty-five hundred years they have been searching for drug;. They have found and used hundreds of thousands of thorn. They have all proved to be toxic. They have been hazards. They have all produced undesirable side effects. But they have never lost hope. They are still searching for a poison that is not a poison.

The remedy for bursitis is so simple that a child may apply it with far greater success than the learned medical profession and all of its "top-notch authorities" now apply their doubtful means of palliation. When once it is learned that toxemia is the basic cause of tissue inflammation, that injuries heal quickly in the nontoxemic, that recovery from overexertion is rapid when the individual is not toxic, that fatigue is speedily recovered from by the man or woman of pure blood, and that no inflammatory condition lasts beyond the removal of its cause, it will be readily seen that the remedy for bursitis is the simple one of detoxification. Rest of the injured and inflamed part is essential; often rest of the whole body is important. Certainly, if one is suffering from fatigue, the only means of recuperation is rest. If one has overexerted a part, it needs rest. If there is inflammation in a part of the body, it should be set at rest. This is often all that is required for recovery from slight cases of bursitis. A fast will be needed in the more severe cases. If the pain is great, heat to the painful area will provide relief. No drugs should ever be employed for relief of pain.

Bursitis develops in the toxemic; it does not evolve in the man of pure blood. An injury will result in inflammation in both the toxemic and the nontoxemic, but in the nontoxemic healing is rapid; in the toxemic it is slow and often drawn out. Indeed, if the toxemia is not eliminated, it may not occur at all. Bunim says that the physician knows that sooner or later the bursitis will come to a natural termination, that it is a self-limited condition. This simply means that recovery is spontaneous and that the treatments of the physician have no office in producing the recovery, What he fails to say is that the meddling of the physician-often prolongs the trouble for weeks and months. All systems of cure ride to glory on the self-healing powers of the body, which is all that is inferred in the statement that a *disease* is self-limited.

Bunim discusses calcium deposits in bursitis and also abscess formation in some cases. He also describes adhesions and more or less permanent limitation of movement of the joint. None of this need occur even in the most severe cases if fasting is immediately instituted. If the fast is resorted to at a later date, this is to say, after calcium deposits have occurred, the fast will result in the absorption and removal of the calcium. Bunim teaches at Johns Hopkins and Georgetown Universities, is on the staff of the Walter Reed Hospital, edits the *Bulletin on Rheumatic Diseases*, "pioneered" the use of synthetic cortisone-like drugs, is clinical director of the Government's National Institute of Arthritis and Metabolic Diseases, "where he directs research and evaluates treatments in arthritis," but he has not and he will not evaluate any common sense methods of care of arthritis or bursitis. He is wedded to drugs and is incapable of conceiving of any care that does not involve poisoning the patient. He will not do any research into the subject of fasting and he will not evaluate it. Intelligent readers will not be misled by his self-imposed blindness.

Lesson 73 - Sugar And Carbohydrate Metabolism Disease

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1. Introduction

The word diabetes is from the Greek word meaning to siphon and refers to the marked loss of water by urination, polyuria. The word mellitus is derived from the Latin word for sweet and thus diabetes mellitus—sweet urine disease.

Diabetes mellitus ranks among the leading factors of death in the United States. It is estimated that approximately 10 million Americans have diabetes. It is regarded as a metabolic disease of unknown cause resulting from a deficiency of the pancreatic hormone insulin and an irregularity in the release of glucagon, a polypeptide hormone, and other hormones.

When you become enervated due to unhealthful living habits, a state of toxicosis develops. This situation will result in a lowered function of all cells and organs of the body. Certain tissues or organs may be more noticeably affected than others if they are inherently weaker, but the fact still remains that the entire system is affected.

Diabetes is a symptom of toxicosis. Often, the sufferer of this "disease" has been consuming large amounts of refined sweets such as cakes, pies, ice cream, candies, pastries, refined wheat products, etc. Under these conditions, the pancreas is continually stressed to secrete its hormone in order to eliminate the excess glucose from the blood. This results in enervation of the gland and exhaustion leads to decreased insulin output. The fact still remains that all organs are involved and this is seen in the many other symptoms manifested by the diabetic such as arteriosclerosis, blindness, etc. One problem with refined sugar is that it goes immediately into the blood without digestion. This flood of sugar is very enervating to the pancreas.

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2. History

Diabetes mellitus was first described in an ancient Egyptian papyrus dating from the second millennium B.C. An Egyptian priest had observed that the urine of people afflicted by a disease of weight loss and excessive urination attracted insects, particularly bees and ants. Over the centuries, various other authors described a similar phenomenon without completely characterizing the disease or naming it.

It was the Greeks who characterized the excessive urination and the siphoning effect, or "the melting of the body through the loins" (weight loss and polyuria). A few centuries later, the Romans added the name mellitus, presumably because some enterprising physician gave the urine the taste test, discovering for sure its sugar content.

There were few developments that advanced our understanding of diabetes over the next millennium and a half. In more modern times, various diets were tried, some of them quite horrible. The rancid fat diet, popular in France in the 18th and 19th centuries, is one such example.

Scientific progress in our knowledge of diabetes began in the 18th century with the development of the microscope and Langerhan's description of the beta cell containing islets in the pancreas. Subsequent pathologists such as Virchow (1821-1902) and others then described the lesions of the pancreas, leading Minkowsky (1858-1931) to hypothesize that the pancreas was somehow involved in diabetes. Minkowsky then performed pancreatectomy in animals and produced diabetes. This experiment led to the speculation that the pancreas continued an internal secretion whose deficiency was responsible for the disease. Many experienced investigators searched in vain for the internal secretion of the pancreas. All efforts were thwarted because the enzymes of the exocrine pancreas digested the beta cells.

In the summer of 1921, Dr. Fredrick Banting devised a way of ridding the body of the exocrine pancreas while preserving functioning beta cells. Charles Best, a young graduate student working with Dr. Banting that summer, developed the alcohol techniques for extracting the hormone from the remaining pancreatic tissue and for measuring blood glucose. In August 1921, after several failures, an extract of pancreas produced a dramatic drop in blood glucose in a diabetic dog, thus the internal secretion of the pancreas had been isolated.

3. Classification

The National Diabetes Data Group from the National Institutes of Health distinguishes five subclasses of diabetes mellitus:

1. *Insulin-dependent diabetes mellitus or Type 1*
   Persons with this type of diabetes are supposed to be more prone to ketosis. This type is associated with an incompatibility of certain antigens with islet cell antibodies
   This is the usual medical approach and is based on an erroneous "immunity" theory. Diabetes (like all other "diseases") is developed over a certain period of time due to unhealthful habits resulting in enervation and toxicosis. We cannot create "immunity" from the effects of eating wrong foods or procuring insufficient sleep. Ketosis is a symptom of general bodily enervation and toxicosis.
2. *Noninsulin-dependent diabetes mellitus or Type II*
   This is a type of diabetes that is said not to be associated with ketosis or any other disease. However, people are not suddenly stricken down by diabetes. It is not an affliction that involves only the pancreas and no other tissues, glands or organs. An individual who is ill and shows symptoms of diabetes has a systemic toxicosis but the major sign of this toxicosis has demonstrated itself outwardly in the malfunction of the pancreas. In these cases, the pancreas is still secreting insulin but not in normal amounts. Physicians, therefore, do not necessarily prescribe insulin but usually control the diabetes through specially devised diets or with oral drugs. In so doing, they are still not removing the cause for the diabetes. (More about diet later.)

3. *Diabetes associated with certain conditions and symptoms such as pancreatic disease, changes in other hormones besides insulin, the administration of various drugs and chemical agents, insulin receptor abnormalities, genetic syndromes, and malnourished populations.*
   In this type of diabetes, other symptoms of toxicosis are recognized. It becomes especially clear that many bodily functions are also deranged when severe symptoms of diabetes are diagnosed. The body is a unit and works as a unit. If one organ is deranged, all are more or less functionally below par. The body will heal once the cause for toxic accumulation has been removed. In other words, if the cause of enervation and toxicosis is removed and the body is given a rest, healing will commence.

4. *Gastrointestinal diabetes, where glucose intolerance develops or is discovered during pregnancy and disappears afterwards.*
   This is not a common type of diabetes. During pregnancy, the body makes a number of adaptations. More research should be done in this area but it may be incorrect to diagnose diabetes in this incidence.

5. *Impaired glucose tolerance is present when individuals have plasma glucose levels intermediate between normal and those considered diabetic.*

   Blood glucose levels fluctuate and many factors may affect the outcome of glucose tolerance tests. A stressful situation may elevate blood glucose levels, plus diet, exercise and a number of other factors even though a person fasted 10 to 16 hours before the tests. Just because a person's glucose levels are a little higher than normal does not necessarily mean that his insulin secretions are not normal.

4. Derangement Of Function

There are several major areas where functional derangement is especially evident in diabetes.

4.1 Hyperglycemia

A partial or absolute lack of insulin secretion results in excess glucose in the blood. Glucose is the primary fuel for all body tissues. The brain utilizes 25% of the total body glucose. Because brain energy stores are very small, a constant supply of glucose must always be available to maintain adequate brain function. It is, therefore, imperative that the blood glucose level be maintained in the 60 to 120 mg/dl (deciliter) range to prevent central nervous system impairment. The body has special homeostatic devices to maintain this required range.

4.1.1 Insulin

Insulin is the primary hormone for regulating blood glucose levels and does so by controlling the rate that blood glucose is taken in by muscle, fat and liver cells. Each of these three types of cells utilizes glucose in a different way, as determined by specific enzyme systems.

Fat Cell

The primary function of the fat cell is providing storage. It contains unique enzymes that convert glucose into triglycerides as well as enzymes that convert triglycerides to fatty acids. These fatty acids are released and converted to ketones in the liver, when needed.

The conversion of glucose to triglycerides and the breakdown of triglycerides to free fatty acids take place continuously and simultaneously within the same fat cell, and both processes are regulated by insulin. High blood insulin levels stimulate the uptake of glucose by fat cells to form triglycerides; thus there is a net gain of storage fat. During low blood insulin levels, glucose uptake into the fat cell is poor; thus less triglyceride is formed. Triglyceride breakdown then exceeds formation, resulting in a net loss of the storage fat. Thus, by regulating glucose uptake into fat cells, insulin can influence net fat metabolism.

Insulin also inhibits the enzyme lipase, which breaks down storage fat into fatty acids and glycerol. When insulin is high and lipase is inhibited, there is also a net increase in storage fat. There is a net decrease in storage fat when insulin is low, because lipase becomes activated and a fat is then broken down.

Muscle Cell

The muscle cell has two primary functions: it converts glucose into energy needed for muscle function, and it serves as a reservoir for protein and glycogen. During starvation, the protein of the muscle itself can be made available in the form of amino acids. These amino acids can then be converted in the liver into glucose in order to maintain blood glucose at an adequate concentration for brain function.

In the muscle cell, as in the fat cell, insulin promotes the uptake of glucose. The muscle cell, however, has different enzymes that control two metabolic pathways for glucose. First, glucose can be converted into "contractile energy." Second, glucose can be converted to glycogen, a storage form of glucose that is more readily available than triglycerides in times of glucose insufficiency.

When blood glucose levels are normal, insulin also affects the enzymes of the muscle cell to maintain muscle mass by promoting the uptake of amino acids and preventing the breakdown of protein.

Liver Cell

Liver glycogen is another storage form of glucose. Glycogen is more readily available for use than are triglycerides, which first have to be converted to free fatty acids and then converted to ketones. The liver monitors these conversions and also converts amino acids to glucose when necessary. The conversion of amino acids to glucose is called gluconeogenesis.

Although insulin is not required for the transport of glucose into the liver, insulin directly affects the liver to promote the uptake of glucose by reducing the rate of glycogen breakdown, increasing glycogen synthesis, and decreasing the rate of gluconeogenesis.

4.1.2 Beta Cell

Insulin is secreted by the beta cells of the pancreas. The beta cells function first as a sensor of blood glucose levels. The beta cells then secrete enough insulin to regulate the carbohydrate load, maintaining the blood glucose level within a very narrow range. A feedback system exists whereby a small amount of carbohydrate stimulates a small amount of insulin release. The liver responds to increased insulin secretion by suppressing glycogen release (glycogenolysis). The formation of new glucose is likewise suppressed. A large carbohydrate intake stimulates a greater insulin response, and the peripheral and liver cells take up glucose. When glucose levels are low, insulin release is suppressed and glycogenolysis and gluconeo-genesis occur in order to feed glucose into the system and maintain the blood glucose levels.

When the body is enervated and a state of toxicosis exists, all bodily functions will be impaired. This may effect the pancreas and its secretion of insulin. When insulin secretion is abnormally diminished, glucose will not be utilized by the fat and muscle cells and the liver will continue to break down glycogen to glucose to further add to the blood glucose levels. Hyperglycemia is then present.

Other hormones contribute to the release of glucose in the blood and further complicate the situation when insulin secretion is diminished. Stress stimulates epinephrine release and the hormone then serves to mobilize glycogen to yield a higher blood glucose level. Epinephrine also suppresses insulin release to further enhance blood glucose levels. Glucagon and cortisol also increase levels of blood glucose.

4.2 Large Vessel Disease

Diabetics have an increased incidence, earlier onset and increased severity of atherosclerosis and calcification of the arterial wall. Peripheral vascular disease is 50 to 100 times more common in diabetics than in healthy individuals. More fat is broken down when insulin is low and enters the bloodstream. Excess fat in the blood may then accumulate in the large vessels of the heart or elsewhere.

It is likely, however, that there is already some arteriosclerosis in diabetic patients, not because of the diabetes, but it is due to the same conditions that resulted in the diabetes in the first place. That is, a diet too high in fats and sugars, lack of exercise, and a generally unhealthful lifestyle.

4.3 Microvascular Disease

Many diabetics demonstrate a thickening of the capillary membrane in major areas of skin and skeletal muscles. This is most obvious in the retina of the eye and the renal glomeruli of the kidney and this situation may eventually lead to blindness or kidney failure. It becomes clear that diabetes is not a "one-organ disease" but does indeed involve the entire system. Suppressing one symptom, such as hyperglycemia, certainly does not produce health.

4.4 Neuropathy

Neuropathy involves injury to nerves, associated with destruction of the myelin sheath of nerve tissue and nerve cell degeneration. This involves sensory and motor nerves, nerve roots, the spinal cord, and the autonomic nervous system. Affected nerves show basal membrane thickening similar to the capillary abnormalities.

Did the diabetes cause this nerve degeneration? No, diabetes is merely a symptom of a systemic disorder. Again, this "disease" that is associated with diabetes is another indication of systemic involvement.

4.5 Ketoacidosis

The fat cell attempts to provide fuel in the absence of insulin by mobilizing fat stores. The free fatty acids are initially utilized for energy production, but the majority reach the liver where three strong acids are found: acetoacetic acid, beta-hydroxybutyric acid and acetone. The keto-acids are ultimately excreted by the kidneys along with sodium bicarbonate. The combination ketoacid accumulation and bicarbonate excretion causes a fall in plasma pH, resulting in acidosis.

A diet high in acid-forming foods further complicates this problem. This would include such foods as meat, dairy products, dry beans, most cereals (especially wheat) and all refined sugars.

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5. Symptoms

Early symptoms are polyuria (excessive elimination of urine), polydipsia (excessive drinking of water), polyphagia (excessive eating), loss of weight and a lack of energy. The extremely high extracellular osmotic pressure, caused by the excessive amount of sugar in the bloodstream, causes dehydration of the body cells. As the sugar is then eliminated by the kidneys, it carries water with it, thereby dehydrating the bloodstream and other extracellular fluids. Both the extracellular and intracellular dehydration cause excessive thirst and water drinking.

Since the diabetic cannot store glucose or glycogen, nor use it for fuel and energy, he has a tendency to lose weight. He is lacking in energy, despite the inordinate eating. The lack of energy may also be due to the fact that muscles respond better when using carbohydrate for energy than when using fat, which the diabetic must do. It is thought that the loss of proteins from muscles also causes part of the energy lack. Much of the energy lack is also due directly to the lack of insulin, for it is necessary for regulation of the oxidative reactions in the cell.

In children the classical symptoms may come on very quickly, as if the disease develops overnight. Of course, we know that it doesn't. In most cases, even in children, there is a slow development of the symptoms, lasting months or years. It takes a period of unhealthful living to accumulate the toxins that result in these symptoms. Sugar may be present in the urine occasionally or even continuously for years and never produce symptoms enough to cause alarm. In so-called latent diabetes, there is usually a slight hyperglycemia, discoverable only by special tests.

Other early symptoms are generalized itching, or itching of the female genital organs, boils, carbuncles, eczema, sometimes steatorrhea due to inflammation of the pancreas, and neutritis. Retinitis, acidosis, coma and gangrene are symptoms that usually belong to the later stages of the disease, but occasionally the disease is not realized until these dire consequences arise. Symptoms and clinical manifestations occurring that arise from a condition of acidosis are air hunger, coma, ketone bodies in the urine and lipemia.

Diabetes is thought to be hereditary. If any disease were truly hereditary, it would manifest itself early. If not, and it takes years to develop it, then we must assume that something else must be responsible for its development. You may inherit a tendency to diabetes, but whether or not you develop it depends upon your mode of living.

Most cases of diabetes occur in people over 40. It often takes many years of unhealthful living to develop the conditions for diabetes to exist. It takes a lot of abuse to bodily organs and systems to result in the degeneration of the pancreas and other organs intimately involved in this abnormal condition. There are no "miracle cures" that will eliminate all those years of abuse. However, if all of these errors are corrected, the body will heal as long as there is not permanent damage. At any rate, a change to a more healthful lifestyle will result in better, if not perfect, health.

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6. Medical Diagnosis

The physician has several diagnostic methods for diabetes and none are foolproof. The most widely-used methods are the serum blood glucose test and the urine test. The presence of glucose in the urine indicates that the body is attempting to maintain balance. When glucose levels reach a certain point in the blood, excess will be eliminated by the body through the urine. This is a bodily mechanism to keep itself in a stable condition and is a positive sign of self repair. However, this homeostatic mechanism can be exhausted if causes are not removed.

Testing of the urine for levels of glucose is one of the most common but least effective methods of screening for diabetes. The urine test will be positive for glucose only after the blood glucose values have become sufficiently elevated to allow glucose to spill into the urine, usually a blood glucose value of 180 mg/dl or more. Thus the urine test will be positive in advanced states of disease. However, there is also the possibility of obtaining a *false* positive indication. If an individual has recently eaten a breakfast of sugar-coated cereal, this would be enough sugar to cause a false positive test. A false negative can also result and does not outrule diabetes.

The fasting blood glucose test is probably the most frequently-used laboratory test for diabetes. It is still not totally reliable. A patient is given a sugar-type drink after fasting 10 to 16 hours and his blood is tested after 1, 1 1/2, 2 and 3 hours. If the glucose level rises and remains high, diabetes is suspected.

There are other tests utilized but they are meaningless here. Diabetes or any disease cannot be corrected by suppressing one symptom. The total person must be considered since the total organism is involved. Insulin will get rid of the glucose in the blood but it does not correct the condition and does not remove the underlying cause (toxicosis).

Diagnosis is a useful tool if diabetes is detected early and he person becomes aware of the results of his wrongdoing. and can then remove the need for disease and regain health without using insulin or any other drugs. The diabetic can then completely regain health. If nothing is done and the unhealthful lifestyle is persisted in, diabetes may progress and ketoacidosis may result. The possibility of ketoacidosis is suggested by

1. confusion or coma, the person becoming extremely ill with changes in sensory mechanisms;
2. air hunger (this is an attempt to compensate for metabolic acidosis through rapid breathing in order to eliminate as much carbon dioxide as possible to increase alkalinity);
3. fruity acetone odor on the breath (acetone is produced in excess in diabetics when the fats are not properly oxidized, due to inability to oxidize glucose in the blood);
4. nausea and vomiting;
5. abdominal tenderness;
6. extreme thirst and dry mucous membranes, reflecting water depletion due to loss of sodium and

potassium as the body tries to buffer the acid condition with these base minerals;

7. weight loss.

Do the above symptoms indicate anything other than systemic involvement? No. Then we should consider the body as a whole and not as separate units.

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7. Medical Treatment Of Diabetes Mellitus

According to the *Merck Manual*, "The primary objective is to achieve the patient's optimal health and nutrition." If this truly were their primary objective, physicians would discontinue looking to drugs for palliatives and begin to search for the underlying cause behind this "disease." If they were to discover that depressed function of the pancreas of insulin secretion is really only a symptom of general toxicosis, they would begin to teach their patients how to live so as not to create these conditions that result in ill health.

Merck Manual further states, "Whether treatment of asymptomatic hyperglycemia decreases morbidity and mortality is unknown, and there is significant risk of hypoglycemia in elderly patients given oral hypoglycemic agents or insulin therapy." It is known that drugs and insulin can harm and whether they do any good is questioned even by the physician. People with improperly-diagnosed diabetes have been placed on insulin. Because of the presence of this insulin in the blood, the pancreas ceased to secrete normal insulin, atrophied and eventually ceased to work even when needed. Thus, diabetes was *created* where it was not formerly present.

Scientists have come up with a new form of insulin that is supposed to simulate functions of the pancreas in that it supplies insulin constantly at low doses. It is called an insulin pump and is worn on the belt. It constantly infuses a low dose of rapid-acting insulin subcutaneously or intravenously with additional boluses of insulin pumped in immediately prior to meals.

It is hoped that these attempts to emulate normal pancreatic function may be associated with a clearly demonstrable improvement in the morbidity and mortality from the vascular and neural manifestations of diabetes. However, this cannot be possible with this approach. The physicians are looking at the situation too narrowly. The entire person must be considered and not only the pancreas. Palliating one symptom of ill health does not procure overall health.

According to the physician, the objectives of symptom control are twofold: (1) to avoid ketoacidosis, and (2) to control symptoms resulting from hyperglycemia and glucosuria. Symptom control involves constant monitoring of urine glucose levels and plasma glucose levels by laboratory determination. As stated, symptom control does not procure health.

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8. Effects Of Insulin

There are seven forms of insulin currently in use and they are grouped into three classifications according to their duration of action. They are fast-, intermediate-, and long-acting. Most insulin is made from beef or beef/pork pancreas. Some is now being made from only pork. All of these insulins contain pancreatic impurities including glucagon, somatostatin, pancreatic polypeptide, and proinsulin. Experiments with purer strains are now being tested since many patients have had adverse reactions from the impure type of insulin. The body rejects what is not normal and foreign protein injected into an organism is treated as a poison and eliminated as quickly as possible. Other complications may arise from insulin treatment.

Insulin shock (hypoglycemia) may occur if too much insulin is taken. Local reactions to insulin injections, often occurring during the first few weeks of insulin therapy, most commonly consist of stinging or itching at the injection site followed by heat, induration, erythema, and an urticarial reaction. Systemic reactions may include hives, urticaria, cardiopulmonary or gastrointestinal symptoms, and rarely, anaphylactic reactions. In this case, higher doses of insulin are given or more purified types are given.

All of these symptoms are indications of a bodily response to unwanted agents outside of the normal constituents. Concerning this palliation, Dr. Vetrano writes, "Medical treatment for diabetes is insulin. Symptoms only are treated with no effort to eliminate the cause. This does not help the patient to regain health. On the contrary, besides the side effects of foreign protein, it perpetuates the disease. If normal functioning cells were left before beginning insulin treatment, these soon atrophy from lack of function. The diabetic of today may live longer than diabetics of the past; but nothing constructive has been done to eliminate toxemia, so he is doomed to live the life of a vampire, because the death of other animals is necessary for his life. The toxemia which caused his first disease is not eliminated and he lives only to suffer from the effects of his drugs and toxemia."

It has been said that the rise in the death rate in diabetes is "in spite of insulin." Dr. Shelton says that it is because of insulin. He states that insulin is, both directly and indirectly, the cause of a large part of an increased death rate and is a big factor in preventing thousands of diabetics from recovering.

It has been proven that insulin does not "cure" diabetes and that it does not even improve the condition. According to Dr. Shelton, insulin is presented to us as a crutch. He explains that insulin is something the diabetic can lean upon and it will enable him to "live a normal life" in spite of diabetes but it is still employed as a crutch. But by "living a normal life" is meant eating and drinking and living in a conventional manner—in the manner that produced the diabetes and other troubles in the first place. The employment of a crutch always leads to ignoring causes. The use of insulin encourages patients to continue doing things that are known to make diabetes worse. If more enervation, or added toxemia, or continued overeating results in an increase of symptoms, the physician quickly sets matters right by increasing the dose of insulin.

Insulin reduces the sugar in the urine and blood but it has no effect on the causes of diabetes. While it aids in controlling one symptom, it constitutes an added cause.

Dr. Shelton says, "Insulin is a powerful drug. A slight overdose causes a light insulin shock; a little more produces coma; a little more results in death. The continued use of this drug produces damage of its own, not the least of which is the added impairment of the function of the pancreas."

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9. Oral Hypoglycemic Agents

Often, oral medication is given to diabetics instead of insulin to control the symptoms. It is said that some sulfonylureas lower the blood glucose levels when given orally. These include tolbutamide, chloropropamide, acetohexamide and tolazamide. The University Group Diabetes Program attempted to evaluate various types of therapy, in noninsulin-dependent diabetic patients, comparing tolbutamide or phenformin treatment with diet alone. They concluded that these two drugs were no more effective in controlling diabetes than diet alone.

There has been some evidence that the use of these drugs increases cardiovascular mortality but this has not been proven conclusively and more research needs to be done. However, acute toxic effects have been known to follow the use of these oral hypoglycemic agents. There is no doubt that these agents are poisons and should not be employed.

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10. The Diabetic Diet

The conventional diabetic diet is calculated in terms of the total requirement for calories and a ratio of these calories in grams of carbohydrates, proteins and fats.

10.1 Calories

Calorie specifications are based on "ideal weight," with allowances for physical activity or added stress, such as growth. If the patient is obese, as many adult diabetics are, then the diet prescription would indicate a sufficient reduction in calories to effect a gradual weight loss—no more than 1,200 to 1,500 calories per day. If the patient is a fast-growing, lean, adolescent boy, the calories may be as high as 4,000.

Weight will normalize on a diet that is compatible with our biological requirements. That is a diet of raw fruits, vegetables, nuts and seeds. "Ideal weight" charts are invariably too high and not accurate guides. Calculating diets based on preconceived numbers of calories per day is tedious and unnecessary. Furthermore, few diabetics will adhere to such a diet.

10.2 Protein

It is generally recommended that 5% of total calories of the diabetic be protein. In a 1,500-calorie diet that would mean 75 grams of protein. This amount of protein greatly exceeds the needs of even the most active man. The average person cannot utilize more than about 20 to 25 grams of protein daily.

Any protein in excess of this is either stored in fat or muscle or eliminated from the body. This is an expenditure of vital energy that should be used for healing and repair—a situation that will result in enervation. Such excess protein accumulated in the tissues eventually results in impaired function. The body periodically makes great efforts to eliminate these excesses through such eliminative endeavors as colds, flu, skin eruptions, etc. If the body is greatly enervated, such vital eliminations may not occur and degenerative diseases will begin to develop.

Every item of food that we eat has some protein when it is consumed in its natural state. Even fruits and vegetables contain some protein. In fact, it is in this form that protein is most easily utilized and requires the least amount of vital energy to digest and assimilate. Also, we do not clog our system with excess toxins as we do when we consume the protein of flesh, dairy products or eggs. It is important that the diabetic consume foods that require little vital energy to digest and also contain little or no toxins. Energy is needed for healing and further toxins will impair this process.

10.3 Carbohydrate

There is less emphasis now upon strict carbohydrate control than in past years for the diabetic. As a general rule, the carbohydrate grams recommended are 10% of the total number of calories. Refined carbohydrates certainly should never be consumed such as cookies, pies, cakes, candy, etc. However, the simple carbohydrates as found in ripe fruits and vegetables should form the bulk of the diet. The carbohydrates of fruits are easily assimilated and also contain many of the base minerals that are so important in the diabetic's (and in everyone's) diet. You can be assured that all your needs will be met.

10.4 Fat

As a general rule, the grams of fat in the diabetic diet are recommended to be 5% of the number of total calories. (In a 1,500-calorie diet, there would be 75 grams of fat.) This is entirely too high. You cannot utilize that amount of fat and the excess adds to toxicosis. All the fat that you require is found in nuts and avocados. If these items are eaten moderately a few times a week, your fat requirements will be met. Remember that your fruits and vegetables also contain small amounts of fat.

While it may be necessary to continue insulin therapy to a certain extent, a diet of fruits, vegetables, nuts and seeds will provide the body with the proper conditions to heal and repair. The pancreas will no longer be stressed with large amounts of glucose in the blood due to refined sugars in the diet and healing will take place.

10.5 Food Exchange Groups

The conventional program for diabetic diets utilizes a food-exchange system where foods of like proteins, fats and carbohydrates are grouped together. The patient is assigned a certain number of units that he may have per day from each group and he may exchange them for certain foods within that group. This is a tedious procedure that is slowly being abandoned even by the physicians and most dietitians. It is unnecessary if the general dietary program is correct. As stated earlier, a diet of ripe fruits, vegetables, nuts and seeds, all in a raw state, provides us with all our dietary requirements without excesses or deficits.

10.6 "Anything Goes Diet"

Another approach that is now being taken is to let the diabetic eat anything that he wants. Sometimes refined sugar is eliminated but not always. S/he is then closely monitored and insulin doses adjusted accordingly, as needed. This is certainly unwise and cannot produce health. People need to be educated in regard to the proper diet and not let them grope on their own. If a person stays on his conventional meat, potatoes, bread and sweets diet, more ill health will result. Causes must be removed in order to regain health and an improper diet is a major cause of diabetes and other chronic disorders. That is, the toxicosis that resulted from the improper diet.

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11. Why You Have Diabetes

It is your total way of living that causes you to develop diabetes—your excesses, deficiencies and poison habits. Excesses include: overeating, overworking, wrong emotions, worry, anxiety, tension, etc. Deficiencies are: lack of sleep, lack of rest, lack of exercise, demineralized foods, lack of fresh air, lack of sunshine, and lack of emotional poise. Finally, by your poisonous habits, you add to the total toxic load of the body. You poison your body with alcohol, coffee, tea, soft drinks, cigarettes, poisoned articles passing for food, the many drugs thrown into your system daily to suppress the discomforts arising from a way of life that is destructive to health. The real cause of diabetes came before the deficiency of insulin.

Dr. Vetrano says that most writers on the subject think that there is a definite link between diabetes and civilization. In more primitive atmosphere it would naturally follow that there would be fewer cases of all varieties of diseases, including diabetes. In primitive conditions food is more natural, working hours fewer, more sleep and rest can be obtained, air and water are purer, there is less tension and worry, and the way of life more simple in general. More sunshine and exercise are incorporated into each day. Primitive living is more healthful, hence, fewer diseases develop.

Dr. Shelton says, "Diet and drink, sleep, work and play, and many other factors enter the cause of every so-called disease. Any form of overstimulation—mental, emotional, sensory, physical, chemical, thermal, electrical—may give rise, first to functional, and, finally, to organic disease. Diabetes is a functional disturbance at its beginning."

Diabetes is more prevalent in those countries where sugar consumption is highest—United States, France, Germany and Great Britain. Every fat person is a potential diabetic. Overeating results in overwork of the pancreas and as overwork of any organ results in impairment of the function of the organ, pancreatic failure results. If its causes are not corrected, functional impairment gradually passes into organic disease.

Carbohydrate excess (in refined form) places a strong stress on the pancreas and when this gland is overworked by too great an intake of starches and sugars, there will be first, irritation and inflammation, then enlargement, followed by degeneration. The body then loses control of sugar metabolism.

However, overeating of refined carbohydrates is not the sole contributor to pancreas impairment. Anything that produces enervation—tobacco, tea, coffee, chocolate, cocoa, alcohol, cola, loss of sleep, overwork, general overeating, emotionalism, etc., impairs organic function in general, including pancreatic function.

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12. How You Can Improve Your Overall Health

Many people think that once they are diagnosed as a diabetic they are doomed to a life of dependency upon drugs, and forced into a life of suffering from the general toxic effects of those drugs. However, this is not the case. The adoption of a healthier way of life would permit them to live to a ripe old age without drugs and their poisons. But the choice rests with the individual.

A fast is important to allow the body to rid itself of toxins. If you have been on insulin for more than two years, however, great care must be taken. The insulin dosage must be cut down very gradually. If there is a complete degeneration of the islets of Langerhans, you may be compelled to take minute doses of insulin for the rest of your life, but living healthier will keep you in better condition than the average diabetic. You will be able to escape the degenerative diseases that usually complicate diabetes.

Dr. Vetrano states, "For those who still have good functioning tissue, health can be regained and maintained. It is amazing what the human organism can do for itself in the way of rejuvenation of sick cells when poisoning is discontinued and toxemia is eliminated and a plan of care is instituted that provides the body with the primordial requisites of life."

Dr. Shelton explains that once a person has become enervated, recovery of nerve energy needed for healing requires conservation of energy and removal of all enervating influences. He further says that improper eating is undoubtedly an important factor in the causation of diabetes, but most diabetics have many other unhealthful habits besides wrong eating, and all these habits must be corrected.

For those who cannot fast, recovery is still possible. While fasting is of great value in diabetes, it is more important that the diabetic learn how to live, learn what foods he can take, learn his limitations and learn to live within these, and that he fast. Recovery can occur only after cause has been removed and fasting is but one part of the process of removing cause.

The diet of the diabetic should be the same as for a healthy person. That is, raw ripe fruits, vegetables, nuts and seeds. At first, it may be necessary to eliminate dried fruits and some of the sweeter fresh fruits until a higher degree of health is achieved. On this diet, physiological functions will normalize and health will be restored as long as there is not any permanent destruction of tissues. In any case, a much healthier overall condition will be attained.

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1. Introduction

Diabetes insipidus is much less common than diabetes mellitus. It is a disorder where there is either a deficiency of vasopressin (ADH) or an insensitivity of the kidney tubules to the presence of this hormone.

The hypothalamic nuclei of the pituitary gland secretes the antidiuretic hormone. This hormone acts mainly in the distal-collecting tubules of the kidney and stimulates the reabsorption of water according to bodily need. Onset of this "disease" is said to be insidious or abrupt and may occur at any age. However, we know that no disease occurs abruptly but it develops only after a period of time due to unhealthful practices.

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2. Symptoms

Enormous quantities of fluid may be ingested and excreted (3 to 30 liters per day). Urination is especially excessive during the night. Dehydration develops rapidly if urinary losses are not continually replaced.

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3. Medical Treatment

The usual treatment is hormonal therapy. ADH is administered either via a nasal spray or intramuscular injection. Nonhormonal therapy involves the use of certain diuretic drugs. This palliative treatment cannot result in health. It only treats the symptoms of this disease without considering causes. Other systemic disorders are present in this disease, such as chronic renal disorders and other systemic or metabolic impairment.

To treat one symptom is foolish. As in diabetes mellitus, the underlying cause of ill health must be corrected and only then will general health result.

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1. Introduction

Hypoglycemia is abnormally low blood glucose level. This is a condition where the islets of Langerhans are too sensitive. In response to the metabolic demand, they secrete too much insulin. The liver converts too much sugar into starch, leaving too little in the circulating blood. The final result of eating a meal is a drop in blood sugar. The sufferer from this condition is always hungry and no amount of eating will keep the level of his blood sugar where it belongs.

Overindulgence in sweets tends to sensitize the islets of Langerhans by subjecting them to repeated stimulation and exercise. The body overcompensates, as it were, thus disorganizing and upsetting the internal hormone balance. Here then, is the connection between sugar and starch addiction and hyperinsulinism.

Another factor is the indulgence in any substance that contains caffeine. Caffeine (a drug found in many beverages like coffee, tea, coca cola and soft drinks, cocoa, chocolate, etc.) is a common cause of the upset of the delicate mechanism involved in sugar tolerance. Caffeine results in the stimulation of the adrenal cortex and more of its hormones are produced. These hormones, in turn, induce the liver to break down glycogen into glucose that flows into the bloodstream. The islets of Langerhans go to work to secrete insulin to force blood sugar to its normal levels.

In the course of time, because of their repeated stimulation, the islets become so sensitive, due to enervation, that the delicate control is lost and they overrespond to a normal stimulus.

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2. Other Factors

Other factors may produce hypoglycemia. An overdose of insulin by the diabetic patient often results in hypoglycemia. Depending on the amount, this can result in coma or even death. Certain oral hypoglycemic drugs such as the sulfonylureas often result in low blood sugar. Hypoglycemia can be induced by alcohol, salicylates (in aspirin, etc.), and other drugs such as aminobenzoic acid, halopenidol, propoxypene and chlorpromazine.

Deficiency of contrainsulin hormones such as glucagon, cortisol, growth hormone, epinephrine or thyroid hormones can result in low blood sugar. In fact, any excess or deficit in any gland or organ may have some effect. This is so because the body works as a unit and never as separate parts or units.

As in diabetes mellitus, not any one factor results in hypoglycemia but it is the total effect of our general lifestyle that affects our health. For example, our diet may be perfect but if our sleep is insufficient, all vital organs will be affected.

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3. General Symptoms

Most physicians group the symptoms of hypoglycemia into two categories:

1. Faintness, weakness, tremulousness, palpitation, diaphoresis, hunger and nervousness, such as may result from epinephrine administration
   Epinephrine is a hormone that has multiple effects to prepare the body for many different kinds of stress. Its effect on glucose is very rapid and can produce minute-to-minute changes in blood glucose levels. Stress stimulates epinephrine release, and the hormone then serves to mobilize glycogen to yield a higher blood glucose level. Epinephrine also suppresses insulin release to further enhance blood glucose levels. Acute hypoglycemia with epinephrine-like symptoms indicates that endogenous epinephrine-induced glycogen mobilization has already started.
2. A pattern of central nervous system symptoms including headache, confusion, visual disturbances, motor weakness, palsy, ataxia, and marked personal changes. These CNS disturbances may progress to loss of consciousness, convulsion and coma. With recurring episodes of hypoglycemia in the same patient, the symptoms may be repetitive, although the tempo and severity of an attack may vary

   Symptoms of anxiety, including sweating, headaches, hunger, tachycardia, weakness, and occasionally seizures and coma may suggest hypoglycemia but not necessarily. At any rate, the underlying cause is the same and that is enervation leading to toxicosis and eventual impairment of all (not just one) bodily functions. The various symptoms demonstrate systemic involvement.

3.1 Mind/Body Symptoms

If the blood sugar drops too low, the nervous system is in jeopardy. The brain relies on blood sugar for its functioning, and if it is deprived of it, it cannot continue. This is what happens when a diabetic gets an overdose of insulin. All the sugar enters the cells. There is none readily available for the brain, so the person lapses into a coma. Though such a drastic drop in blood sugar is not usually experienced by the hypoglycemic, the decrease is still interpreted as a danger signal, and the adrenal glands usually respond by secreting adrenalin. This helps mobilize stored glucose from the liver, but it also sets off a general alarm, alerting the whole body as for emergency action. One may feel apprehensive, tremulous and find that his/her heart is beating rapidly, his/her hands are becoming cold and clammy and s/he is breathing in a rapid and shallow way. How severe these symptoms are depends on how low the blood sugar drops and how drastically the adrenal glands respond.

It has been demonstrated that those who experience drastic dips in their blood sugar levels excrete more of the breakdown products of adrenalin in their urine. They are repeatedly responding as though to danger. The result can be an overall feeling similar to what we call "anxiety." It has been proposed that drops in blood sugar constitute a sort of "internal stress" and may create a great deal of wear and tear on the individual, both provoking mental problems, aggravating emotional crises, and increasing irritability and difficulty in working with others. Such chronic stress and the resulting chronic anxiety could be a factor in the development of ulcers, headache or simply general enervation.

Though hypoglycemia may be one aspect of the development of any of a variety of disorders, it cannot itself be called the "cause" of anything. It is rather one symptom in a chain of events that may have begun with the improper selection of food, along with lack of rest or exercise, etc., and continues to worsen as these bad habits are continued.

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4. Medical Diagnosis

The generally accepted method of diagnosis of this condition is the glucose tolerance test. This is usually carried out in the following manner. For three days, a high-carbohydrate diet is eaten. On the fourth day, the level of blood sugar is tested in a fasting state, and a drink containing a great amount of sugar is given. Then, on an hourly basis, blood samples are drawn and checked for sugar content. The test continues for five to six hours. Typically, in a hypoglycemic, the blood sugar level does not increase at the normal rate. The initial rise is followed by a steep fall to below-fasting levels.

In any person who is in an enervated condition, blood sugar levels may not rise to normal levels for a considerable time due to this enervation. It does not necessarily mean that the individual has hypoglycemia. It does indicate that the individual is in a generally poor state of health but a glucose tolerance test is really not needed to determine this.

In this case, diagnosis is really a useless tool. All the physician has to do is to instruct his patient how to live for total health and all symptoms of ill health will disappear when a healthier lifestyle is adhered to.

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5. Medical Treatment

In acute or severe episodes of hypoglycemia with central nervous system symptoms, physicians usually recommend ingestion of oral glucose or sucrose. This relieves the symptoms by flooding the blood with glucose but it also stimulates the pancreas to secrete another dose of insulin and the blood sugar is reduced to even lower levels than before the glucose was ingested. No good is achieved by this treatment and the condition is only made worse.

Generally, the hypoglycemic patient is advised to adhere to a low-carbohydrate diet similar to that of the diabetic. Basically, this means eating from four to six small meals a day, each of them containing a generous amount of protein. Sugar in any form is completely forbidden. Besides no ice cream and cake, this means no processed foods of any kind to which sugar has been added. Coffee, tea and alcoholic beverages are also forbidden.

6. Concentrated Sugar

The body is really not set up to handle concentrated sugars. Although 'sugar' (not refined) is the fuel that runs our entire body, using concentrated forms of sugar found in pastries, pies, sugar-coated cereals, candy, etc., overloads the delicate control mechanism and the pancreas overreacts by producing too much insulin. There will then be a signal for food and too often a wrong choice is made when this need is acute. Thus a vicious circle is established with general effects upon our entire system and all the attendant symptoms resulting from it. Often, too little fruits and vegetables are used. Instead, the convenience-type foods take over a large percentage of the daily intake.

7. Conversion Mechanism

The sugar that the body cannot use as energy when it has been acted upon by insulin will be converted to glycogen, and is stored in the liver and muscles; or what cannot be stored as glycogen will be converted to fat.

In normal body function, there is a conversion mechanism that protects us against the rapid drop of blood sugar. The adrenal glands secrete a hormone (epinephrine) that begins the change process of glycogen back to glucose. This same response is brought into play when fear, anger or expenditure of energy requires lots of fuel, so glycogen from the liver and muscles is immediately turned into glucose.

If the glycogen conversion mechanism is not working well, the body has a backup mechanism. This consists of the conversion of amino acids and triglycerides into a fuel. Amino acids are capable of being converted to glucose but do so at the expense of tissue repair and making of enzymes, hormones and other essential processes which require amino acids. Since it is a kind of emergency assistance, you can easily imagine how the body suffers if this must take place on a continual basis.

Carbohydrates are converted to glucose in the gastrointestinal tract and absorbed into the bloodstream where they then pass on to the liver. If there is too much glucose, the liver will convert it to glycogen and store it until needed. When blood glucose levels drop, a hormone from the adrenals (epinephrine) facilitates the conversion back to glucose.

Many of these mechanisms are dependent upon hormones, and particularly upon adrenal hormones. Many physicians are convinced that the single most common cause of hypoglycemia is a poorly functioning adrenal system,. However, we must also ask, "What caused the adrenal system to go amuck?" It is the same reason that caused the hypoglycemia and other symptoms. That is, general enervation and toxicosis. Underlying causes must be sought. You must stop treating symptoms and begin correcting the errors behind the symptoms.

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8. Hormones That Maintain Balance

Several important hormones play significant roles in maintaining blood glucose balance:

1. *Cortisol (hydrocortisone) and cortisone*
   Cortisol and cortisone belong to a class of steroid hormones synthesized in the cortex of the adrenal glands, known as glucocorticoids. They have a primary effect on carbohydrate, protein and lipid metabolism. They are in many ways antagonistic to insulin. They elevate blood glucose and increase production of glucose from protein.
2. *Adrenocorticotropin (ACTH)*
   This Hormone is liberated by the anterior pituitary gland and stimulates the cortex of the adrenal glands. If too little of this hormone is secreted, the adrenal glands will secrete too little of their hormones and if ACTH is present in too large amounts, adrenal hormones will be secreted in too large amounts.
3. *Growth Hormone (Somatotropin)*
   Growth hormone is the only hormone of the anterior pituitary gland that does not exert its effect on other endocrine glands. Growth hormone or somatotropin is a protein. It stimulates growth, increases protein synthesis, decreases carbohydrate utilization, and increases fat catabolism. Because somatotropin suppresses carbohydrate utilization, blood glucose increases, stimulating insulin secretion. Two factors from the hypothalamus control secretion: the growth hormone releasing factor and the growth hormone release inhibiting factor. During protein deficiency, growth hormone secretion increases as it does when the blood sugar level falls. Exercise increases secretion also.
4. *Epinephrine*
   In times of stress, small amounts of epinephrine (adrenaline) are discharged from the adrenal glands into the bloodstream. Epinephrine ultimately causes the release of a flood of glucose molecules from the liver into the bloodstream for quick energy for the muscles. One epinephrine molecule is thought to cause the release of about 30,000 molecules of glucose.
5. *Thyroid Hormones*

   Thyroxine and triodothyronine are two chemically similar hormones secreted by the thyroid gland. Both have the same physiological effect on tissues. The most obvious effect they have is to increase the rate at which cells burn glucose. They also work in "partnership" with cortisol in defending the body against stress resulting from extreme cold. In general, thyroxine comes into play when there is an extra demand for energy.

As you can see, there is an intricate relationship between all bodily parts and the disfunction of one affects all. The more you study physiology, the more you realize the foolishness of treating symptoms. They are merely indications of systemic impairment.

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9. Progression Of Hypoglycemia

A vicious cycle begins to emerge when repeated errors of diet are made. These errors do not always result in hypoglycemia, but they can. In some persons, severe symptoms will arise elsewhere.

However, in the person demonstrating symptoms of hypoglycemia, this is what happens:

A concentrated sugar-containing food is consumed. Blood sugar begins to rise rapidly. Because of the intense sugar concentration of the food resulting in an abrupt rise in blood sugar, the pancreas is stimulated to produce a large amount of insulin needed to dispense the sugar. If the adrenals do not quickly produce a counter-balancing hormone to signal the end of insulin production, it is possible that blood sugar levels will fall below an acceptable level.

At this point, blood sugar levels are below normal and the signs of hypoglycemia are present: fatigue, headaches, irritability, etc. This will often be "cured" by the consumption of either a concentrated sugar product or an adrenal stimulant such as coffee, cola or nicotine. The cycle is repeated over and over, thus resulting in enervation of bodily organs and glands and toxic accumulation from the refined sugar products and other wastes.

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10. The Liver

An organ in the body that plays a great part in the blood sugar regulation is the liver. It is in the liver that sugar is converted to glycogen for storage, then stored in the liver as well as muscle tissue, and, as needed, converted back into sugar again. It is easy to see the importance of good liver function for proper blood sugar levels.

The liver can be damaged or have its functional capacity reduced by several factors: alcohol consumption, tobacco, smog and toxic drugs. Fortunately, the liver is one of the fastest regenerating organs in the body and, once these factors are overcome, it will restore itself and carry out the many body functions it performs. It is these same factors that also result in impaired function of all of the other vital organs in the body and it is imperative that these errors in living be corrected for health to be restored.

Actually, large quantities of sugar should never reach the bloodstream in the first place. Food absorbed from the intestines is taken up by the portal vein and goes directly to the liver. Here all blood is filtered and nutrients are sorted out, some put in storage (in the form of glycogen) and others released for immediate use, according to what is appropriate. If the liver is healthy and is able to store glucose, then excessive amounts of this sugar are not dumped wholesale into the blood.

Hypoglycemia then, is not necessarily due to only an inappropriate insulin response but to a weak or sluggish liver that is unable to perform its duties properly. This is illustrated by alcoholics where the liver is damaged from habitual drinking. They are often hypoglycemic. Consumption of large amounts of protein put further burden on the liver.

There is no real reason why a flood of sugar has to be delivered to the bloodstream or to the liver. Whether it is or not depends on what kind of carbohydrate was eaten. White sugar is rapidly absorbed from the intestine and immediately floods the blood with glucose. On the other hand, carbohydrates in the form of fruits are absorbed more slowly owing to their more complex nature, and are therefore taken into the blood more slowly and the pancreas is not unduly stressed.

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11. Hyperinsulinism

Hyperinsulinism is another term that is often used synonymously with hypoglycemia. (However, hypoglycemia is not necessarily accompanied by hyperinsulinism.) This term simply means too much insulin in the blood. Another interesting tie-in of the adrenal glands and the pancreas is seen here. When the amount of insulin necessary to do the job on a given amount of sugar has been secreted, it is the job of an adrenal hormone to send a message to the pancreas to stop producing insulin. A sluggish adrenal will be late in this function, thus allowing an overproduction of insulin with a resultant excessive lowering of the blood sugar. Epinephrine and norepinephrine act directly on the pancreatic islets to inhibit insulin secretion.

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12. What To Do If You Have Symptoms Of Hypoglycemia

Fasting is the best way to quickly eliminate the toxemia that resulted in your hypoglycemic symptoms. Through the fast you will give your body the rest that it needs to carry on its job of cleansing and repairing.

People with hypoglycemia are often fearful of fasting. They believe they will go into shock if they don't eat some protein every few hours. But professional Hygienists have seen these people regain their health after a fast. However, they do need expert supervision.

Dr. William Esser says, "Hypoglycemia can very definitely be benefited by a fast." He says that functional types of hypoglycemia can be corrected without too much difficulty through fasting and a change in habits.

Since hypoglycemia is a condition that arises out of factors of irritation, abuse and exhaustion, involving the entire body, the only "remedy" for this exhaustion is rest. The body must be allowed to slow down and the stress factors must be eliminated as much as possible. A period of fasting under proper supervision is important for the purpose of fostering metabolic housecleaning and a thorough physiological rest for the exhausted organs and glands. All draining of functioning power must cease. Emotional, sensory, and physical power is restored by physiological rest.

The fast should be continued long enough to marshal all the power and force of the organism to regenerate itself and to return to normal functioning. It is only through the return of this power that the organs involved in blood sugar metabolism can resume the work that they have been created to perform.

After fasting, all refined foods and other harmful substances should be eliminated, especially white flour products, refined white sugar, alcohol, caffeine, salt and nicotine. Any small amount of these poisons may overstimulate and exhaust the pancreatic-adrenal mechanism, thus reactivating the hypoglycemic pattern.

The natural diet of humans is one of raw ripe fruits, vegetables, nuts and seeds. Dr. Frank Sabatino suggests that for a period of time, the elimination of certain foods, such as sweet and dried fruits, may be necessary. Even such an excellent food as bananas may be on the prohibited list for a while. In the fruit family, the more desirable items during this period, according to Dr. Sabatino, should be citrus (oranges and grapefruit), and sub-acid fruits (such as peaches, pears, apples). He also suggests a three-meal-a-day plan of one fruit meal and two salad meals, with ample use of greens, sprouts and avocados. After, health is restored, more fruit meals with sweet fruits included may be eaten.

In addition, you should not neglect the other conditions for health such as proper exercise, fresh air, sunshine, emotional poise, rest and sleep. This is the only way to regain health and correct this condition of disturbed physiology.

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Questions & Answers

Does the pancreas have any reserve capacity after it has been partially destroyed?

> The pancreas has an enormous reserve functioning capacity. This has been proven experimentally in animals where large amounts of pancreatic tissue have been removed. In these experimental animals, diabetes mellitus has been induced by different methods. The method most often employed is depancreatectomy. In order to attain significant diabetes, at least 90 to 95% of the pancreas usually must be removed, otherwise, the islets of Langerhans in the remaining pancreatic tissue will often be able to hypertrophy significantly to supply enough insulin for normal metabolic needs. This indicates that the islets of Langerhans normally have a tremendous reserve capacity.

I heard about a high-carbohydrate and high-fiber diet that is supposed to be a "miracle cure" for diabetics. Is this true?

> There are no "cures." The high-fiber diet may temporarily alleviate the symptoms because the glucose is entering the blood at a slower rate due to the types of complex carbohydrates that are eaten. However, no causes have been removed and the errors in living that resulted in diabetes have not been corrected. There is no other way to achieve health.

Why has the incidence of diabetes increased so dramatically in recent years?

> Statistics show that many more people are going out to eat now than ever before and they most frequently go to the fast food restaurants. Consumption of prepackaged dinners and other junk foods are increasing
>
> Also, people are exercising less and indulging in other enervating habits such as cigarette smoking, coffee, alcohol, etc. All of these factors lead to toxicosis and the end result, in many people, is diabetes.

Is there any other clinical evidence that diabetics have had success on a raw foods program?

> According to Dr. John M. Douglass, of the Southern California Permanent Medical Group and Kaiser Foundation Hospital of Los Angeles, diabetics who make an effort to eat more raw foods may be able to decrease or eliminate their need for insulin
>
> One of Dr. Douglass' patients, an elderly man, had been taking insulin twice a day. When he started eating more foods in their raw uncooked state, his insulin requirements began to fall. After four years, he was able to get by with just half his usual amount of insulin a day
>
> A second patient, a young Mexican-American man, complained to Dr. Douglass that he would rather die than continue taking insulin "shots." By shifting to an 80% raw diet, he was

> able to control his diabetes with oral drugs alone. (Perhaps if a 100% raw food diet were implemented, he would have been able to dispense with the oral drugs also
>
> What led Dr. Douglass to try the raw food regimen? "My rationale was that since early man lived entirely on raw food, perhaps such a diet would be less stressful to the human system in general and less diabetogenic than a cooked food diet." Raw vegetables, seeds, nuts, berries, melons and other fruits and part of Dr. Douglass program.

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Article #1: Diabetes Mellitus by Dr. Herbert M. Shelton

This is the name given to a group of symptoms that center around an impairment of carbohydrate metabolism. Commonly we are told that it is a disease of the pancreas, but it is coming to be realized that it is a disturbance of the metabolic process involving the entire organism and not strictly localized in any one organ. It is, in other words, a manifestation of a systemic derangement and, however important the pathology in the pancreas may be, this is secondary to the systemic derangement which has resulted in the disease of the pancreas.

The Islands of Langerhans may be described as little organs within the pancreas or sweetbread. These structures produce an internal secretion commonly known as insulin which is essential to the oxidation of sugar. When they fail to secrete sufficient insulin an excess of sugar accumulates in the blood and is eliminated by the kidneys in the urine. Hence sugar in the urine (glycosuria) is the principal symptom of what the layman calls *sugar diabetes*. But it is a subordinate symptom and is valuable chiefly as a criterion of the progress of the condition.

The condition of the pancreas of diabetics has been thoroughly studied after death and the destructive changes therein found have been carefully described and catalogued. But the patient may have had diabetes ten or more years before death and the pathologist, studying the end-point of the pathological process after death, gives us false picture of the condition of the pancreas except the terminal stages of the disease. Thus the hopeless view of diabetes taken by medical men.

There is no destruction in the pancreas when the disease first begins and the destructive changes take place slowly against the weakened resistance of the body. Enervation (fatigue) of the Islands of Langerhans is the probable beginning of diabetes. It is toxemia that produces the pathology (the destruction) in the pancreas. Toxemia produces first a mild, chronic pancreatitis which may persist for a long time before marked damage to the pancreas occurs.

Under causes of diabetes, Dayton's *Practice of Medicine* gives "Heredity, male sex, adult life, Jewish race, obesity, cerebral or spinal disease or injury, infectious diseases, overwork and nervous strain predispose. Actual cause is unknown. Pancreatic disease is probably important."

Heredity! Male sex! Adult life! Jewish race! These are not causes of anything. If adult life predisposes to diabetes then it is certainly dangerous to grow up. If male sex and Jewish race predispose then it is dangerous to be a man and a Jew.

If adults have more diabetes than children it is because more years of wrong living have produced more pathology in them. If men have more diabetes than women, it is because their mode of living is worse. If Jews have more diabetes than others it would have to be something in their diet or mode of living that produces the diabetes.

Perhaps pancreatic disease is important, but it certainly is not self-originating and self-evolving. It must be the outgrowth of causes antecedent thereto; must be secondary to other causes and conditions. Healthy men and women, Jews or heathens, do not develop diabetes.

Heredity! Is there such a thing? It is true that there are many cases of diabetes in children and youth and it is quite possible that there is marked larval endocrine deficiency in all such children. It may even be a lesser degree of larval endocrine deficiency that establishes the tendency to diabetes in adults. The time of life at which carbohydrate tolerance breaks down may be considered an index to the larval endocrine imbalance in the individual. But we must not overlook the fact that of two individuals with the same degree of larval endocrine deficiency, the one that subjects his body to the most enervating influence and consumes the greatest amount of carbohydrates will break down his carbohydrate tolerance first.

In those cases developing after the thirty-fifth or fortieth year we think the larval deficiency may be considered negligible and think that the cause is a decidedly overcrowded general nutrition in which carbohydrate consumption has been excessive throughout life. The Islands of Langerhans have merely been overworked through the years.

Worry, anxiety, grief, shock-fright, accidents, surgical shock—will so impair the function of the pancreas that sugar shows up in the urine immediately. In many cases of diabetes, emotional stress is the chief cause, but it is never the sole cause. Every so-called disease is a complex effect of a number of correlated antecedents.

Diet and drink, sleep, work and play, and many other factors enter the cause of every so-called disease. *Any form of overstimulation—mental, emotional, sensory, physical, chemical, thermal, electrical—may give rise, first to functional, and, finally, to organic, disease:* Diabetes is a functional disturbance at its beginning.

Diabetes is more markedly on the increase in those countries in which sugar consumption has mounted to such high figures during the past fifty years—France, Germany, Britain and the United States. Every fat person is a potential diabetic. The overfeeding which is responsible for the fat overworks the pancreas and as overwork of any organ results in impairment of the function of the organ, pancreatic failure results. If its causes are not corrected, functional impairment gradually passes into organic disease.

Carbohydrate excess places a strong stress on the pancreas and when this gland is over-worked by too great an intake of starches and sugars, there will be first, irritation and inflammation, then enlargement, followed by degeneration (de-secretion); after which the body loses control of sugar metabolism and of the excess acidity caused by too much starch and sugar.

But it should not be thought that overeating of carbohydrates alone impairs the pancreas. Anything that produces *enervation*—tobacco, tea, coffee, chocolate, cocoa, alcohol, soda fountain sweets, loss of sleep, overwork, general overeating, emotionalism, etc.—impairs organic function in general including pancreatic function.

Sedentary habits added to overeating increase the tendency to diabetes, as they do to all other so-called *"degenerative diseases of later life."*

Let us glance briefly at the symptoms of diabetes. The urine is frequently voided, is pale and of high specific gravity unless there is inflammation of the kidneys in which case specific gravity is not so high. The urine contains varying amounts of sugar and certain acids that are absent from the urine of healthy subjects.

There is great thirst and a ravenous appetite with, commonly, loss of weight. Headache, depression and constipation are common. The breath is sweet, though unlike that of the healthy person. The mouth and skin are dry, even parched, the tongue is red and glazed, and when the disease is advanced the teeth usually decay and become loosened. There is a tendency to phyorrhea and bleeding of the gums. Loss of sex power is common, while Bright's disease may develop as a "complication." Impairment or loss of vision may occur. Boils and eczema are also frequent. The disease progresses more rapidly in young patients than in older ones and it is thought by some *Hygienists* that children rarely if ever make a complete recovery.

Recovery—the medical term is "once a diabetic, always a diabetic"—depends upon the amount of functioning tissue left in the pancreas. Fortunately, the pancreas, like all other organs of the body, possesses a great excess of functioning power over that needed for the ordinary activities of life, so that even after part of the Islands of Langerhans have been destroyed the remainder will be able to function sufficiently to meet the regular needs of life, provided the impairing causes are removed and they are given opportunity to return to a state of health.

When organs are not destroyed beyond repair, rest, poise, self-control, and a restricted, proper diet will restore normal functioning. In diabetes, rest and proper food, with diet restricted to the patient's digestive capacity, and full cooperation will result in dependable health in a few years. Failure is for all those who are not willing to live according to nature's principles.

All enervating influences and habits must be corrected or removed. Sufficient rest for restoration of nerve energy is imperative. A fast, not merely to give the pancreas a rest, but of sufficient duration to free the body of its load of toxins, must be followed by a diet that is designed to produce all possible regeneration in the pancreatic gland. Feeding that is designed merely to cause the disappearance of sugar from the urine may speedily kill the patient. After health is restored the patient must be taught to live within his compensating capacity.

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Article #2: Diabetes

In spite of the optimistic expectations with which Banting's discovery of insulin was heralded, this drug has proved to be nothing more than another palliative. It has contributed nothing towards the radical solution of the problem of diabetes. On the contrary, satisfaction with the palliation which insulin affords has tended to discourage further search for a genuine solution of the problems presented by this disease. Physicians and patients alike seem to be wholly satisfied to go on using insulin and ignoring all else.

Diabetes is on the increase in all the industrialized countries of the world and has steadily increased from the time of the discovery of insulin. The number of cases, world-wide, is estimated by medical authorities to run into many millions. *World Health News*, March, 1965, stated that "the incidence of diabetes is increasing all over the world and a WHO expert committee which has convened to discuss the problem considered that there is 'unassailable evidence that overweight predisposes people to diabetes ...' Some idea of the incidence of the condition can he gained from the figures for the United States, where there are estimated to be four million cases ..."

The dependence of the profession upon insulin is pathetic. It is no longer thought that insulin does any more than palliate symptoms. But there is the unfortunate fact that thousands of people have been given insulin who had nothing more than an evanescent appearance of sugar in the urine. Many of these have been kept on insulin until their pancreas underwent so much deterioration that they were unable to get off the drug. They did not have diabetes when they began the use of insulin, but they now have diabetes as a direct result of insulin dosage.

Insulin never restores health, hence its use is purely palliative. Before it came into use, physicians and patients made some effort to correct the mode of living. The diet of the diabetic was carefully regulated, even if not always well regulated, and physicians often sought for various causative factors in the life of their patients. This is no longer so. Insulin enables them to live in spite of their indiscretions. This does not mean that insulin wipes out the effects of their indiscretions, but that it palliates one of the effects of these indiscretions. The result of the use of insulin has been a steady increase in the early death rate from diabetes from the year it was introduced. This is true because both physicians and patients rely upon the drug and ignore all causes of disease.

Calling diabetes a *disease of civilization*, while it stresses the fact that the less civilized, whose lives are more natural and whose diets are not processed and refined and not overabundant, have little or no diabetes, does not place its finger on the true cause of the deficiency of function. Until we are willing to recognize the genuine etiological factors and correct these, we are going to continue to watch the increase in the incidence of diabetes and depend on the processing of the pancreas of animals as a means of palliation. Today we do not even feel any shame for our illegitimate dependence on cattle and swine for such palliation.

The precarious condition in which the medical profession and their diabetic patients find themselves, growing out of their dependence on slaughter houses for insulin, has caused much concern. To date no means have been found to produce insulin, artificially, and the only available supply is from slaughtered animals. As the human population continues to increase and earth's animal population decreases, this could become serious from the standpoint of medicine. What would happen if the world became vegetarian, as it must in the future, and the slaughter of animals were discontinued? In his book. *The Genetic Code*, Prof. Isaac Asimov says: "Suppose though that increasing population pressure forces future generations more and more into a vegetable diet. This would mean a steady decrease in the potential supply of insulin." He implied that as far as he could see into the future, insulin production would continue to be dependent on animals.

This uncertainty about the future insulin supply underscores the urgent need for a discovery of the cause of diabetes and for finding a means for restoring health to the diabetic patient, instead of depending upon the palliation insulin provides. As no means of restoring health exists except those that constitute Natural Hygiene, the future diabetic will be forced to depend upon Hygiene rather than the animal product.

Lesson 74 - Diseases Relating To The Heart And Circulatory System

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1. Introduction

Heart disease is the end result of a lifetime of unhealthful living. It is not due to diet alone or lack of exercise alone but it is the cumulative effect of all our unhealthful habits. It will become clear, after completing this lesson, that the entire body is involved in the development of this condition. Systemic impairment begins long before the symptoms of heart disease become apparent.

The study of the physiology of the heart will demonstrate the unity of the body. The various heart diseases differ in certain respects but they are all indications of total bodily enervation and toxicosis. There are many factors that contribute to this enervated state including cigarette smoking, improper diet and exercise, alcohol, stress, obesity, etc., all to be discussed in this lesson.

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2. General Physiology

2.1 The Circulatory System

The circulatory system transports blood from the heart to the cells and back again to the heart in a never-ending stream. The red blood cells contain hemoglobin, a complex protein arranged around iron. They have the important role of taking up large quantities of oxygen as it passes through the lungs and then passing this oxygen to the body cells. As the blood in the lungs picks up oxygen, the hemoglobin becomes bright red (arterial blood). When the hemoglobin reaches its destination, the individual cell, it releases oxygen and picks up carbon dioxide, a waste product of metabolism. The color of the blood carrying carbon dioxide to the lungs for elimination from the body is a bluish red (venous blood).

Hemoglobin has another important function, that is, helping to maintain the acid balance of the blood. Each day the carbon dioxide resulting from cellular metabolism is equivalent to a little more than one-half gallon (2.6 liters) of concentrated hydrochloric acid. That high concentration of acid would injure the cells, so nature provides a neutralizing base, half of which comes from the food consumed each day and the remainder from the body's built-in buffering agents, one of which is hemoglobin.

2.2 Structure of the Heart

The heart is completely enclosed by a thin sac called the pericardium. This tough tissue protects the heart from rubbing against the lungs and the wall of the chest. The inside of the pericardium has a smooth lining that secretes a lubricating fluid. The heart beats smoothly and with little friction against the moistened lining of the pericardium.

A muscular wall called the septum divides the heart lengthwise. Two chambers, one above the other, are on each side of the septum. The upper chamber on each side is called an atrium. The thin-walled atria collect the blood flowing into the heart from the veins. Below each atrium is another chamber called a ventricle. The two ventricles pump the blood into the arteries.

The walls of the ventricles are made of thick, strong muscles. The right ventricle pumps blood through the pulmonary artery into the lungs. The left ventricle pumps blood to the entire body through the aorta. The left ventricle has walls three times as thick as those of the right ventricle because it has to pump the blood so much farther. Valves control the flow of the blood through the heart. The tricuspid valve is between the right atrium and the right ventricle. The mitral valve is between the left atrium and the left ventricle. The semilunar valves control the flow of blood from the ventricles to the arteries. The semilunar valve that controls blood-flow from the left ventricle to the aorta is also called the aortic valve.

Arteries carry blood from the heart to other parts of the body, but the heart itself must also receive nourishment. Blood flows to the heart muscle through coronary arteries. The coronary arteries lie over the walls of the heart in a complicated network, and carry oxygen to all parts of the heart muscle.

The interior of the heart is lined with a smooth membrane, a single layer of cells called the endocardium. The same kind of membrane also lines the valves and the blood vessels. The lining prevents damage to the blood cells by reducing friction and by minimizing the danger of blood-clot formation either inside the heart or inside the blood vessels themselves. Between the endocardium and the outer layer of the heart (epicardium) is the muscular wall itself, the myocardium, consisting of muscle cells surrounded by connective tissue.

The many connections between muscle cells in the atria and the ventricles form the basis for the conduction of impulses from cell to cell. Near the entrance of the two veins that bring blood from the upper and lower parts of the body into the top of the right atrium (the superior and the inferior venae cavas) is a small bundle of highly-specialized muscle fibers that generate impulses necessary for the coordinated contraction of the heart. This bundle is called the sinoatrial node, or pacemaker. The impulses from the sinoatrial node are collected and conveyed to the ventricles by another group of cells in the connective tissue between the left and right sides of the heart. This group is called the atrioventricular node, and from it other specialized muscle fibers, called the bundle of His, after the German anatomist who discovered them, run from the upper to the lower chambers, splitting to left and right as they descend. The two main branches of the bundle of His connect with a network of smaller impulse-carrying fibers (Purkinje fibers), which run to all parts of the ventricles. It is by means of this intricate system of specialized fibers and cells that the heart receives the electrical impulses necessary to maintain a rhythmic, effective and concerted beat.

3. How The Heart Works

Each side of the heart performs a different pumping job. The right side takes blood from the body and pumps it to the lungs. The left side collects blood from the lungs and pumps it to the body.

Blood entering the right side of the heart contains carbon dioxide, a waste product of the body. All blood entering the right side of the heart goes to the lungs before it reaches the left side of the heart. In the lungs, the carbon dioxide is removed, and oxygen is added to the blood, blood that flows to the body from the left side of the heart contains fresh oxygen. The oxygen is used in the body cells to produce energy.

Blood from the body flows into the right atrium through two large veins. One of these veins, the superior vena cava, carries blood from the head and arms. The other vein, the inferior vena cava, carries blood from the trunk and legs.

Blood from the body fills the right atrium. The atrium then contracts, squeezing blood through the tricuspid valve into the ventricle. The tricuspid valve is made of three little triangular flaps of thin, strong fibrous tissue. These flaps permit the blood to flow into the ventricle, but they prevent it from flowing back into the atrium. They are like doors that open only in one direction.

At first, the ventricle is relaxed, but it contracts when it is filled with blood. The resulting pressure closes the tricuspid valve and opens the semilunar valve between the ventricle and the pulmonary artery. Blood gushes through the valve into the artery, which leads to the lungs. The valve is called semilunar because it has three flaps that are shaped like half-moons. Blood squeezed from the ventricle pushes the flaps against the walls of the pulmonary artery.

From the lungs, the blood flows back to the heart through the four pulmonary veins. It flows out of the pulmonary veins into the left atrium. The left atrium, like its neighbor on the right, then contracts, squeezing blood through the mitral valve into the left ventricle. The mitral valve is similar to the tricuspid valve, except that it has only two flaps. The left ventricle contracts, forcing blood through another semilunar valve into the aorta. The aorta, with its numerous branches, carries blood throughout the body.

4. Control Centers

Because the cardiovascular system is the major environmental control center in the body, it utilizes a battery of sensors and monitoring devices to trigger corrective action or relay information to other body systems. Thus monitors within the cardiovascular system measure blood pressure and send this data to the brain, which then determines necessary adjustments.

4.1 Nervous System

The primary regulator of blood pressure is the brain stem, where groups of specialized nerve cells control the activity of the heart (cardiac-activating and cardiac-inhibitory centers) and another nerve-cell group regulates the diameter of blood vessels (vasomotor center). Blood pressure is augmented when the sympathetic nervous system carries commands from the cardiac-activating center to increase the heart's activity and from the vasomotor center to constrict arterioles and veins. Blood pressure is decreased when the vagus nerves convey commands from the cardiac-inhibitory center to the sinoatrial node, slowing heart activity.

When blood pressure rises, sensors in the aorta and carotid arteries send impulses to the brain which inhibit the cardiac-activating center and the vasomotor center and simultaneously stimulate the cardiac-inhibitory center.

Sensors in the heart and lungs monitor the volume of blood in the vascular system. Messages sent by these receptors lead to adjustments in the circulatory system via sympathetic nerves. Other sensors monitor the oxygen content of blood and lead to changes in the respiratory system. These various monitoring cells supply the brain with the essential data for adjusting the circulation so that it can respond to any stress.

4.2 Hormonal Control

The action of the nervous system on the circulation is augmented when necessary by hormones secreted into the bloodstream from endocrine glands. Among the many hormones that can affect the function of the heart and blood vessels, the most important are adrenal catecholamines and angiotensin II.

4.2.1 Adrenal Catecholamines

There is an adrenal gland located just above each kidney. These glands consist of a central group of cells, the medulla, surrounded by a layer of different cells, the cortex. The medulla produces two substances called catecholamines—norepinephrine and epinephrine. The norepinephrine secreted by the medulla increases the rate of the heartbeat and the strength of heart muscle contraction and at the same time causes constriction of the muscle cells in the blood vessel walls. The epinephrine causes relaxation of blood vessels in the skeletal muscles, which augments the blood flow to the muscles during exercise.

The cells of the adrenal medulla are controlled by the sympathetic nerves; each increase in the number of impulses from these nerves increases the secretion of the catecholamines.

4.2.2 Angiotensin II

Cells located in the walls of kidney arterioles produce a chemical substance, renin, which is converted into angiotensin II. This very active product increases the formation of aldosterone (one of the hormones produced by the adrenal cortex), which in turn causes greater reabsorption of sodium and water from the kidneys and a subsequent increase in blood volume. Angiotensin II also acts more directly to cause muscle cells in the walls of the arterioles to contract; the result of all this activity is an increase in arteriolar resistance.

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5. Factors Contributing To Heart Impairment

Heart impairment results after many years of unhealthful living. It is the cumulative effect of improper diet, poison habits, sedentary lifestyle, overwork, etc. All of this leads to enervation, impaired elimination and toxicosis. Major factors resulting in this toxicosis include cigarette smoking, improper diet, lack of exercise, alcohol, coffee, stress, obesity and drugs. The combination of these factors eventually leads to impairment of one or several of the mechanisms described in the physiology of the heart. When any of these mechanisms are impaired, the heart is directly affected.

5.1 Cigarette Smoking

The single most important effect on health due to cigarette smoking is the development of heart impairment. In 1975, approximately 25% of the 650,000 deaths from coronary heart disease were attributed to cigarette smoking. The 1979 Report of the Surgeon General On Smoking and Health identifies smoking as related to coronary heart disease for both men and women in the United States, and cigarette smoking as a major independent risk factor for the development of fatal and nonfatal myocardial infarction.

Smokers who quit reduce their risk of dying from coronary heart disease; the reduction approaches that for the nonsmoker following a total abstinence of ten years. Studies show that smoking low tar and nicotine cigarettes does not reduce one's risk significantly; some smokers merely inhale more deeply or smoke more often.

It has also been shown that cigarette smoking is associated with more severe atherosclerosis of the aorta and coronary arteries than has been found in nonsmokers. Smoking is also reported as being responsible for increased deaths from arteriosclerotic aneurysm of the aorta (a ballooning effect that can lead to its rupturing).

Recent research would indicate that carbon monoxide may be one of the factors in the cigarette smoke that leads to the development of atherosclerosis, resulting in angina pectoris and heart failure.

Carbon monoxide (CO), one of the most poisonous byproducts of cigarette smoking, is a colorless, odorless gas that makes up anywhere from about one to five percent of cigarette smoke. Because it has an extremely strong affinity for hemoglobin (which carries oxygen to the tissues), any inhaled CO quickly displaces the oxygen in the blood, forming carboxyhemoglobin. Carbon monoxide may cause damage by injuring the walls of the arteries, enhancing the development of atherosclerosis, which narrows the arteries, diminishing the supply of oxygen and other nutrients. In addition, carbon monoxide is the principal contributor to diseases of the respiratory system and sudden death from coronary heart disease.

Nicotine is generally understood to be the addictive element in tobacco that results in stimulation of the adrenal glands and certain heart tissues to release certain hormones called catecholamines. The catecholamines raise the blood pressure and the heart rate, causing the heart to work harder, thus requiring a greater amount of oxygen. But as smokers take in nicotine, they are also inhaling carbon monoxide, which decreases the amount of oxygen in their blood. Thus, nicotine in combination with carbon monoxide may be the predisposing factor in the development of heart disease and heart "attacks."

In addition to speeding up the heart rate and causing a rise in the blood pressure, nicotine also results in a constriction of the blood vessels. The constriction of blood vessels additionally leads to a decrease in blood flow to the fingers and toes and aggravates such peripheral vascular conditions as Buerger's disease and Raynaud's phenomenon.

You must realize that cigarette smoking is one of a series of factors that lead to heart impairment. Other factors are important also and together create the conditions (a state of toxicosis) that results in this degenerative disease.

5.2 Diet

Habitual excesses in eating (especially in concentrated fats, protein and sugars); eating the wrong kinds of foods; eating improperly-combined foods; result in toxicosis and enervation of all bodily organs including the, heart.

5.2.1 Fats

In 1961, the American Heart Association began providing information to the public on the link between high levels of cholesterol in the blood and the development of atherosclerosis, the disease where fatty deposits or plaques accumulate in the walls of the arteries. Simultaneously there was encouragement of the public to decrease its intake of fat and cholesterol. Such advice has its origin in the research around 1913 by a Russian scientist, Nikolai Avitschev, showing a connection between a high-cholesterol diet and fatty deposits in the arteries (atherosclerosis) of rabbits. This discovery has led to extensive medical research on how blood fats and cholesterol contribute to disease of the human circulatory system.

Atherosclerosis develops gradually due to an unhealthful lifestyle, with no symptoms, for anywhere from twenty to forty years or even longer. Then serious clinical signs manifest themselves. These may be in the form of chest pain, heart "attack," stroke or sudden death.

Dietary substances and blood constituents other than cholesterol are also involved in the development of atherosclerosis. When you follow a more healthful lifestyle, including proper diet, the accumulation of these fatty substances do not occur.

In order for the body to transport and use fats, they must be combined with another molecule to make them soluble in the blood serum, the fluid portion of blood. This molecule is a protein, that combines with the fats to form lipoproteins, making possible the transport and utilization of fats. Lipoprotein molecules come in various sizes and weights and the amounts of cholesterol and other lipids they contain vary according to the size and weight.

The heaviest of these molecules is high-density lipoprotein (HDL). HDL contains the highest proportion of protein and has recently been shown to be possibly important in transporting fat away from body cells. Thus, cholesterol and other fats do not accumulate within the artery walls. There is also evidence that the higher the amount of HDL in the blood, the lower the subsequent risk of fatty artery disease, heart failure and strokes. Normal levels of HDL are found in people whose diet consists chiefly of raw fruits, vegetables, nuts and seeds.

Low-density lipoprotein (LDL) is lighter than HDL and contains the largest proportion of cholesterol of any of the lipoproteins. There is considerable evidence that a high amount of LDL is a factor in the accumulation of fatty, materials in artery walls. High levels of LDL are found in those people whose diet is high in animal products—meat, eggs and dairy products.

Researchers have found that lower cholesterol levels are associated with lower incidence of heart disease. For example:

Monkeys fed a high-fat diet to increase their levels of blood cholesterol, after returning to their normal low-fat diet, do show evidence of reduction in fatty deposits in their arteries.

Wartime experiences in Switzerland, Scandinavia and other European countries during the 1940s suggest that changes in diet, which included reduced consumption of fats and increased consumption of vegetables, resulted in a lower incidence of heart impairment in a fairly short time.

Dietary changes in Europe after World War II, and increased consumption of fats and sugar among immigrants to Israel and the United States, coincided with an increase in blood cholesterol levels and a rapidly increasing frequency of heart attacks.

Dietary Sources

Many people use margarine because they are told that the unsaturated fat in margarine is much more desirable than the saturated fats found in butter. But margarine is an artificial product full of additives, emulsifiers and chemicals that aren't meant for human consumption. Flavor enhancers in the form of diacetyl and isopropyl and steryl citrates are added to margarine. Sodium benzoate, benzoic acid or citric acid are added as preservatives. (The benzoates are poisonous and have actually resulted in death.) Emulisifiers are also added, such as diglycerides, monoglycerides, etc. and these do not have to appear on the label.

When margarine is hydrogenated, a chemical process is used where hydrogen is added to unsaturated bonds of carbon or oxygen of the oil. Under a controlled process, however, most of the essential fatty acid, linoleic acid, is changed to oleic acid. The hardening process may also produce a different spatial arrangement of the atoms of the molecule of an essential fatty acid (EFA). Because of this difference, the EFA are not utilized properly by our cells and can actually interfere with the utilization of normal fatty acids. This situation may accentuate a deficiency of EFA. Researchers report that cancer, arthritis, heart disease, skin disease, arteriosclerosis, and other degenerative conditions appear to be affected by a lack of EFA.

It becomes clear that margarine is something that we definitely should not consume. Butter does not contain as many artificial additives but it is a saturated fat known to play a role in the development of artherosclerosis. It is also often heavily salted and dyed. Many physicians advocate the inclusion in our diet of such polyunsaturated oils as corn or safflower oil in the place of butter or margarine. However, consumption of polyunsaturated fats is known to result in the formation of free radicals.

When atoms combine to form molecules, their electrons usually group together in pairs. If one of the electrons is lost, the, molecule becomes a free radical. In the presence of oxygen, free radicals form spontaneously in the tissues from certain substances, mainly polyunsaturated fat. According to Zane Kime, unpaired electrons are very unstable. They react abnormally with almost anything close by and can result in damage to nearly every system in the body. As the unsaturated and polyunsaturated fats increase in the diet, they also increase in the tissues. Metabolism can be altered because the cell walls are further weakened due to the abnormal fatty acid formation. This allows many impurities to enter the cells that would not ordinarily enter.

Where are we to obtain our dietary fats if not from margarine, butter or free oils? The best source is found in our natural foods—fruits, vegetables, nuts and seeds. We are not only receiving all the fats that we require from these foods but we are acquiring them in the correct proportions with the vitamins and minerals and other food constituents. The body makes use of this form of EFA easily and perfectly.

Research Studies

In a study comparing the effects of substituting plant for animal fat in the diet, six subjects showed significant reductions in serum concentrations of free and esterfied cholesterol and of phospholipids when plant fats were substituted for animal fats during a four-month period. The approximate change was a 20% decrease even though body weights and caloric intakes were kept constant during the experiment.

In another study, 58 vegetarians who eat no animal products and live on a farm commune were examined. The average lipoprotein-cholesterol level of this group were 60% of age-and-sex-specific normal levels compared to a control group. The conclusion of the study placed the vegetarians in a lower-risk category for the development of clinically manifest atheroclerosis.

5.2.2 Carbohydrates

Consumption of refined carbohydrates results in enervation and impairment of all bodily cells, tissues, glands, organs and systems. This unhealthful habit often results in diabetes and/or arteriosclerosis. Overconsumption of refined sugar stresses the pancreas until it becomes so enervated that it ceases to function. The body then begins to break down stored glucose in the fat cells into triglycerides. This increases the fat in the blood to above normal levels and some of this fat remains in the arteries of the heart and elsewhere.

The results of incorrect diet are systemic and do not involve just one organ or gland. It takes many years of this unnecessary abuse to damage the heart so severely that it is incapable of performing.

As in all bodily organs, the heart is intimately involved with, and dependent upon, all other bodily systems. Any slight impairment in any of the ystems—nervous, endocrine, digestive, etc.—will affect the heart.

Overconsumption of carbohydrates results in a toxicosis that ultimately affects total health.

5.2.3 Proteins

The quantity and quality of the proteins are essential for optimum health. Many people overeat on protein foods. This results in enervation, since much more energy is needed for digestion and metabolism of protein. The body must either eliminate excess protein or store it for future use. This situation is enervating and, if continued, will result in impaired elimination with the increase of endogenous and exogenous poisons. The end result is degenerative disease. Dr. Robert Gross states, "The end products of protein digestion are acidic—urea, uric acids, adenine, etc. which, beyond a certain normal range, will cause degeneration of body tissue, producing gout, liver malfunctions, kidney disorders, digestive disturbances, arthritis and even hallucinations." Dr. D. J. Scott says: "Too much protein solidifies (like coffee) and has the same stimulating effect, and a high-protein diet will eventually destroy the glandular system, and damage the liver, adrenals and kidneys." When any of these organs are affected, the heart is also.

Not only the amount of protein, but the kind of protein is important. The best sources of concentrated protein for man are raw unsalted nuts and seeds. In their raw state, all the enzymes are intact and the amino acids are unchanged. Fruits and vegetables, though containing relatively smaller amounts of protein in their natural state, also provide amino acids for complete and optimal nutrition.

When proteins have been cooked or preserved, enzymes are coagulated, cleavage is inhibited and the amino acids may not be liberated for body use. Instead they become soil for bacteria and poisonous decomposition byproducts. Man cannot digest flesh protein properly and putrefaction invariably results. This adds poisons to the body in addition to the poisons that are already in the meat. All of this contributes to the development of disease.

5.3 Exercise

Dr. Shelton says, "The heart is a muscular organ—it is almost all muscle—and like all other muscles of the body, is strengthened by use. A heart that is never called upon to do vigorous work does not grow vigorous and strong. If it always does light work it tends to become soft and flabby. It needs periods of vigorous work to build up and maintain its maximum strength and ability."

The response of heart muscle to exercise is similar to that of skeletal muscle. After such training, the heart can contract more strongly and in a better coordinated way so as to wring out more blood with each contraction. In endurance training, the heart muscle becomes larger, adding to the potential power of each stroke. The heart rate becomes slower at rest (intensive endurance training can slow the resting rate ten beats per minute). The coronary circulation increases as the result of exercise. This increase in coronary vessels appears in all active tissues, aiding in the delivery of supplies and the removal of waste.

Thus, with proper exercise, the heart becomes richer in oxygen, more massive and powerful, and more efficient. The reconditioned heart beats more slowly at rest and during work, and acquires a greater pumping capacity.

Exercise also provides the heart with a fantastic support system. Every muscle is like an auxiliary heart, helping to pump blood. When a muscle contracts, it squeezes blood toward the heart. When it relaxes, it allows the muscle to be filled with blood—exactly like the heart. The proper conditioning exercise is a rhythmic continuous one where the muscles pump repetitively. As blood pumps' from the muscles, it is always toward the heart.

When a sedentary person becomes fairly active by adding a mild exercise such as walking, many changes take place in his body that are important in improving the general health. Blood pressure is lowered, resting heart rate decreases, muscles (including the heart muscle) become stronger and there is a vast increase in the number of active small blood vessels that carry blood to the cells of the muscular tissues. The blood itself is improved; it carries more oxygen; and the blood platelets become more efficient.

According to Dr. Fred Stutman, author of The Doctor's Walking Book, people with sedentary jobs run a higher risk of coronary artery disease. He says that walking between 45 minutes and one hour, three or four times a week, may decrease this risk. Walking increases the ability of the heart and lungs to take in and distribute oxygen in the body and this helps build physical endurance. It is claimed that this factor has been beneficial to patients with coronary heart disease. However, keep in mind that this is only one aspect of health and must be combined with all of the other conditions in order to result in health. Heart disease cannot be eliminated through exercise alone, but it helps when all of the other conditions for health are provided.

Dr. Stutman also points out that moderate exercise results in lowered circulating blood fats to the same extent as the more strenuous forms of exercise. We do not have to be marathon runners for optimum health but a moderate exercise program is recommended. Exercise results in the altering of the distribution of different forms of lipoproteins in the blood.

5.4 Caffeine

Caffeine results in stimulation of the heart and rapid heart beat and arrhythmias are typical symptoms of this stimulation.

A substance found in almost all cells, including lymphocytes, is known as cyclic adenosine monophosphate (C-AMP). If high levels of cyclic AMP build up in the lymphocytes, they become unable to function properly. Coffee, tea and chocolate containing caffeine, theophylline, and theobromine increase the amount of C-AMP which would normally take place. Increased C-AMP depresses the ability of the lymphocytes to function, and is a stimulant to the nervous system.

Researchers have found that 158 mg. of caffeine results in a rise in cardiac index and stroke index in normal subjects. Caffeine also results in cerebral vascular resistance with a decrease in blood flow.

Sandord Bolton reported a 60% increase in acute heart attacks associated with consumption of one to five cups of coffee and a 120% increase with more than five cups. An epidemiological study involving Hawaiian males showed a significant correlation between coffee consumption and heart disease.

Caffeine also stimulates release of catecholamines from the adrenal medulla. Catecholamines have a marked effect on the central nervous system, metabolic rate, temperature and smooth muscle.

In one study, instant coffee (220 mg. of caffeine), was given to 18 young males with a resultant increase in epinephrine blood levels and urinary output. Blood lipids were also increased as a result of catecholamine stimulation. Epinephrine is a vasoconstrictor and cardiac stimulant.

Even in small doses, caffeine is a powerful poison that results in impairment of all parts of the body. These systemic effects often result in heart impairment as enervation of this organ becomes greater.

5.5 Alcohol

Evidence linking alcohol consumption and heart disease includes the following:

1. Heavy alcohol consumption is associated with elevated blood pressure.
2. Distinctive forms of heart enlargement and heart failure occur in advanced alcoholics, who often tend to be malnourished.
3. Alcohol has been shown to result in impaired performance of heart muscle in humans.
4. Experimental evidence in animals shows structural and functional derangement of heart muscle

cells as an effect of chronic administration of alcohol.

Alcohol is a poison and its ingestion results in enervation of all bodily organs including the heart. The heart is at first stimulated while it attempts to rid the body of this poison but alter a time becomes enervated and its function becomes impaired. Accumulation of the very toxic products of alcohol burden the liver and all other parts of the body including the nervous system and glands that directly affect the heart performance.

5.6 Stress

Various studies have shown coronary heart disease to be associated with such psychological tendencies as anxiety, neuroticism, depression, aggression, hostility, sense of time urgency and with such social factors as mobility, status, life events and dissatisfactions.

These factors may contribute to the development of heart impairment along with underlying conditions of enervation and toxicosis that result from improper diet and the rest of the factors which result in chronic disease.

Under stressful conditions, adrenal glands will secrete certain hormones that have a direct influence on the heart. Repeated stress will eventually result in enervation of the heart and the rest of the organs responding to that stress. This is just another factor in the total health package that should not be ignored.

5.7 Obesity

Evidence linking obesity and overweight to cardiovascular risk includes the following:

1. Insurance experience indicates that the death rate from all "diseases" including cardiovascular rises, as relative weight goes from low to above average.
2. Some follow-up studies of United States populations show similar relationships and risks.
3. Obesity and overweight are widely associated with other risk characteristics thought to have an influence in fatty artery disease (specifically, high blood pressure, glucose intolerance and diabetes and elevated blood uric acid). All of these factors can be resolved through a proper diet and weight reduction, as can cholesterol and triglyceride levels.

Obesity, obviously, is the result of improper diet together with lack of exercise. This condition is the direct result of a diet high in fats, meat, dairy products and sugar. All of these foods will not only result in obesity but the toxins invariably found in all of these foods will clog the body with poisons and contribute to the development of degenerative diseases of all kinds including heart impairment. Obesity may be corrected quickly through a fast followed by a diet of raw fruits, vegetables, nuts (unsalted) and seeds. Not only will weight normalize but general total health will greatly improve along with the lowered incidence of heart disease.

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6. A Look At Other Societies

Weston Price attributed degeneration of modern society to modern refined foods. To prove his theory, he visited several "primitive" tribes of people, during the 1930s, in many parts of the world. In every case, those people who lived exclusively on natural foods were free from dental caries and other signs of physical degeneration and they lived long and healthy lives. However, when some members of their society adopted the "modern" dietary of refined white flour, sugar, pastries, jams, and canned goods, their health declined. This was evident in the first generation after the adoption of the modern diet.

More recently, Dan Georgakas conducted a study of longevous peoples throughout the world. It is well known that the people from Abkhasia in Russia are especially long-lived and healthy. Such degenerative diseases as heart disease are virtually unknown there. Commenting on the diet followed by these people, Georgakas says, "The traditional diet followed by most of those who became centenarians contained between 1,500 and 2,000 calories a day. Seventy percent of that intake was from vegetables and dairy products. Fruits, nuts, grains made up the rest of the diet."

In addition, Georgakas notes, there was no coffee, tea or sugar and little butter or salt. Whatever the food served, all leftovers were discarded, because they were considered harmful to good health. Such concerns for freshness guaranteed that a minimal loss of nutrients took place between garden and table. Most food was consumed raw or boiled, with nothing fried.

Georgakas says, if the 1970 census is accurate, Abkhasia would have a longevity rate 20 times that of the United States. Factors such as the nature of the traditional diet, strenuous physical activity throughout life, the hilly terrain, rhythmic patterns of work, a pollution-free environment and the unique psychological support enjoyed by the long-lived figure heavily in their longevity.

In Hunza, heart trouble is virtually unknown. The Hunzas live upon the produce of their land (mainly fruits and nuts); engage in strenuous physical exercise throughout their lives; and live in an unpolluted environment free from stress. This healthy regime results in longevity and a life free from all degenerative diseases.

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7. Hypertension

Blood pressure is the force exerted by blood against the walls of the vessels that carry it. When the heart contracts, the pressure is increased. When the heart relaxes, the pressure is decreased. The blood pressure is determined not only by the power of the heart expelling the blood, but also by the resistance to the blood flow encountered in the arterioles acting under the influence of the nervous system and of the hormones.

When our regulatory devices become impaired in any way, the arteries may constrict and stay that way. The blood pressure rockets. Physicians label this condition "essential hypertension." To correct this condition, we must simply eliminate the cause of all disease by living according to the needs of the body and eliminating poisons and enervating influences.

High blood pressure is a symptom that is present in many diseases. It is one of many endings of a series of crises in toxicosis. Dr. Shelton says, "Perhaps the greatest single cause of high blood pressure is toxemia resulting from checked elimination. Secondary toxemia, such as that seen in nephritis, and intestinal autointoxication arising out of gastrointestinal fermentation and putrefaction, all produce enough nerve irritation to cause nigh blood pressure. A high-protein diet gives rise to a particularly virulent irritation when it putrefies in the digestive tract."

Dr. Shelton further explains that any form of excess taxes the nervous system and brings on enervation, checking secretion and excretion. Checked secretion produces indigestion with its consequent intestinal autointoxication; checked excretion produces toxemia.

Fasting, especially a long fast, tends to lower the blood pressure. The blood is less viscous when fasting, and arterial obstructions are cleared out. The body is generally less congested and the blood flows more easily. The pulse goes down, the blood pressure drops, and energies are conserved. During the fast, the body removes its excess toxins and irritations. However, it is important that the person learn to live healthfully after the fast or the blood pressure will rise again. Dr. Shelton says, "To go to bed and fast and reduce blood pressure, and then return to the former mode of living—the former excesses and indulgences, to the poisonous vices and emotional habits, to the prior sexual excesses and to dishonesty, gambling, etc.—is to rapidly rebuild the pathological state that produced the high blood pressure."

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8. Cardiovascular Drugs

To quote Dr. Shelton, "The broad and distinct difference between the Hygienic system and the drug system is this: Hygiene seeks to restore health by healthful means and conditions; drug systems seek to cure disease with agents that are known to produce disease in the well. Instead of filling our bodies with poisons, why not look to rest, sleep, better food, fasting, exercise, sunshine, emotional poise, cleanliness, and plain and simple wholesome food as the means of restoring us to health? Hygienic care consists in the use of such means as when applied to a man in health will keep him in health and will not tend to make him sick. Medical treatment of the sick consists almost wholly in the use of means which if given to a man in perfect health would unfit him for work or business or, perhaps, even kill him. The Hygienist rejects all poisons and employs only beneficial substances and conditions to aid the healing processes of the body."

So drugs are not recommended. They do not produce health but contribute to disease.

8.1 Digitalis

Digitalis is a highly-poisonous substance derived from the leaves of the foxglove, formerly used as an "herb remedy." It was first introduced to formal medicine in 1785 by the English physician William Withering, but its use in folk medicine preceded that date by many years.

Digitals belongs to a group of drugs called the cardiac glycosides. The two most commonly-used glycosides are digoxin and digitoxin. This drug is know to result in many adverse effects. The most serious toxic effect is a dangerous irregularity of the heartbeat, but the patient may also suffer nausea, vomiting, and various symptoms of brain involvement, including drowsiness, headache, and blurred or strangely colored vision.

Stimulation from any drug is a very exhausting action and is always followed by a period of depression or exhaustion. Digitalis slows the heart action by stimulating the vagus nerve centers. The right vagus nerve is distributed predominantly to the sinoatrial node, and the left vagus affects principally the atrioventricular node. Stimulation of the right vagus decreases heart rate, whereas left vagal stimulation may induce ventricular slowing subsequent to the development of heart block. Large doses of digitalis or an accumulation of smaller doses can result in heart block. If a complete block of the heart's electrical conduction system occurs, the heart may be slowed to an extent that it cannot sustain life.

Digitalis also results in a disturbance of the normal rhythm of the heart (arrythmia). The rhythmical projection of impulses from the sinus node are disturbed so that the heart rate shows regularly alternating short phases of slowing and acceleration.

A bundle of muscular fibers in the heart known as the auriculoventricular bundle or the bundle of His, conducts impulses from the auricle to the ventricle. These are conducted in a way to cause the ventricular beat of the heart to follow the auricular beat in about one-fifth of a second. The administration of digitalis retards or prevents this conduction of impulses. Here again the effect is due to the stimulation of the vagus center. It is not uncommon for a prolongation of the interval between the auricular and ventricular beats from three-tenths to three-fifths of a second, when digitalis is given in so-called therapeutic doses.

The excretion of digitalis is slow so that continued administration of large doses of the drug easily gives rise to "accumulative poisoning." Poisoning resulting from an overwhelming dose results in death in a few minutes. This state of poisoning presents four well-defined states:

1. Vagus and vasoconstrictor stimulation with slowed heart, rapid rise in blood pressure, and diastolic relaxation indicating diminished tone of the heart muscle.
2. Predominance of vagus action, with greater loss of tone and heart block, or brief periods of vagus standstill, and sometimes premature beats from, muscular irritation.
3. Predominance of muscular action with abrupt changes to tachycardia, very rapid beating of the ventricle, usually not in unison with the auricle, high arterial pressure.
4. Weakness and excessive irritability of the heart muscle with auricular tremor, ventricular tremor and death.

8.2 Diuretics

High blood pressure with excessive blood volume is often the result of excessive water and salt retention. The single greatest cause of salt and water retention is the dietary consumption of inorganic sodium chloride (table salt). Salt affects the vascular system in two ways: as an osmotic influence (attracting molecules of water) and as a chemical irritant that sensitizes the vascular smooth muscle to normally-occurring vasoconstrictor substances such as adrenalin. Direct interference with kidney function is another way that salt use contributes to high blood pressure.

Diuretics are given to prevent the reabsorptipn of salt and water by the kidneys and thus lessen the symptoms of congestive heart failure. There are many kinds of diuretics but all have the same objective to increase the output of salt and water in the urine. One of the major problems they present is an excessive loss of salt and other minerals, especially potassium. Potassium loss is most common with the widely-used thiazide class of diuretics (chlorothiazide and hydrocholorothiazide). Their use can result in feelings of weakness and if digitalis is being taken at the same time, car, make toxicity even greater. This loss of potassium is often counteracted by adding a second diuretic—one that does not cause potassium loss—to the thiazide. However, the combination of diuretics induces another danger: diuretics that prevent potassium loss do so by interfering with the kidneys to excrete the mineral. This can lead to a dangerously high level of potassium in the body. Thiazides can also reduce the elimination of uric acid and thus aggravate an existing case of gout and redeposit this highly toxic by-product into the tissues.

8.3 Vasodilators

Drugs that result in the dilation of blood vessels are often given to heart patients. The vasodilators longest in use (more than one hundred years) are the nitrates. Nitroglycerin is the most-frequently used and is usually taken in tablets that are placed under the tongue and allowed to dissolve.

The toxins of the nitrates result in fainting or dizziness, headaches, and palpitations resulting from the compensatory increase in heart rate and the speed of heart contraction. The presence of this poison in the system requires additional work of the already-exhausted heart to eliminate this harmful substance.

8.4 Propranolol

Propranolol (Inderal) is a drug that results in a block of some of the sympathetic nerves to the heart. These nerves (the beta-sympathetic or beta-adrenergic nerves) carry messages from the brain that cause the heart to increase its rate and the speed of its contraction. When these messages are blocked, the heart rate slows, the speed of contraction decrease and the heart's demand for oxygen decreases.

One of the possible dangers is the development of congestive heart failure because the speed and the force of the heart's contraction are reduced. However this poses two major problems: the congestive failure itself; and the consequent expanded volume of blood in the heart, which increases its size and may make the angina worse.

Another toxicity results from propranolol. This drug affects the beta-sympathetic nerves throughout the body, not just those of the heart. Since these nerves are responsible for dilating the blood vessels of the skin, propranolol use can result in constriction of these vessels, leading to pale, cold hands and feet. The same nerves also cause the body's air tubes to dilate, and when that dilation is blocked, the air tubes become constricted. A patient with asthma can find the condition aggravated.

Patients who are taking insulin for diabetes experience another problem with this drug. Beta-sympathetic nerves cause an increase in blood sugar when the level drops too low. In a diabetic person who is taking insulin, a low sugar level can be aggravated or prolonged when propranolol is also being taken. Propranolol can also result in depression, difficulty in sleeping, and sometimes, impotence.

A number of other drugs are also given to heart patients. They are all poisons. The result from taking any drug is enervation and toxicosis. It is like pouring gasoline on a fire in order to extinguish it. You are just making matters worse and aggravating an already toxic condition.

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9. Your Choice

Persons with heart disease believe that they do not have any choice but to take drugs to palliate their symptoms. But they do have a choice. Drugs will not heal and they do not produce health. However, given the proper conditions, the body will heal. The most important requirement for all heart patients is rest. That is, to rest in bed and abstain from all food until healing of the heart has taken place. During this physiological rest, toxins will be eliminated from the body; cholesterol accumulations along the arteries will break up and will be eliminated; and the heart will begin to repair itself. During the fast, vital energy is not being expended for digestion and therefore, more energy is available for repair.

9.1 The Fast

Dr. Hereward Carrington, author of *Vitality, Fasting and Nutrition*, recognized the fact that fasting resulted in strengthening of the heart. He attributed this improvement to the following three factors:

1. The added rest the fast provides the heart.
2. The resulting improvement of the bloodstream.
3. The absence of the "stimulants" that patients in general and heart patients in particular are accustomed to take.

Dr. Shelton Says, "If we consider angina pectoris, a disease of the heart that grows out of constant stimulation with tobacco, coffee, tea, wrong food combinations and excesses of carbohydrates, and observe the effects of the fast in these patients, we are amazed at the speed with which the heart recovers from its difficulties."

It is not claimed that fasting actually "cures" anything. We know that fasting takes a load off the heart so that it may restore its own normal condition in a more certain and speedy manner. Fasting results in the quieting down of a rapid heart. This takes a heavy load off the heart and results in a speedy reduction of blood pressure.

With a reduction of tension and the number of repetitions of the heart's pulsation, a rest is secured. With less work to do, the heart repairs itself.

In the hundreds of cases of heart disease that Dr. Shelton has witnessed through fasts of various lengths, all but a few have developed stronger and better hearts. Many of them, even so-called "incurable" ones, have become entirely normal. Rapid hearts have slowed down, abnormally slow hearts have speeded up, weak hearts have greatly improved in vigor, hearts that were irregular have become regular in time and frequency, hearts that were missing pulsations (even as often as one pulsation out of four) have resumed regular pulsation, and many other improvements in heart function have been observed.

The rest provided for the heart is accounted for in several ways. There is a marked lessening of the number of pulsations of the heart; there is a fall of blood pressure; and there is a reduction in weight. Weight reduction is most marked in fat individuals whose size is such that the heart has to labor to keep the blood circulating through so much bulk. The loss of pounds relieves the long-suffering heart of a burden. Every pound that is lost relieves the heart of work it has been forced to do.

Edema is often observed in the weakened heart of the heart patient. This edema is a major consequence from taking common table salt (sodium chloride). This salt is nonusable and poisonous. It is excreted with difficulty, and tends to accumulate in the body of the salt eater. It is stored in the surface tissues just under the skin and in cavities, along with water that is needed to dilute it. This salt-occasioned edema, often sufficiently marked to be easily detected, places an added burden upon the heart and kidneys. The body of the fasting patient is able to bring the salt and water back into the circulation, from where it is excreted.

The principle of lightening the work of the circulatory system and particularly that of the heart by decreasing the food intake and by eliminating salt from the diet is carried to its ultimate stage when the heart patient fasts.

The fast seems to result in an instantaneous improvement in the function of the kidneys, so that there is an immediate increase of elimination. With the increased excretion through the kidneys of water and sodium chloride so that the edema is reduced or obliterated, the heart is greatly relieved. It has also been suggested that fasting may favorably affect certain vasomotor centers, (the nerve centers that control circulation), thus causing improvement in the condition of the heart and arteries.

It should be understood, however, that no sufferer from heart disease should ever attempt to fast on his own but should consult with a practitioner who has experience with the fast.

After the fast, it is imperative that a more healthful diet is strictly adhered to. That is a diet low in fats and proteins and high in natural carbohydrates. A diet of raw fruits, vegetables, and raw, unsalted nuts and seeds will provide the perfect nutritional requirements.

In addition to this, a regular vigorous exercise program should be gradually assumed. Accompany this with plenty of fresh air, sunshine, and emotional poise, and improved health will follow.

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10. Questions & Answers

What is rheumatic fever and why does it affect the heart?

The disease that physicians have labeled "rheumatic fever" is considered by them as the most common heart disease of childhood and youth. Most commonly, it begins by a minor sore throat and cold. This is an indication that the body is initiating a "housecleaning" and ridding itself of some of its toxic debris. It is a sign of vitality and should not be suppressed but instead you should cooperate with the body in this effort and health will be restored quickly. Most often, it is not understood that this "disease" is a healing process and drugs are given. Drugs suppress healing and add more toxins that are enervating. Now the joints become inflamed and heat and pain are felt in the knees, wrists or elbows. More drugs are given in the form of antibiotics or hormone drugs and the healing process is again suppressed, the body becomes even more enervated and toxic and the heart becomes inflamed. Instead of securing rest and allowing the body to eliminate its toxic overload and recover from its enervation, additional drugs are given. The end result from this series of abuses is extreme enervation and toxicosis and eventual damage to the heart itself. Physicians often blame this "disease" on a strep infection but it is not germs that produced the heart damage. If the body had been allowed to rest and fast when the minor sore throat first appeared, health would have been restored immediately.

Is vitamin E a good preventative for heart disease?

Disease is not a normal occurrence and therefore does not need to be prevented.. If we live healthfully, we do not have to worry about heart impairment. The body does need vitamin E but cannot utilize it in a synthetic or inorganic form. Further, we do not require very much of this vitamin since a great deal is stored in our tissues and can be used over and over again. All of the vitamin E that we require is found in the fresh fruits and vegetables, nuts and seeds of our daily diet.

What is Raynaud's phenomenon and how should it be treated?

Raynaud's phenomenon is a condition where the smallest arteries supplying the fingers or toes constrict on exposure to cold or following any stressful situation. Because the small veins are usually open, the blood drains out of the capillaries and the fingers or toes become pale, cold and numb. If there is a spasm in the small veins and the blood becomes trapped in the capillaries, the fingers or toes become blue as the blood loses its oxygen. The condition clears when the spasm is released by rubbing the parts affected or by returning to a warm environment

This condition should not be treated at all. Instead examine your lifestyle to see if all the proper conditions for health are present including a regular exercise program. A healthy individual possesses a purity of the bloodstream and circulatory system and abnormal conditions such as Raynaud's phenomenon do not occur.

Have researchers established a definite correlation between hypertension and high levels of salt use?

In countries such as Japan, where there is an extraordinarily high level of salt in the common diet, there is also a significantly high rate of hypertension. Salt stresses the mechanism that controls the fluid and blood levels, and high blood pressure comes about as a response to the additional salt load

Dr. Lewis K. Dahl of the Brookhave National Laboratories conducted research on salt and hypertension. Dr. Dahl wishing to explore why hypertension is so rare among primitive peoples with low-sodium diets, investigated the correlation between salt consumption and hypertension. Dr. Dahl conducted a pilot study at Brookhave where 1,346 adults were

> classified according to their intake of salt. There were three categories: low intake (never adds salt to food); average intake (adds salt after tasting if insufficiently salty); and high intake (customarily adds salt before tasting)
>
> Of the adults in the study, 105 were found to be hypertensive. Of all the subjects who had a low intake of salt, one was hypertensive. The high-intake group had 61 cases of hypertension.

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Article #1: Coronary Thrombosis by Dr. Robert R. Gross, D.C., Ph.D.

The leading fatal affliction killing people in the prime of life is coronary thrombosis. This is a blood clot occurring in the arteries of the heart and occluding it (coronary occlusion). The area supplied with blood by blocked arteries loses its source of nutrition and oxygen and degenerates. This area weakens and nonfunctioning scar tissue forms. A "myocardial infarction" with consequent heart disturbance and degeneration has occurred. If the block is severe, death comes very quickly. If it is a milder condition, the patient may recover in a few weeks through complete bed rest.

A blood clot in a blood vessel is a "thrombus." When it becomes detached from vessel walls and floats in the blood it is called an "embolus." The resultant condition is known as "thrombosis." Thrombi may lodge in a heart artery (coronary artery), plug it, and block blood supply to a wedge-shaped heart muscle section. Floating clots may reach the brain, obstruct blood to important motor areas and result in partial or complete paralysis: "a stroke." Clots may travel to the lungs and occlude an artery causing "pulmonary embolism."

Blood Coagulation

Circulating blood in the cardiovascular (heart and blood vessel) system does not normally clot. When it is shed and exposed to air, it coagulates to form clots. The clotting mechanism consists of: *thromboplastin*, released from injured blood vessel walls, white blood corpuscles and blood platelets in the blood; *prothrombin*, a protein manufactured in the liver and converted into thrombin by thromboplastin; *thrombin*; *fibrinogen*, a protein manufactured in the liver and converted into fibrin by thrombin; fibrin, which forms lace networks, entrapping platelets (thrombocytes). A clot is produced.

Clotting is activated by the presence in the blood of calcium and substances known as "serum accelerators." Prevention of clots in normal blood is due to the presence of such substances as anti-thrombin, fibrinolysin, and heparin. Shed blood clots because these substances are oxidized and inactivated. Clots normally plug wounds in vessels, preventing hemorrhage. Calcium is the key factor in normal clotting; if inactivated or removed, blood will not, clot.

Coronary thrombosis occurs, usually, without warning. Many victims "had never been sick a day in their lives" or "just had a heart check-up and it was fine." Truthfully, the subject had been eating and living incorrectly most of his life. He or she was certainly sick with toxemia (general poisoning). Resultant chemical changes in the blood causes disequilibrium in the clotting mechanism. Clots formed adhering to the blood vessel's internal walls. Heavy work, eating an unusually large meal, excessive sex indulgence, over-exercise and emotional and temperamental outbursts cause dislodgement of clots leading to thrombosis.

The patient is prostrated and falls to the ground with ashen-faced pallor; pain in the heart region is severe, constricting and lancinating; pulse is thready—rapid, irregular and feeble; breathing becomes shallow and rapid; he has clammy, cold perspiration.

Tendency toward intravascular (within blood vessels) clotting is a serious hazard to life. Clots of coronary (heart) and cerebral (brain) arteries and the lungs often prove fatal. If such an episode occurs once, likely, others will form for causation still remains. The leg veins and heart are usual sites of clotting. Clots won't produce dangerous consequences unless they break off and float in the circulation to obstruct arteries, depriving a vital tissue of blood supply. Clots can consist of coagulated blood or fat droplets, air pockets, clumps of bacteria, tumor tissue, or inflamed heart vascular tissue.

Causes of Intravascular Clotting

Intravascular clotting is often a complication following surgery. Coagulation of shed blood inside (internal bleeding) the body plays a role in postoperative adhesions. Clotting occurs when the blood slows up (stasis) as in varicose veins, some heart difficulties (auricular fibrillation) and in injuries to blood vessel walls from bruises, cuts, or hypodermic needle injections. Clotting results from inflammation of vessel walls in phlebitis (vein inflammation) and certain diseases of the heart valves.

The basic and fundamental blood clotting cause is change in chemical composition of blood due to incorrect feeding habits. Acid tendency of the blood results from eating devitalized, demineralized, and devitaminized foods as: white sugar, white bread, pasteurized milk, sweet rolls, crackers, cakes, cookies, biscuits, sweet desserts, ice cream, soft drinks, pie, potato chips, candies, jellies, jams, buns, syrups, thickened gravies, hot cakes, waffles, dry cereals, alcohol, meats, chicken, fish and spaghetti. Arteries degenerate or deteriorate. Walls of vessels thicken (atheroma) and retard blood; it sludges easily and clots, obstructing narrow diseased arteries. In obstructions affecting large sections of the heart, resulting myocardial infarcts can deteriorate so badly that insufficient power remains to effect adequate circulation. The heart wall becomes so weakened that it ruptures fatally.

The majority of "coronary" patients, however, have a good chance to live. Sufficient compensation and enlargement occur, permitting the heart to function effectively. Other blood vessels are formed by nature and assume the circulatory duties of the occluded one. This is called "collateral circulation."

Medical Treatment

Physicians use "anti-coagulants" to dissolve formed, clots and prevent further clot formation. They are rutin, hirudin, heparin and dicoumarol. Like other drugs they are devastating, give a false sense of security to the patient, and produce chronic disease. They weaken walls (intercellular substance) of blood vessels and fatal hemorrhages can occur, internally and externally. Causes of internal clotting persist and danger of recurrences remains. Furthermore, the vital energy of the body is depleted by all drugs and other serious derangements occur in addition to clotting.

Natural Hygienic Care

Annual physical fitness examinations which the President received from army physicians failed to protect him from, a coronary thrombosis. Increasing medical examinations failed to reduce incidence of deaths from this "heart disease." To overcome this abnormal tendency no medical examinations or drugs, shots or pills are required.

The real "treatment" is rest and quietude which permits the heart to function normally again. Time, perseverance and inactivity are required.

Complete fasting (drinking only distilled water) several days under competent supervision should be undertaken immediately. This physiological rest reconstitutes vitality of the body and accelerates internal purification processes. It enables the innate healing powers of the body to manifest themselves unobstructedly and efficiently.

Hygienic feeding is essential. Raw fruits, nuts and vegetables, whole grain products and natural sweets like raisins, figs and dates should form the dietary. These vital foods keep the blood stream clean and help heal degenerated arteries by producing general improved health.

Habitual living in tension with its destructive emotions—anxiety, depression, worry, fear, apprehension—is one of the chief causes of coronary thrombosis. This mental tension, incorrectly "nervous tension," makes the individual sick and miserable and exerts destructive forces (through the nervous and hormonal systems).

It is a sheer impossibility for man to disregard the laws of nature and remain healthy. To the extent that he deviates, to that degree will he suffer. Disease is a warning by nature that our bodies are poisoned; if signs are unheeded, deterioration will follow. Each disease is a crisis in life. Crisis means decision. We must strive to recapture our health by adhering to Natural Hygienic principles. We must make leisure hours to meditate and reflect errors committed in living physically, emotionally, morally and spiritually. Recognition of these mistakes helps to discontinue them, preventing future disease.

Nature or God provided us at birth with sanctified temples occupied by our souls, minds and thoughts. We must not defile these temples. It is our inherent responsibility to provide the proper brick, mortar and wood (blood, bones, tissues) to maintain the integrity and indissolubility of the temple. To ignore and refute the laws of nature is to disregard God. Adhering to Natural Hygiene tenets will bring rewards of health in body, soul and mind.

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Article #2: Heart Attack by Dr. Geo. E. Crandall

In the past year, hundreds of people in middle life, especially men, have been killed by a heart attack. At least this is the statement appearing in our daily press. It could not appear on the death certificate as the cause of death for the simple reason that there is no such thing as a heart attack. How they conjured up such a misnomer is beyond comprehension. It comes from the same imagination as the nonsensical terms: FIGHT CANCER; FIGHT SYPHILIS; FIGHT PNEUMONIA and FIGHT TUBERCULOSIS! These false slogans impress the uninformed and misinformed and they are scary enough to make Congress shell out the almighty lucre without a dissenting vote.

You can't FIGHT cancer for the simple reason that the cause is not known, yea, not even suspected. The same holds true for syphilis, pneumonia and tuberculosis, the victims of these afflictions can only wrestle or fight with themselves to gain self-mastery. The battle is inherent and, if won, intelligent self-control will eradicate every so-called disease! This battle doesn't cost a dime, so what becomes of all the enormous sums of money allotted by the federal, state and municipal governments for the "FIGHT" racket? If the truth were known you would be surprised.

The heart of a man receives great protection from attack by the encasement formed by the thoracic wall. Except for the very small intercostal spaces or interstices between the ribs, it is securely protected by an armour of bone. From external sources it is nearly immune from attack except from a bullet or stab wound. However, in the so-called heart attacks, these two remote possibilities are not the cause; the attack, if there is one, must come from within. Can the individual attack his own heart? The answer is YES. Not directly in what is commonly spoken of as an attack or assault, but indirectly by a thousand and one subtle forms of over-stimulation.

The toxic effect of indigestion from overeating is the first great case, and this is ably aided and abetted by tobacco and alcohol, this is a trinity, friends, that is a constant attack upon the heart. In time it will ruin any heart, no matter how strong. No heart can withstand its onslaught much beyond 63 years, and many are taken by the Lord much younger. Everyone could postpone his or her death 30 years by overcoming all bad habits through self-mastery.

A normal life is the only protection one has from these so-called heart attacks. An individual must ruin his heart by years of abuse from bad habits before the attack is turned on that ends the career.

Inasmuch as there is no satisfactory treatment for a heart attack known to medical science, and often not enough time to apply even an unsatisfactory effort, it behooves all of us to play the game of life safely by giving up our bad habits and getting in tune with natural law and the universe. You can't be a "natural outlaw" for many years until the heart gives out; and then comes the inevitable newspaper recital ... heart attack and the mortician!

About 50% of the people do not know how to reform and live normally, and the other 50% prefer to cling tenaciously to their so-called "pleasures of life."

A normal heart beats 103,680 times a day. Think of the enormous amount of vital energy needed to carry on this work alone. Why should anyone wish to squander this vital energy in foolish, nonsensical, over-stimulating habits? Why whip the heart that is willing and ready to beat 103,680 times daily, without rest, for 100 years? If you treat this magnificent organ decently, there will never be a so-called "attack." You are the only one to blame, and the attack, if there is one, is from within, never from without!

Should one drug this organ with digitalis, strychnine and other heart stimulants, or paralyze it with morphine or other narcotics? Should a physician jeopardize your life by suggesting or advising it? That heart of yours will pump 3,784,320,000 times without a miss if you will, by correct living, give it a chance.

The greatest enemy to a normal heart is perverted nutrition, or what is commonly referred to as indigestion. The cause of indigestion primarily is overeating of staple and chemically incompatible foods. This is further augmented by the use of tobacco, alcohol, tea and coffee. Correct the perverted nutrition by following the rules. Overcome all bad habits just mentioned and you have removed from your life the cause of a heart attack. If you don't have a good heart in this world, what chance do you have in the next? If you want to inherit the kingdom, play fair. It cannot by accomplished by fooling yourself with overstimulation ... the advice of the clergy to the contrary notwithstanding.

Of all animals, man is the only one endowed with intelligence. The others all have to depend on instinct. However, no other animal but man suffers from so-called heart attacks and dies in middle life.

Why should intelligence be inferior to instinct? To the question, there is but one answer, namely, that whoever is guiding us along the lines of health is giving us erroneous advice and false statements. Do doctors want us to have knowledge that will insure grand health, thereby making their ministrations unnecessary? Isn't it to their distinct advantage to give us wrong advice so we will need their services for ailments built from incorrect living?

You can overcome all your bad habits if they interfere with health, but from whom can you learn about the laws of nutrition? Man's physical salvation depends on demanding this knowledge and receiving it. Drugs, serums and surgery are now masquerading as a substitute, but they are a false prophet and fail to bring us rational health knowledge. To overcome disease and prevent sudden heart attacks, we must learn how to get back to the normal and live correctly. You should become a "natural Methodist" and live a century; three score and ten are not sufficient. They lived that long two thousand years ago when the mind of man was in incubation. Why haven't we made any improvement or progress since? Because man has believed in demonology—that disease is a dispensation of divine origin and "men of medicine" have fooled away 2000 years trying to outwit the deity with pills, potions and palaver instead of recognizing that disease, heart attacks, and premature senility, are merely states of perverted nutrition caused by an incorrect method of living. A thorough understanding of human nutrition and the laws that govern it will allow man to live six more score years and carry out the promise of the scripture as found in Genesis 6:3.

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Article #3: Exercise and the Heart

Every one of man's organs is supplied with a reserve of functional power and ability, in excess of the needs of ordinary life, to be used in meeting emergencies or unusual demands. A considerable portion of the liver may be removed without its possessor appreciably missing it; about two-fifths of it may be removed, but if three-fifths are removed, he begins to feel it. We have much more liver than we really need for the preservation of life. This same is true of all the other organs of man's body, the heart included.

The capacity of the heart muscle for work is thirteen times as great as the amount of work it is ordinarily called upon to do. This most wonderful organ is one of the strongest and most resistant in the body. It is capable of outlasting any other organ of the body except the brain. Instead of work or heavy exercise injuring the heart, the muscles of the body become too tired to go on before the normal heart feels any strain.

The heart is a muscular organ—it is almost all muscle—and like all other muscles of the body, is strengthened by use. A heart that is never called upon to do vigorous work does not grow vigorous and strong. If it always does light work, it tends to become soft and flabby. If needs periods of vigorous work to build up and maintain its maximum strength and ability.

Running is the best exercise known for the heart. Running is the one universal exercise among the higher animals. Whether running merely for play, as one may observe dogs, cats and horses doing, or running away from an enemy or after prey, as one often observes in the wilds, running is frequently indulged in by life all around us.

Children run in play as naturally as do young kittens and calves, puppies and cubs. Running is the most natural form of exercise and has long been known to be the finest "conditioner" that athletes can employ in their training. "Road work" (running) is employed by the boxer to build up that condition of the heart and lungs that spells staying power when he comes into the ring for the fight.

Stop being afraid of your heart. What does it matter that some nit-wit has advised you not to attempt to climb even three steps? They have been killing those who take this advice for a long time. The best way to weaken your heart—to let it grow flabby like the muscles of your arms—is to never give it any vigorous work to do.

Stair climbing, started moderately and increased prudently, will result in recovery in many cases of supposed bad heart weakness. The late President Harding restored his heart to soundness by stair climbing after years of petting and pampering under the directions of his favorite pill roller who failed to help.

Any form of exercise—running, dumb-bell exercise, Indian club swinging, swimming, etc.—started moderately and increased prudently, will produce heart and lung development and lead to the establishment of robust health. Of all forms of exercise, running, as pointed out above, is perhaps best for the heart.

Although "regular medicine" never tires of telling us how many heart defects and other defects are susceptible of prompt eradication by proper measures, they seem never to be able to find the proper measures. Their program of inactivity and drugging certainly does not remedy heart defects *d* and every day we see heart cases grow from bad to worse under this program of care.

The most difficult task in heart cases is that of ridding the patient of fear implanted by physicians. Yet the elimination of fear is one of our most important tasks. Fear paralyzes action and prevents the patient from carrying out the necessary exercise program. Fear cripples the heart itself. It impairs digestion and checks elimination and tends to prevent recovery.

In 1911 Clarence DeMar entered his name for a 26-mile Boston Marathon. His heart was examined by a doctor who told him to drop out if he got tired and advised him to give up running thereafter. DeMar won the race in record time. Since then, DeMar's record in 66 marathons, including three at the Olympic Games in 1912, 1924, and 1928, is 20 first, 12 seconds, 9 thirds, and he is still a keen marathon runner. Had he allowed the advice of the physician to frighten him and had he ceased running as advised, the name of DeMar would not stand so high in the athletic world.

Fear is man's greatest enemy. Fear is the greatest nerve annihilator known. It not only paralyzes action, it deranges digestion, impairs glandular action and checks elimination. Enervation, perverted metabolism, and toxemia are the results. Cases have come under my observation in which fear of activity (both conscious and subconscious) was so great, that the victims of fear were weak and always tired. Slight exertion exhausted them and made them feel bad. Those patients had been frightened by doctors and parents about their hearts and thus their hearts being denied the one thing that could make and keep them vigorous, had grown weaker and weaker.

Only exercise can strengthen and rebuild such hearts and peoples' fear of exercise prevents them from employing it. Fear paralyzes effort and denies their hearts the one thing essential to its recovery of vigor.

There are times and conditions in which the heart needs rest and nothing else will take the place of rest; but perpetual rest becomes rust. After rest has done its work, exercise is needed and nothing will take the place of exercise. After a period of preliminary preparation, vigorous exercise should be indulged. There are still many physicians who warn us of the grave dangers to the heart and other parts of our body that exist in athletics. Nobody ever warns the dog running after the hare, or the wolf chasing a deer, that running is bad for the heart. Only man seems to be built so poorly that he cannot indulge in the strenuous activities of life.

Physicians like to tell their heart cases that their heart troubles have been brought on by strenuous play like tennis, football, handball, swimming, running, jumping, etc., because any trouble so caused is supposed to be hard to cure and physicians find that patients have more patience with them when they fail to cure in a reasonable time, if they believe their troubles were caused by athletics.

Actually, this is one of the chief reasons why these patients are never restored to health. So long as physicians are mistaken about cause, so long as they fail to find the real cause, they cannot care for the patient in a manner that will restore health. Wrong care must always flow from an erroneous cause.

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Lesson 75 - Cancers, Tumors

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1. Introduction

There are many factors involved that may contribute to the development of cancer. There are carcinogens in the environment, tobacco, alcohol, and in processed foods. There are cancer-causing toxins in drugs, X rays, and even in the cancer therapies themselves.

You also may develop cancer in the absence of these extraneous factors. This condition begins when yon first become enervated and your body cannot cope with endogenous and exogenous toxins. These toxins accumulate, and if no corrections are made, eventually progress through the seven stages of disease terminating in the seventh stage—cancer.

Since all of these factors are equally important, we will examine them all in this lesson. It is important for you to be aware of the harmful results from all of these toxic substances. When you know the truth, you will be able to make rational decisions that will result in health.

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2. The History Of Cancer

Cancer is a disease of civilization. And yet it is a very old disease. Several million years ago a dinosaur could be found with bone cancer, as fossilized remains discovered in Wyoming have shown. Perhaps other forms of cancer existed in those remote times, but bones are the only remains of extinct animals and therefore give a record of bone cancer alone.

Cancer in the ancestral species of man is more than a million years old. Some traces of it have been found in an anthropoid unearthed in Java in 1891. In antiquity the oldest evidences of cancer are Egyptian and Indian. Bone cancer is identifiable in some mummies discovered in the Great Pyramid of Gizeh. The Edwin Papyrus (2500 B.C.), the Leyde Papyrus (1500 B.C.), and the Ebers Papyrus (1500 B.C.) describe symptoms of cancer and primitive forms of treatment, such as the use of the knife. From the Hindu epic, the *Ramayana*, we learn that arsenic pastes were administered as long ago as 500 B.C. as a treatment for cancerous growth. Writings attributed to Hippocrates (about 400 B.C.) describe many forms of the disease, among them cancer of the breast, uterus, stomach, skin, and rectum. From him we have inherited the term carcinoma (Greek *karkinos*, crab—the great veins sometimes surrounding the malady were compared to the claws of a crab). But treatment in those days were crude, employing caustic pastes and cautery, although Hippocrates had the wisdom to advocate *no* treatment for what he called accult cancer and which would nowadays be called deep-seated cancer.

Hippocrates set forth the humoral theory of disease, which was to form an integral part of medical history for centuries. According to him there were four humors—blood (from the heart), phlegm (from the head), yellow bile (from the liver), and black bile (from the spleen). If the four elements were not properly balanced, bodily health would be impaired and illness would appear. Hippocrates believed that the black bile was mainly responsible for cancer. His theory of humors, although erroneous, demonstrated clearly his certainty that illness originated within the body, in contrast to beliefs in the magical, diabolical, or divine interference with human health.

In the first century A.D., the Roman physician, Aurelius Cornelius Celsus, was the first to operate on cancer, and, during the operation, to ligate blood vessels. He knew about the invasion of distant sites by original cancer cells. He described the appearance of secondary tumors after the primary one had been removed, and he was aware that certain tumors were painless and silent until they grew large enough to ulcerate.

Galen advocated the black bile theory of cancer, and his considerable influence blocked discoveries about the nature of the disease until after the Renaissance. Nevertheless he was the first to correlate psychosomatic problems and emotions with an understanding of cancer. In his treatise on tumors he wrote that melancholic women are more prone to breast cancer than sanguine women.

Arabian physicians of the twelfth century, Avenzoar and Averrhoes, used esophageal sounds to diagnose cancer of the throat and to improve bleeding of patients whose esophagus was obstructed by cancer. Their clinical description of stomach and esophageal cancer is accurate. Another surgeon of the Renaissance, Fallopius (1523-1562), used caustic pastes instead of surgery in the treatment of cancer. It is perhaps worthy of note that there has been a return to this crude use of caustic pastes, as in the method of chemosurgery advocated by Dr. Frederic Edward Mohs in certain cases of face, head, and neck cancer.

The difference between benign and malignant tumors was clarified shortly after Hildanaus's time by Marcus Arelius Severinus. In the eighteenth century the first cancer hospital was founded in Reims, France. At that time cancer was considered to be contagious and persons sick with various forms of the disease were avoided like lepers.

Discoveries were made in many directions during the latter part of the eighteenth century. The first experiments in animals were begun. Occupational cancer, in the form of scrotal cancer of chimney sweeps, was described (1775) by Percivall Potts.

Advanced knowledge in pathology came through the work of John Hunter, Rene Laennec, and Marie Francois Bichat, who espoused a concept of cells as basic units of tumors. The French gynecologist, Joseph Recamier, who spoke of generalized cancer, described invasion of the bloodstream by cancer cells. It was he who coined the term mestastasis to describe the establishment of secondary cancer centers in the body as a result of the, transportation of cancer cells by lymph and blood.

Toward the end of the nineteenth century in Germany, Christian Billroth, Alexander von Winiwater, Wilhelm Freund, Themistokles Gluck and others began to perform cancer operations on a larger scale than ever before. Hysterectomy and laryngectomy became common.

Early in the twentieth century the American surgeon, William Halsted, set forth his surgical principle in the treatment of cancer, namely, that the lesion, together with the regional lymph nodes, should be removed in an attempt to prevent metastases. This principle is best illustrated in his radical mastectomy operation for cancer of the breast. His method is still widely practiced today and is responsible for the unnecessary mutilation of many women.

In 1895, Roentgen discovered some unknown rays which were to become very widely used in the diagnosis and treatment of cancer. As he was working in his laboratory, experimenting with a vacuum tube through which an electric current passed, he noticed that a nearly piece of paper coated with barium platino-cyanide was giving out an unexpected glow. He placed different materials between the vacuum tube and the treated paper and found that some substances stopped the glow while others did not. He had the proof that certain rays emanated from the vacuum tube, and that denser materials interrupted them but lighter ones did not. The rays are sometimes known as roentgen rays, but more often by the name he gave them, X rays.

Three years later, the two French scientists, Pierre and Marie Curie, made another discovery when they found a new element in the ore pitchblende, which had already yielded uranium. This element they named radium. They found that the radiations emitted by radium are much more intense than those which uranium was already known to discharge. Mane Curie was also the first victim of the study of radium, which kills but never heals. She developed anemia form protracted exposure incident to her long years of research with this radioactive element.

Both X rays and radium are dangerous. Shortly after the discovery of X rays, a man employed in a factory making roentgen tubes developed an ulcer in an arm, the arm had to be amputated, and he finally died after a recurrence of the ulceration in the axilla. One of the pioneers in radium therapy fell victim to his work: the surgeon, Robert Abbe, died of anemia like Marie Curie after long exposure to radiations.

The French physician, Jean Bergonie, along with L. Tribondeau, gave us the Law of Radiosensitivity.

Bergonie died in 1925 from cancer caused by X rays. First his fingers, then one of his arms, had to be amputated. He finally developed pulmonary metastase, which ultimately caused his death.

To surgery and irradiation, the current mainstay in the treatment of cancer, has been added a third type of therapy, chemotherapy. Whole families of drugs have been created which are claimed to have remarkable influences on the growth of cancer cells and on the mechanisms whereby cells replicate, transmit, and translate genetic information. These new drugs not only kill the cancer cells themselves, but have many adverse effects on bodily processes in the individual harboring cancer.

We shall have to note the physician's inability, despite surgery, irradiation, or chemotherapy, to "cure" cancer. Healing can only occur endogenously through the organism's faculties when' causes are removed and the conditions for health are provided.

Every time a woman sees her gynecologist for a Pap Test; every time she reports a lump in her breast to her doctor; every time a man or woman tells his physician about a sore which refuses to heal, a persistent bleeding, a change in an ordinary mole or wart, reports constant indigestion, or a change in bowel habits, physicians employ scare tactics. They advocate caution and promote reporting any such symptoms immediately to their physician so prompt treatment may commence to ensure a "cure." The sick individual does not understand that the physician holds no "cures" and only the body has the ability to heal. Any treatment applied at this time or any time will only hinder the body's own efforts to heal.

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3. What Cancer Is

Cancer is the end point (the seventh stage) of a disease process. It is a group of "diseases" found in all races and ages of man and in all animal species. It is often considered a single disease only in the sense that all cancer is characterized by unrestrained growth of unintegrated cells.

Most body structures are composed of tissues made up of many different types of cells, any of which may become cancerous if any unhealthful lifestyle is carried on. A specific type of cancer draws its name from the type of cell affected:

Cancers in connective tissue, including bones, are called sarcomas.

Cancers in cells which line the body's internal and external surfaces (lungs, breast, skin) are called carcinomas.

Cancers in cells that compose the blood-forming system are called leukemias or lymphomas.

In most cases of cancer, unrestrained cell growth leads to the buildup of tumors which compress, invade, and/or destroy normal tissues. The specific type of tumor may (but not always) indicate a probable causative agent: for example, mesothelioma, a diffuse cancer of the chest or stomach lining, is associated almost exclusively with exposure to asbestos.

Malignant tumors generally share some characteristics: higher rate of cell growth than in the normal, surrounding tissues; failure to maintain the boundaries of normal tissue and organs; a microscopic appearance which suggests immature rather than mature tissues, and a tendency to spread to parts of the body distant from the original site of the cancer. Not all these features accompany every malignant tumor, but they characterize most forms of cancer.

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4. Cancer Incidence

Cancer affects people of all ages but is predominantly a disease of middle and old age as it takes time for a disease to progress to this point. Persons around age 70 account for a higher number of cases than any other age group.

Cancer is also a significant factor in the death of children. For children between the ages of 5 and 14, it ranks second only to accidents. Projections from available data show that about 7,000 new cases of cancer occur annually in children under the age of 15 years. This can be attributed to the teratogenic effect of tobacco, alcohol, caffeine, drugs, etc. Another contributing factor is the unhealthful diet of our youth including the large amounts of junk foods and meat that is consumed by them.

Recorded deaths from cancer in the United States have more than doubled since 1935. Similarly, current death rates indicate a real increase in mortality from cancer.

The most dramatic changes are the nearly twenty-fold increase in lung cancer for males, and a two-thirds increase of stomach cancer in both males and females. The increase in lung cancer for males is primarily attributed to heavier smoking, coupled with impacts from other environmental pollutants; the stomach cancer is linked to diet.

There were 358,400 cancer deaths in 1974. About one million are under treatment for the disease, and each year 900,000 new cases are diagnosed. The American Cancer Society estimates that 25% of the 213 million people now living in the United States will ultimately develop some form of cancer.

An estimated $1.8 billion per year is spent solely for hospital care of cancer patients. Additional costs, doctor bill, outpatient therapy, and other treatment-related fees, raise the direct expenditure for cancer well into the tens of billions of dollars, to these direct expenditures must be added indirect costs, such as the estimated 1.8 million work years lost in the national economy and to family income by unemployed or underemployed cancer sufferers.

Fasting and a raw food diet is an effective means to restore health; it is the only effective means. None of the cancer therapies now in use by orthodox practitioners ever result in health. Instead, they progressively destroy health.

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5. Normal Cells To Cancer Cells

Cancer is a fundamental derangement of the normal mechanisms controlling the division, placement and function of cells. Whereas normal cells divide and stop dividing after a certain fixed time, cancer cells do not. They do not "know" when their division is to be stopped and they proliferate in a disorderly fashion.

As soon as cells become cancerous they are no longer controlled by body mechanisms. Cancer cells proliferate and form a mass of cells. Cancer cells have different degrees of affinity for each other, which accounts partly for their propensity to metastasize. An invasive cancer cell is a cancer cell that has a great predilection for spreading rapidly and uncontrollably.

Even though our knowledge about the division of normal cells is limited, we do know that they stop growing when they touch each other if placed on a solid surface such as that of a glass slide. This mechanism of growth control is called contact inhibition. Cancer cells, however, growing in the same conditions, do not stop proliferating; they have lost contact inhibition. While normal cells grow on solid surfaces in single layers, cancer cells show less affinity for the solid surface and grow in irregular masses several layers deep.

Normal cells reside with one another and have a "home" of their own. A kidney cell stays in the kidney and lung cell in the lung. Cancer cells may be said to belong nowhere, to have no proper residence, no "home." We may compare the chemical composition of both normal and cancer cells, for they have the same components, although in slightly different amounts and relationships.

Cancer can be induced experimentally in animals by external agents called carcinogens. Once a cell has changed from normal to cancerous, its succeeding generations are cancerous too; this is true at the cellular level only. A cancer cell is a normal cell deranged by toxic substances and loses contact with the organism. It has been rendered "crazy" by poisoning.

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6. A "Cure" For Cancer

Regarding the search for "cures" for our illnesses, Dr. Shelton says, "Removing cause is the last thing the medical mind ever thinks of. They think always of 'cures.' They search always for 'cures.' They make their money out of the 'discovery,' manufacture, distribution, sale and administration of 'cures.' One of the largest industries in the world, one that pays rich dividends to a vast worldwide army of men and women, is built around this delusion that diseases can be 'cured'."

The search for a "cure" for cancer bill be a never-ending one because there is no "cure" for our wrong-doing other than correcting our errors in living. Cancer is an end point in a pathological evolution that had its beginning long before any clinical signs of cancer manifested itself.

Dr. Shelton said, "Cancer does not attack. Cancer evolves. Cancer cells and cancer tissues are modifications of the patient's own cells and tissues. They are not foreign entities that pounce upon their unwary victims from out of the dark." So we must look to ourselves to reverse this process. When the pathological conditions which resulted in this abnormal cell growth are removed, health will begin to be restored as long as this condition has not advanced too far.

Medical pathologists recognize pre-cancer, early cancer and cancer, but they do not consider the sequences that precede pre-cancer. There are seven stages of disease which will be reviewed later. If the causes of our illness are corrected during any of the first six stages, health will be restored and cancer will never develop. Again quoting Shelton, "Searching for a cancer-causing chemical at this stage in the pathological evolution in the 'sawdust Caesar,' and ignoring all the antecedent stages of the evolution and the causes of the first and subsequent stages, is approved medical practice, but it is not at all scientific."

Destroying a growth does not remove the cause of that growth. The medical profession resorts to surgery, X rays, drugs, etc., to destroy growths but health is never restored because causes are not taken into consideration. If, for example, one lung is diagnosed as cancerous and removed, health cannot be restored if that person continues to smoke. If a woman undergoes a mastectomy for a cancerous lump and then goes home and continues to consume additive-laden junk food, her cancerous condition will continue to worsen.

Physicians do not recognize that cancer is an end point in a pathological process that has gone on for years and has had many causes. They refuse to see it as merely the last link in a chain of causes and effects that reaches Back to the very childhood of the patient. Cancer begins with the first poisons ingested. When a child eats a hot dog with coal-tar dyes and nitrite, he is initiating the first steps toward a slow poisoning of his body which, if persisted in, may result in cancer many years down the road.

7. The Seven Stages Of Disease

The seven stages of disease were explained in detail in Lesson 2, but I will review them here as they are important in our discussion on cancer

1. ENERVATION - This is the first step in disease. Our fund of nerve energy becomes overdrawn to the point that the body is unable to eliminate the toxic by-products of metabolism. Enervation is a state in which the body is either not generating sufficient nerve energy for the tasks the body must perform, or the tasks the body must perform may be greater than the normal nerve energy supply can cope with. The body thus becomes impaired and generates less nerve energy. All the body's functions become impaired and this includes the processes of elimination of both endogenous metabolic wastes and the exogenous poisons introduced into the body (such as in our chemicalized foods). This impairment results in further diminishing the body's ability to restore depletion of nerve energy. This situation results in a condition called toxemia or toxicosis—the second stage of disease.
2. TOXICOSIS - The blood and tissues become loaded with the uneliminated toxic materials from body metabolism and/or from toxins taken in from processed foods, drinks, drugs, etc. Intoxication occurs when we overload the body with toxic materials from the outside, or we fail to observe our capacities and overwork, get insufficient sleep, or are subjected to great stress, or when any number of other factors deplete the body of nerve energy or prevent its sufficient regeneration. For instance, stresses, emotional shocks, or traumatic experiences can drain our bodies of nerve energy very quickly.
3. IRRITATION - This is the third stage of disease. The body unloads its toxicity at various points in the body. Irritation takes the form of itchiness, edginess, uncomfortable feelings, etc. Any toxic material, be it salt, caffeine, or condiments will irritate or stimulate. This is a condition wherein the body sets in force its defensive mechanisms and accelerates its internal activities. A burst of activity will result in an effort to rid the body of these unwanted irritants
   If the causes of enervation/intoxication/irritation remain, inflammation results.
4. INFLAMMATION - This is the stage of disease that is usually first noticed and is recognized by physicians as pathology, for it involves pain. Energy that would normally be available for activity there is pre-empted and redirected to the massive effort to cope with a severe condition of intoxication
   In inflammation, the toxicants have usually been concentrated in an organ or area for a massive expulsive effort. It is an evidence or symptom of increased and intense body activity directed at cleansing and repair. It is a healing activity. If this eliminative effort is suppressed by drugs, the toxicity increases until other organs become saturated—not only with this toxicity but with the drugs administered as well. This fourth stage of disease is the body's most intense effort to cleanse and restore itself. The following degenerative stages of disease will result if the causes of general body intoxication are continued.
5. ULCERATION - During this stage, poisonous matters have begun destroying cells and cellular organizations (tissues). This condition is often very painful as there are exposed nerves. The body may use an ulcer as an outlet for extraordinary toxic buildup thereby relieving itself. It will heal the ulcer if causes are discontinued, or if the toxicity level is lowered significantly.

6. INDURATION - This is a hardening where the body creates tumorous tissue (a kind of scar tissue) to bridge the lost tissue and to encapsulate the poisonous materials that are destroying it. The ulcer and the toxic materials are scaled off by the hardening of the tissue around them. This is the way of quarantining the toxic materials, often called tumor formation. It is this condition that is often falsely diagnosed as cancer. If the Life Science health regimen is followed at this point, the condition can largely be repaired or reversed. Should the pathogenic practices, which brought matters to this stage be continued, cells and tissues go wild and live in a parasitic manner. This condition is called cancer.
7. CANCER - This is the seventh and final stage of disease. Body vitality is at a very low ebb; cells are no longer under the control of the body's master control system, the brain. They multiply wildly in an unorganized manner without purpose. They may be giants or dwarfs and they draw their needs from the bloodstream without contributing to body functions. Cancer cells are parasitic cells. Once this condition is reached, there is little hope except to arrest and control the process. Only the healthiest of regimens can do this.

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8. Can Cancer Be Prevented?

You must keep in mind that health is natural and illness is not. Your body always strives to maintain homeostasis and a healthy state. If illness manifests itself, it means that the body has not been provided the best circumstances for maintaining this balance and has been overwhelmed with toxins. It therefore initiates a healing crisis in order to rid itself of its toxic burden in order to preserve a state of health that it is always striving for. This "healing crisis" may be in the form of a cold, flu, eczema, fever, tonsilitis, etc. At this point, if the causes of ill health are corrected and all the requirements for health are provided, illness will progress no further and health will again be reinstated. On the other hand, if these symptoms are suppressed, the toxic overload will not be discharged. More serious illnesses will ensue with the final end point being cancer.

It soon becomes clear that cancer cannot be prevented, neither is it an inevitable fate.

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9. How Not To Develop Cancer

In spite of our polluted environment, the wide use of poisonous sprays on the crops (chemical farming), use of poisonous additives to our foods, and other environmental carcinogens, we do not have to develop cancer if we know how to live. What must we do to ensure ourselves of this health? Simply obey the "Laws of Life." If you provide the conditions for health, cancer cannot develop. Eat only those foods that we are biologically adapted to eat in their raw state. Exercise daily in the fresh air and sunshine. Drink only pure water when thirst demands it.

It is during the first stage of disease (enervation) where cancer begins and it is at this stage where it is most easily corrected. Simply fast for a day or two and look at your practices to determine what you are doing wrong. You may have to get more sleep or eat more healthfully. If you take these simple steps, you can rest assured that you will not develop, cancer or any other degenerative disease.

10. The Requirements For Health Will Fullfill The Needs Of The Sick

Even if your illness has progressed as far as the sixth stage of disease, health may still be restored. Keep in mind that the needs of the sick individual are the same as for those in health. You cannot treat the sick individual with poisonous drugs or other enervating treatments and expect him to regain health any more than you could expect to administer these drugs to a healthy person and expect him to remain healthy.

The sick individual differs in that he needs more rest. His body is in a state of extreme enervation and in order to heal, all bodily energies must be directed solely to this task. Therefore, fasting is the most effective means for providing this requirement. During the fast, energy is conserved for this task and healing will immediately commence. Cysts and tumors will be autolyzed and general bodily cleansing and detoxification will take place. This must be followed by a correct dietary regime along with proper rest with the introduction of a moderate exercise program when strength returns.

If the cancerous condition has advanced well into the seventh stage of disease, it may not be possible to reverse this process through fasting. However, fasting at this time will result in a slowing down or halting of the advance of cancer and the individual will feel more comfortable with little or no pain. It is far better than the suffering experienced by those cancer patients who are treated with chemotherapy or any of the other orthodox cancer treatments.

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11. Habits

When it comes down to the bottom line, probably the greatest cancer-causing agent in our environment is we, ourselves. How we live and what we do affect, to a large extent, whether or not we will get cancer. Lung cancer is—80% of the time—the direct result of smoking. Cancer of the esophagus, throat and bladder has been linked to drinking alcohol and hot drinks such as coffee and teas. Early sex has been correlated with cancer of the cervix. Habits are hard to break. The first reports linking tobacco to cancer date back to the 1700s. Yet, even today, despite overwhelming evidence, people still smoke and rationalize about its dangers.

Diet has also been linked to cancer. But would Mexicans give up highly-spiced food or Japanese forgo talc-treated rice in an effort to avoid stomach cancer so prevalent among them? Would Americans forgo high-fat diets and highly-processed food to reduce chances of breast cancer and cancer of the colon? Would young girls and middle-aged women stop basking in the midday sun for hours at a time? No, because they equate a suntan with beauty. They choose to ignore the definite risk link between skin cancer and overexposure to ultraviolet rays.

However, if the truth were presented to these people in a rational manner, I am sure that they would see that it is much easier to give up their small habits than to suffer the immense discomfort and pain of cancer.

12. Cancer Treatment

It is a well-known paradox that many of the chemical agents currently used in the treatment of cancer are themselves carcinogenic. Virtually all the commonly-used alkylating agents, including the nitrogen mustards, HN2 and HN3, treatamine (TFM), chlorambucil, sacrolysin and melphalan, and busulphan (byleran) can induce cancer fairly readily in experimental animals.

Studies have proven conclusively that untreated cancer sufferers actually live up to four times longer than treated individuals.

For a type of cancer, people who refuse treatment lived for an average of 12 1/2 years. Those who accepted surgery and other kinds of treatment lived an average of only three years! Beyond a shadow of doubt, radical surgery on cancer patients does more harm than good.

According to Ivan Illich (*Medical Nemesis*), "There is little evidence of effective treatment of most cancers. The five-year survival rate in breast-cancer cases is 50 percent, regardless of the frequency of medical check-ups and regardless of the treatment used. Nor is there evidence that the rate differs from that among untreated women. Although practicing doctors and the publicists of the medical establishment stress the importance of early detection and treatment of this and several other types of cancer, epidemiologists have begun to doubt that early intervention can alter the rate of survival."

13. Chemical Contaminants

In the past 10 years, the production of synthetic organic chemicals has expanded by 255 percent; relatively few of the new compounds have been studied for their cancer-causing potential. Because of the typical development period of 15 to 40 years for cancer, we must assume that much of the cancer from recent industrial development is not yet observable.

The majority of known environmental carcinogens are encountered at the workplace. In fact, the link between cancer and chemicals was first detected among workers; in 1775, soot was singled out as a causative agent in chimney sweeps cancer, cancer of the scrotum. Above-normal incidences of cancer are found in workers having contact with known or suspected carcinogenic substances such as asbestos, arsenic, benzopyrene, benzidine, bis-chloromethyl-ether, coal tar, carbon black, and vinyl chloride.

One such agent is benzidine, of which many million pounds are produced annually in the United States for use in making dyes. An excess of bladder tumors among workers in the industry was first reported in the early 1930s. But because benzidine was just one of a number of compounds to which these workers were exposed, a specific causative agent could not be identified at that time.

Later studies of populations of workers exposed only to benzidine firmly established a cause-and-effect relationship. One retrospective study of a coal-tar dye plant conducted in 1965 showed that 17 of 76 (21%) of workmen, exposed only to benzidine developed bladder tumors. This incidence rate greatly exceeds that of bladder cancer in general U.S. population—13.2 cases per 100,000 population.

Association of occupational exposure to asbestos with increased lung cancer was first reported in the 1950s. The, diagnosis of mesothelioma, an otherwise rare type of cancer, in some asbestos workers provided conclusive evidence that asbestos is a cancer hazard. In the past decade, mesothelioma has suddenly become more common: where environmental data exist, most cancer sufferers may be traced to potential or actual asbestos exposure. This exposure often occurred in the workplace, but not infrequently it was associated only with residence in the vicinity of an asbestos processor or in the household of an asbestos worker. Asbestos products—fabrics, housing insulation, ceiling tile, brake lining—are an additional source of exposure.

Until recently, vinyl chloride, a gas used primarily in the manufacture of polyvinyl chloride plastic, was also used as a propellant for aerosol sprays. In 1974, the discovery of four cases of angiosarcoma of the liver among vinyl chloride workers in a plant in Louisville suggested that vinyl chloride is a carcinogen. Workers exposed to vinyl chloride were later discovered to have a significant excess not only of angiosarcoma but also of more common cancers of the respiratory system, brain and the lymphatic system.

Chlorinated hydrocarbons and arsenical pesticides that have been used in homes and gardens are known carcinogens. Commercially-processed foods have also been found to contain residues of pesticides known to be carcinogenic and other chemicals suspected of being so. Foods may also contain naturally-occurring carcinogens such as aflatoxins produced by particular mold contaminants. Drugs and cosmetics have been reported as carcinogenic. Estrogen as well as synthetic drugs developed for treating chronic conditions such as diabetes, arthritis and anemia have been implicated in helping to produce a variety of malignant tumors.

Combustion products released from industrial smokestacks as well as from chimneys of office buildings, apartment buildings, hospitals, and government and municipal buildings may contain a variety of carcinogenic materials. In 1975, the Environmental Protection Agency found cancer-producing agents in low concentrations in the drinking water of all 80 cities whose water supplies it investigated.

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14. Geographical Factors

Cancer rates vary significantly throughout the United States. In general, states with high rates are the industrial states. Analysis county by county reveals that a majority of the areas of high mortality from cancer are located in large cities. For example, the high mortality in Illinois reflects rates in the Chicago area.

It has long been known that densely-populated and industrialized areas have higher death rates from many causes than nearby rural areas. Urbanization and mortality have been associated for heart disease, cancer of the respiratory and digestive systems, and many other diseases. This excess health risk is related to lifestyle (urban dwellers use more tobacco), to occupation (working with industrial pollutants), to the environment of cities (air and water pollution), and to other factors.

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15. Cocarcinogens

Whether found in polluted urban air, in cigarette smoke, or in some products derived from coal tar and petroleum, environmental carcinogens usually occur in a complex mixture. The mixture of chemicals can multiply the risk of cancer that would be encountered with one carcinogen alone. For example, although 75 to 85 percent of lung cancers are related to smoking, particularly cigarettes, atmospheric pollution and some occupational exposures appear to exacerbate the risk. According to one calculation, asbestos workers who are nonsmokers contract lung cancer at normal rates, but a cigarette smoker who works with asbestos has eight times the risk of dying of lung cancer as similar smokers of the same age who do not work with asbestos and 92 times the risk of laborers who neither work with asbestos nor smoke.

1. Carcinogens In Food

There are many carcinogens in food that is consumed by most Americans today. It is important that the general public be aware of these poisons so that they can make rational decisions when choosing food.

1.1 Fish

Fish are extremely sensitive to pesticides. They sicken or die at very low concentrations, much lower than for most living organisms. Concentrations as low as two parts per trillion of DDT were found to cause problems in the Great Lakes. The consumer can be harmed by eating fish that has been poisoned but not killed outright. Fish have been known to concentrate these poisons 2,000-fold over the amounts in the water where they were found.

1.1.1 Shellfish

In recent years, state and federal agencies that control oyster beds and their care have been pouring materials into the sandbanks to protect oysters from their enemies, such as starfish and other sea creatures. These materials are made of insecticide, and a chemical (orthodichlorobenzene) combined with sand. Sea animals, venturing into the treated sandbank, perish from the poisons in different ways.

A starfish, for example, goes into a spasm and disintegrates. An oyster drill, a member of the snail family, swells up to such an extent that it is forced out of its shell and either dies or is devoured by fish. A crab loses its sense of balance and goes into convulsions. You may well wonder whether the chemicals ultimately make the oyster poisonous to eat. Oysters are far away from our natural food and these chemical toxins give us double reason to eschew them.

1.1.2 Hatchery-Raised Trout

The feeds developed for trout were similar to those previously used for poultry. When the pellets were fed to baby chicks, the birds developed cancer. Later rainbow trout, raised in hatcheries, were given this feed in hopes of achieving maximum weight gains in the shortest period of time before being released into streams.

In the early 1960s, hatchery-raised rainbow trout that were fed this pelleted feed developed liver cancer in what leading cancer specialists considered epidemic proportions. In some hatcheries, 100% of the trout were affected. The outbreak seemed related to a cancer-inducing ingredient, still not completely identified, but present in the fat fraction of the feed. Upon investigation, moldy cottonseed meal in the dry feed was suspected as the most likely cause of the cancer. Dr. Hueper, one of the investigators, says, "The fact that at times carcinomatous involvement affects not only the liver and other internal organs not ordinarily used for human foods, but at times also the muscle tissue, provides an additional reason for caution against any laxity in the application and enforcement of existing laws." The likelihood of strict reinforcement of these laws is very low. The best advice is to not eat any fish.

1.1.3 Fresh Fish

Fresh fish may be refrigerated in crushed ice containing preservatives such as sodium benzoate, sodium nitrite, hydrogen peroxide, ozone, or chlorine to inhibit spoilage. In recent years, cases of illness and deaths were traced to excessive amounts of sodium nitrite added to fish by sellers' who hoped to prolong even further the shelf life of their products.

1.2 Eggs

Eggs are vehicles for residues of a wide range of chemicals present in the diet and environment of laying hens. Antibiotics in feed may more than double the egg laying in low-producing hens. There is also pressure to include antibiotics in the drinking water of layers as well. Feed medicated with antibiotics must be withheld from birds when they are laying. But even when this recommendation has been followed, antibiotics have been detected.

Although the FDA has set "zero" or "negligible residue" tolerance levels for pesticides in eggs, there is no assurance that this food is uncontaminated. Poultry management and poultry feed may both contribute to pesticide residues in eggs.

1.2.1 Drugs

Drugs may be used with laying hens. A tranquilizer, used in conjunction with antibiotics in layer feed, was advertised as boosting egg production since it "calms birds, reduces blood pressure and heart rate, increases respiratory rate." Experimentally, hens fed aspirin laid more eggs. Another drug has been found to be effective in reducing "laying slump"; at the same time it cuts feeding costs.

1.3 Poultry

1.3.1 Arsenic

Since 1950, small amounts of arsenic as arsanilic acid have been incorporated into poultry feed to stimulate early maturation, increase efficiency of feed utilization, produce more eggs, "improve" skin coloring and feathering, and yield more profits.

Currently 90% of all commercial chickens are raised with arsenic in their feed. The arsenic-containing feed must be discontinued long enough before slaughter for the birds to eliminate most—but not all—of it from their meat. Even though arsenic is listed as a carcinogen for man, the FDA allows tolerance residues of 0.5 ppm for it in chicken and turkey tissues, and twice that amount in the byproducts of these birds.

The liver is the detoxifying organ of animal and man. Dr. Manuel Schreiber, FDA toxicologist, stated that dangerous accumulations of arsenic have been found in chicken livers.

1.3.2 Drugs

Another group of "anti-infective" agents, the bacteriostats, are incorporated routinely in poultry feed to control the growth of "undesirable" bacteria. These include drugs which can result in dermatitis in man when applied to the skin, and others which are toxic. Little is known about the general effects of these materials, when eaten frequently in small amounts.

1.3.3 Caponettes

Hormones in poultry production have been used even longer than with livestock. The estrogenic female sex hormones, especially stilbestrol, were first used to caponize birds chemically. The use of stilbestrol was extended to include the treatment of all types of table poultry of both sexes, being highly profitable to the poultrymen. It put weight on birds quickly, and could even give old birds the appearance of youth, with plumper, more attractive flesh.

Since the cancer-inciting nature of stilbestrol was established, the FDA was forced to take action. The agency chose a course least upsetting to the economics of poultrymen, by persuading the industry to "voluntarily" discontinue the use of stilbestrol implants.

Despite this agreement, hormonized birds continued to be shipped by individual poultrymen. In New York City. 25,000 pounds were seized by the Department of Markets. The shippers complained that New York City is "the only city in the country where the FDA ban is being rigidly enforced."

Although the stilbestrol pellet implants were banned, the use of stilbestrol was, and still is permitted in poultry and livestock feed. In addition, a U.S. patent was granted to allow stilbestrol as an additive to the drinking water of poultry, to increase "meat-producing efficiency."

1.3.4 Pesticides

In 1965, the USDA tested 2,600 poultry samples in every federally-inspected plant throughout the nation, and found all birds contaminated with pesticide residues. No one section of the country was better than another. Primary sources of infection were traced to sprayed grain and animal tallows in the feed and to poor husbandry practices. No seizures were made, nor did the USDA divulge specific results, such as the most common contaminant or levels of pesticides found.

1.3.5 Cancerous Chickens

Until 1970, the USDA's policy had been to condemn the entire carcass of the chicken if any organs or sections of the bird showed signs of leukosis. The poultry industry considered this to be an economic hardship and it pressured for lowering the standards for condemning birds. The USDA appointed a panel of veterinarians and animal-disease specialists to review the problem. Although the panel recommended continuing the policy, of condemning birds whose internal organs show active signs of leukosis, it suggested that chickens bearing cancer be allowed on the market if they "do not look too repugnant." The USDA endorsed the proposals. Officials from the agency said that if tumors were detected on the wing of a bird, the wing could be cut off and used in products such as hot dogs, while the rest of the bird could be cut up as chicken—all without posing a threat to human health.

If one portion of the animal shows signs of disease, the entire bird is in a diseased condition. Hiding the worst sections in such products as hot dogs does not make the meat acceptable for consumption. Just because people do not die immediately from ingesting these products does not mean that they are not being harmed by them.

1.4 Hamburger

Toxins are prevalent in ground beef. This popular food item offers many opportunities for economic frauds, such as additives and illegal extenders. It may be adulterated with coal-tar colors, cochineal, and sodium nitrite or benzoate of soda. Dr. Freese at the National Institute of Health has strongly recommended that sodium nitrite be banned from use in foods. In the human stomach, sodium nitrite is converted to nitrous acid, which is mutagenic in a variety of lower organisms. Sodium sulfur is another additive, can mask the smell of deteriorating meat, and give it a fresh-meat redness. Such meat is injurious, especially if eaten rare. Sodium sulfite is a poison that destroys vitamin B, and is capable of causing considerable damage to the digestive system and other organs. Yet tested samples of ground beef purchased as ready-chopped hamburger, or sold at hot dog stands, cafeterias, and restaurants, frequently shows adulteration with this chemical. Hamburger meat served in restaurants often contains sodium nicotinate to preserve its bright red color. Although this chemical is illegal in some municipalities, 37 states permit its use. Several outbreaks of poisoning have been traced to this additive.

Eating grilled or pan-fried hamburgers may result in cancer. Chopped meat cooked on a metal surface at temperatures higher than 300 degrees Fahrenheit produces mutagens (substances that cause genetic change). The particular mutagens in fried hamburgers have not yet been identified, but 90% of all mutagens ever tested cause cancer in laboratory animals. These hamburger mutagens represent a risk of cancer in people. The longer the cooking, the more mutagenic the hamburger. Further analysis revealed the new mutagen is distinct from two other carcinogens previously identified in cooked meat—benzopyrene, similarly mutagenic and produced by cooking meat over a high heat, and pyrolyzed amino acids from the charred surface of meat cooked directly over a flame.

So besides the toxins already present in meat, plus those added to the hamburger, there are additional risks when the meat is fried or charcoal broiled, which is the usual method of preparation. The traditional summer picnic including charcoal broiled hamburger is best left in the past. Substitute fruit picnics and your health will improve rather than decline.

1.5 Hot Dogs

Preservatives similar to those in ground beef may also be used in frankfurters. Other, additives may also be present, such as antioxidants to retard rancidity, or tenderizers. A coal-tar color (Red No. 1) was commonly used in the casings of frankfurters until banned by the FDA after this material produced liver damage in experimental animals. Casings are still dyed with artificial colors, and proof of their safety is not conclusive. Although regulations prohibit the use of coloring if it penetrates the produce, on occasion dyes on frankfurters have been found to penetrate as much as one fourth of an inch into the meat.

1.6 Pork

Results of a nationwide survey revealed that "whether the sausage came from a federally-inspected packing plant or from the meat grinder of a local butcher, it was often sour or rancid and frequently contaminated with an overabundance of bacteria. Some of it was contaminated with filth. Not one sample, out of the packages tested for quality and flavor, could be judged really outstanding."

Pigs raised commercially are diseased. Many die before the farmer gets a chance to market them. Those that do survive are sick and toxic. These toxins are transferred to the people who eat the pork.

1.7 Other Toxins in Meat

1.7.1 Federal Label

Labels for federally-inspected, canned, packaged, or frozen meat must list all the ingredients, common name of the produce, name and address of the processor or distributor, mark of approval and accurate weight. However, meat can be processed legally with sodium nitrate, sodium nitrite, sodium ascorbate, and many other chemicals sanctioned by the FDA.

Presently in the United States, up to 500 ppm of sodium nitrate, and up to 200 ppm of sodium nitrite are permitted in certain meats and meat products (and in certain fish and fish products, poultry, and wild game). Far lower limits are set in Europe.

"Nitrites should be immediately reduced or eliminated as food preservatives, especially on meat and fish." This recommendation was made jointly in February of 1970, by Dr. Samuel S. Epstein of the

Children's Cancer Research Foundation of Boston and Dr. William Lijinsky of the college of medicine at the University of Nebraska. Noting that nitrosamines—which include nitrites—can produce mutagenic changes, the researchers suspect that by similar pathogenic processes, these agents are carcinogenic and teratogenic as well.

1.7.2 Stilbestrol

Medications in feed are used to increase weight rapidly. The most sensational gains are achieved by adding hormones and hormone-like substances to the feed. Stilbestrol is used extensively. Currently, it is estimated that 80 to 85% of all beef cattle are being fed on feed containing stilbestrol. It is also used in the feed for sheep and lambs.

Stilbestrol has been acknowledged by scientists as a potent carcinogen, and has been labeled "biological dynamite." Quantities of stilbestrol as small as 2 ppb are toxic in diets of experimental mice. Cancers in these test animals have been induced by daily doses as low as 7/100,000,000 of a gram (one fourth of a hundred-millionth of an ounce). It can also cause leukemia and cysts in animal organs. In human beings, it has resulted in breast cancer, fibroid tumors, and excessive menstrual bleeding in women, sterility and impotence in men, and arrested growth in children. *The Medical Officer*, an English journal for government health officers, reported that hormone traces in the meat of chemically-fattened livestock are causing British school girls to mature at least three years earlier than in the past.

More important than an occasional large dose of stilbestrol is the danger of repeated small amounts. Since consumers may be ingesting small amounts repeatedly in food consumed over a period of years, this is a factor of prime importance.

The use of stilbestrol for livestock is permitted by the FDA as long as no "detectable" residue of it is found in the edible portions. Stilbestrol fed to experimental rats broke down into four or five products, and they were found in areas of the animals' bodies not previously known to contain such residues. Using a radioactive tracing technique, the breakdown products were found in the muscles, livers, kidneys, lungs, and skeletons. Such materials also may be present in treated livestock.

Despite the hazards of this hormone, the FDA doubled the amount of stilbestrol permitted in the feed of beef cattle in late 1970.

Besides hormones, antibiotics, tranquilizers and pesticides are fed to meat animals. Injections are also given to animals on the hoof before they are slaughtered to tenderize the meat.

1.7.3 Unhealthy Animals

An average of 10 to 30% of beef livers at slaughterhouses are condemned because of abscesses. USDA records showed that during a one-year period, Americans ate millions of pounds of beef from cattle that had "cancer eye" or similar tumorous disorders. The diseased parts were merely cut out and the remainder of the carcass was permitted to be marketed. Agriculture officials claim that such localized tumors pose no threat to human beings eating meat from other portions of such animals. A government report showed that more than 10% of the 30.1 million cattle carcasses approved by federal inspection underwent some post-mortem cutting for removal of diseased parts.

Another report showed that 2,400,000 cattle whose cancerous or tubercular livers were discarded had the rest of their carcasses sent on to be processed for food.

You can see now, why cancer is so prevalent among meat eaters.

1.8 Sugar

The refined-carbohydrate diet is blamed by Dr. Denis F. Burkitt as the single most important cause of large-bowel cancers, occurring on a worldwide scale when people forsake their traditional dietary habits and consume large amounts of refined carbohydrates.

Avoid sugar, advises a famous English nutritionist, and you are less likely to become fat, run into nutritional deficiencies, have a heart attack, develop diabetes or dental decay or a duodenal, ulcer, and possibly reduce your chances of getting gout, dermatitis, some forms of cancer, and in general increase your life span. It is important to realize that by the mere omission of a single common food, and beverage ingredient such as sugar, so many benefits may result, and that its excessive use can contribute, at least in part, to so many desperate conditions and diseases.

1.8.1 Brown Sugar

The commercial brown sugar color isn't from molasses residue. Virgin sugar is rinsed to remove molasses residue, then put into a centrifuge where it is separated from the crystals. This is melted, filtered and boiled repeatedly with animal-bone charcoal to concentrate and form crystals. Molasses is added back to sugar to achieve its brown color.

Dr. W. C. Heuper, M.D. in an experimental study for Cancer Research warns that sugar manufactured with this animal-bone charcoal process may be carcinogenic (cancerous).

1.9 Fats and Oils

1.9.1 Hydrogenation

How is the liquid oil or soft fat hardened? It is exposed o a high temperature and placed under pressure. Hydrogen is then bubbled through the oil in the presence of nickel, platinum, or some other catalyst.

The hydrogen atoms combine with the carbon atoms, and the produce becomes saturated or hardened.

There is no assurance that nickel, if used as the catalyst, leaves no residue in the product. This element, even in minute quantities in the diet, is suspected of being a carcinogen.

As evidence has mounted revealing the menace of hydrogenation, some shortening processors have attempted to change their methods to avoid economic losses. They proclaim their products "high in unsaturates" but adding that they "stay freshly sweet at room temperature." These products may contain antioxidants, in addition to emulsifiers, defoamers, and artificial colors and flavors. Artificial antioxidants in fats are considered possible carcinogens.

1.9.2 Heated Oils

Prolonged heating and reheating at high temperatures produce harmful substances suspected as cancer-inciting or oils. Deep-fat frying is favored in many short-order diners and also in "good" restaurants for economy, speed, and convenience. It is a method also used extensively in processed foods like potato chips, doughnuts, baked goods, serve-and-heat dishes, as well as in many homes. Consumers Research recommends that deep-fat frying should be avoided. Also be shunned are all burned fatty foods and charcoal-broiled meats. All charred, blackened, or burned portions of meats or other fatty foods are carcinogenic.

1.10 Caffeine

Caffeine has been shown to result in genetic and chromosomal changes in animals, bacteria, and higher plants. A retrospective study showed that men who drank cola beverages containing caffeine have a significant increase in bladder cancer compared to noncola drinkers. Other studies' which implicate coffee and caffeine as mutagenic include discussion of genetic effects and effects on chromosomes of human lymphocytes.

1.11 Alcoholic Beverages

Consumption of alcoholic beverages entails an increased risk of developing cancer of the mouth, larynx, pharynx, and esophagus according to the International Agency for Research on Cancer of the World Health Organization. The evidence is that the increase in cancer of the esophagus is proportional to the amount of ethanol consumed. In all four cancer sites, the role of tobacco is also important, and the ill effects of these two factors—drinking alcoholic beverages and smoking tobacco—tend to multiply when they act together. Ethanol may act as a cocarcinogen by enhancing the role of other cancer-causing agents. Ethanol is an excellent solvent for chemicals that are themselves cancer-causing agents, such as polycyclic hydrocarbons and nitrosamines. The presence of these chemicals has been detected in some commonly-consumed alcoholic beverages drunk in areas where esophageal cancer is common.

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2. Some Specific Carcinogens In Food

2.1 Coal-Tar Dyes

Coal, when heated in the absence of air, is converted to coke (impure carbon), coal gas, and coal tar. The coal tar, a viscous black liquid, is a mixture of many organic compounds. In the 1800s, English arid German chemists learned that they could produce intensely-colored substances when they purified some of these compounds and reacted them with other chemicals. These synthetic substances are known as coal-tar dyes and are used in great quantity by the food, fabric and cosmetic industries.

Americans are consuming coal-tar dyes in their food at an increasingly rapid rate. In 1970, slightly over 3,735,000 pounds were certified by government inspectors. These dyes are used in beverages, candy, ice cream, dessert powder, baked goods and sausages. Levels used ranged from approximately ten parts to five hundred parts per million, the lower levels being used in liquid foods (beverages, gelatin desserts) and the higher levels in solid foods (pet food, breakfast cereal, etc.).

People have been concerned about the possible toxicity of coal-tar dyes ever since they were introduced in the second half of the nineteenth century.

In view of the repeated dangers associated with coal-tar dyes, one might assume that the dyes now in use have been thoroughly tested. That is not the case. Adequate lifetime feeding studies (two rodent species, forty or more animals per dosage level), which must be done to reveal carcinogenic and cumulative effects, have been conducted for only five dyes (Yellow 6, Red 4, Green 3, Orange B, and Citrus Red 2). Lifetime studies on dogs have been performed only with Orange B, Red 2, Red 4, and Yellow 6. Not one of the coal-tar dyes used in food has been adequately studied for causation of mutations.

If these tests were to be correctly conducted, there is no doubt that they would find that all coal-tar dyes are indeed carcinogenic. They are all extremely poisonous substances and everyone should exclude these products from their diet if they wish to maintain health.

The safety of Violet 1 was a question mark for many years. The dye was used to stamp the Department of Agriculture's inspection symbol on meat and also to color candy, beverages and pet food. The FDA certified almost 67,000 pounds of this dye in 1972. Consumers may ingest a small amount of the dye when they eat a steak or roast. Workers in packinghouses may be exposed to much greater amounts. The men who imprint USDA's mark on carcasses frequently get the dye on their hands; occasionally large amounts drip down their hands and arms. One Department of Agriculture meat inspector in North Carolina observed that "the dye is pretty hard to get off. Once you get it on your skin, you almost have to wear it off."

A study published in 1962 by Dr. W. A. Mannell and his colleagues at Canada's Department of National Health and Welfare, involved rats. This study indicated that the dye (Violet 1) caused cancer. Of thirty rats fed 3 percent dye in their food for seventy-five weeks, five developed malignant tumors. Three of the tumors were skin tumors. Four of the five tumors occurred in females. Only one out of thirty untreated rats developed a tumor.

In early 1971, nine years after Violet 1 was first suspected of being carcinogenic, the FDA asked the National Academy of Sciences to convene a group of nongovernment scientists to evaluate all available studies. The committee met in Washington on September 1, 1971, and filed its final report in November. The committee's conclusion and recommendations were finally made public in March 1972, more than a year after the committee was first announced.

The NAS committee dismissed out of hand the Canadian study that indicated that Violet 1 caused cancer. The committee declared the dye safe, but did recommend that a lifetime feeding study be conducted on dogs. The net effect of their report will be to postpone the permanent acceptance or banning of this coloring for at least eight years or more.

Citrus Red 2 is another coal-tar dye under investigation. Florida orange growers use the dye, mainly from October through December, to cover up the mottled green color on oranges, tangelos, and temple oranges.

Four lines of evidence suggest that the dye might be a carcinogen:

1. When the dye was mixed with cholesterol and implanted in the urinary Bladders of mice, 14.5% of the animals developed tumors; cholesterol without dye caused tumors in 4.5% of the mice.
2. When the dye was injected under the skin of mice, malignant tumors developed in the lungs.
3. The liver converts the dye to less noxious substances, which then pass into the urine; one of the intermediates in the conversion process is 1-amino-2-naphthol; there is evidence that this chemical causes cancer.
4. The walls of the urinary bladders were markedly thickened in animals whose diet contained the dye.

On the basis of this array of evidence the FAO/WHO Committee issued the following warning at its annual meeting:

Citrus Red 2 has been shown to have carcinogenic activity and the toxicological data available were inadequate to allow the determination of a safe limit. The Committee therefore recommends that it should not be used as a food color.

American consumers are endangered if they eat or suck the peel of treated oranges or use the peel in marmalade. Unfortunately, oranges are no longer individually stamped "color added" so it is difficult to identify treated oranges. When oranges are not stamped, supermarkets are supposed to post signs saying "artificially-colored oranges." FDA administrators in Washington admit that grocers from one end of the country to the other are ignoring FDA's regulations, but plead that they have too little manpower to stop this "minor" infraction. Workers who produce Citrus Red 2 and who dye the oranges may ingest or inhale relatively large amounts of the chemical. They would be exposed to a proportionately-greater hazard than the average consumer.

The identification of coal-tar dyes on food labels is as inadequate as the testing the chemicals have undergone. The presence of coloring in butter, cheese, and ice cream need not be specified at all. In other foods, colorings are never identified specifically as Violet 1, Green 2, etc., but only say "artificial coloring."

Name of Dye	Effects on Test Animals	Permitted In
Amaranth (U.S. Red Dye No. 2)	Tumor production	jams and jellies, fruit drinks, bread, ice cream, flavored milk, pickles, ketchup
Brilliant Blue	FCF Tumor production	as above
Citrus Red, No. 2	Tumor production	orange skins
Carbon Black	Tumor production	jams and jellies, fruit drinks, dried eggs

2.2 Tannins and Tannic Acid

Tannic acid occurs in the bark and fruit of many plants notably in the bark of the oak species, in sumac, cherry wild bark, and in coffee and tea. It is used to clarify beer and wine and as a refining agent for rendering fats. Tannins are used as a flavoring in butter, caramel, fruit brandy, maple and nut flavorings for beverages, ice creams, ices, candy, baked goods and liquors. They art used medically as a mild astringent. When applied, they may turn the skin brown. Tannic acid has a low toxicity when taken orally, but large doses may result in gastric distress. During World War II, liver damage was observed in humans treated with tannic acids for burns. Subsequently, experiments with rats showed repeated subcutaneous injections of a water solution of tannin led to liver toxicity, cirrhosis and tumors.

2.3 Nitrate

Potassium nitrate, also known as saltpeter and nitre, is used in gunpowder and fireworks and as a color fixative in cured meats. Sodium nitrate, also called Chile saltpeter, is used as a color fixative in cured meats. Both nitrates are used in matches and improve the burning properties of tobacco. They combine with natural stomach saliva and food substances (secondary amines) to create nitrosamines, powerful cancer-causing agents. Nitrosamines have also been found in fish treated with nitrates. Nitrates have caused deaths from methemoglobinemia (it cuts off oxygen from the brain). Because nitrates are difficult to control in processing, they are being used less often. However, they are still employed in long-curing processes, such as country hams, as well as dried, cured, and fermented sausages.

2.4 Nitrite

Potassium nitrite is used as a color fixative in the $125 billion a year cured meats business. It is used as a color fixative in cured meats, bacon, bologna, frankfurters, deviled ham, meat spread, potted meats, spiced ham, Vienna sausages, smoked-cured tuna fish products, and in smoked-cured shad and salmon. Nitrite combines with natural stomach and food chemicals (secondary amines) to create nitrosamines, a powerful cancer-causing agent!

2.5 Fish Tumors

Populations of catfish, croakers, calamanders, and other marine animals found in polluted areas often have tumors, while the same species living in a clean environment do not. Scientists have already proven that pollution may be passed along the food chain to people when aquatic organisms accumulate cancer-causing chemicals. Mollusks living in areas polluted with domestic sewage can be reservoirs for disease, and eating mollusks from such areas may result in thyroid disorders and hepatitis.

Pollution certainly seems to play a part in fish tumors. Fish caught in the Fox River on the outskirts of Chicago have almost 16 times as much cancer as do fish caught in Lake of the Woods, Ontario, Canada.

2.6 Ethyl Alcohol

Ethyl alcohol contains ethanol, grain alcohol, and neutral spirits. It is used as a solvent in beverages, ices, ice cream, candy, baked goods, liquors, and gelatin desserts. It was approved in 1976 for use in pizza crusts to extend handling and storage life. It causes cancer when inserted in the rectum of mice in doses of 548 milligrams per kilogram of body weight, and it causes tumors when given orally to mice in 2,770 milligram doses per kilogram of body weight.

2.7 Aflatoxins

Aflatoxins are the best-studied members of a class of compounds called "mycotoxins" (toxins formed by molds). An outbreak in 1960 in England of "Turkey X disease," an acute liver condition, was traced to peanut meal contaminated with the mold, which occurred after improper harvesting and storage.

A single dose of 5 milligrams per kilogram of body weight has induced tumors in rats. The marked differences in, geographical distribution of liver cancer in humans has long suggested the presence of some common factor. In areas of Africa where there is a high incidence of liver cancer, aflatoxin contamination is common. Aflatoxin B1 is one of the most potent cancer-causing agents known in animal testing. Levels as low as one part per billion 1 produced1 liver cancer in rats. Previous experiments showed a 100% incidence in rats on a lifetime diet containing 15 times that amount of aflatoxin B1.

In addition to liver cancer, aflatoxins have been implicated in the formation of tumors of the stomach, kidney, and some other tissues.

Make sure that the nuts you eat are fresh. Dr. William Wardell, director of the Center for the Study of Drug Development, University of Rochester School of Medicine, speaking at a symposium on Public Issues and Private Medicine, December 6, 1978, in Philadelphia, pointed out that "when a batch of peanuts is imported containing aflatoxin levels that are too high for us to eat, the current method of control is to dilute the contaminated batch with a clean batch to bring the level down to acceptable proportions."

2.8 Charcoal Broiling

Cancer-causing agents can be formed in charcoal-broiled food according to the NCI. It is safer to boil or poach food than to charcoal broil it. It is believed that at least two kinds of substances are formed in broiling; one is related to the tar in cigarette-smoke condensate and is produced when the surface of the food is charred; the other factor involves the breakdown of some amino acids in protein.

2.9 Carrageenan

An Irish moss derivative, carrageenan absorbs water easily, has a seaweed-like odor and a gluey, salty taste. It is used as a stabilizer and emulsifier in chocolate products, chocolate-flavored drinks, chocolate milk, gassed cream (pressure-dispensed whipped), syrup for frozen products, confections, evaporated milk, cheese spreads, cheese foods, ice cream, frozen custard, sherbets, ices, French dressing, artificially-sweetened jellies and jams.

Carrageenan results in the stimulation of the formation of fibrous tissue when subcutaneously injected into guinea pigs. When a single dose of it dissolved in saline was injected into the subcutaneous tissues of rats, it resulted in sarcomas after approximately two years. Its cancer-causing qualities may be that of a foreign body irritant, because upon administration to rats and mice at high levels in their diet it did not appear to induce tumors, although survival of the animals for this period was not good. Its use as a food additive and as a treatment for gastric ulcers is being further tested.

2.10 Azo Dyes

A large category of colorings used in both food and cosmetics, azo dyes are characterized by the way they combine with nitrogen. They are made from diazonium compounds and phenol and usually contain a mild acid such as citric or tartaric acid. Among the foods in which they are used are "penny" candies, caramels and chews, Life Savers, fruit drops, filled chocolates (but not pure chocolates); soft drinks, fruit drinks and ades; jellies, jams, marmalades; stewed-fruit sauces; fruit gelatins; fruit yogurts; ice cream; pie fillings, puddings (vanilla, butterscotch, and chocolate puddings), caramel custard, whips, dessert sauces (such as vanilla and cream in powdered form); bakery goods (except plain rolls); crackers, cheese puffs, chips; cake and cookie mixes, waffle/pancake mixes; macaroni and spaghetti (certain brands); mayonnaise, salad dressings, catsup (Vermin brands); mustard, ready-made salads with dressings; remoulade, bearnaise and holladaise sauces, as well as sauces such as curry, fish, onion, tomato, and white cream; mashed rutabagas, purees; packaged soups, and some canned soups; canned anchovies, herring, sardines, fish balls, caviar and cleaned shell fish.

As far back as 1906 an azo dye, scarlet red, was found to cause tumors in rabbits in Germany. In 1924 it was reported to cause liver tumors in mice. In 1934 Tomizu Yoshida, professor of pathology at Tokyo University, Japan, reported liver cancer in rats that ingested azo compounds in their diet. Azo dyes have since been found carcinogenic in a wide variety of experiments worldwide, but they are still used in our food and cosmetics.

2.11 Sugar

Dr. Hieper has said: "In themselves, sugars may not be carcinogenic—but carcinogenic impurities may be introduced into sugars when concentrated. Sugar solutions are filtered for decolorizing purposes through improperly prepared charcoal containing polycyclic hydrocarbons. Chemicals of the dibenzanthracene type are eluted (washed out) from charcoal by concentrated sugar solutions. Traces may be introduced in this manner and may remain in apparently chemically pure sugars."

2.12 Saccharin

"Saccharin is a noxious drug, and even in comparatively small doses it is harmful to the human system," wrote Dr. Wiley in 1913. He tried to keep this nonnutritive adulterant out of food and drink.

As early as 1951, three FDA scientists reported that saccharin at certain levels showed a high incidence of unusual combinations of cancers. The FDA chose to ignore the report. In November 1969 Dr. George T. Bryan, a tumor expert and cancer researcher at the medical school of the University of Wisconsin, reported to the FDA that using saccharin, he had produced bladder cancer in 47% of the mice in one group, and in 52% of another group. In a press interview, Dr. Bryan admitted that although direct cancer hazard to man from saccharin has not yet been established, he was "very suspicious." He added, "It may take many years before it is known exactly how dangerous the substance is ..."

1. Pesticides

Most pesticides are poisonous and can be dangerous to the user, the environment, and the food consumer. Pesticides that reach the consumer generally do so by the oral route. Thus, stomach and bowel cancers are of particular interest to agronomic and agricultural scientists.

Pesticides may promote or induce cancer. Insecticides all are readily absorbed through the skin and may also be inhaled or ingested. Acute symptoms following massive exposure including vomiting; dizziness, tremors, and convulsions. Such exposure can be fatal. Other insecticides result in skin and lung irritation. Dithiocarbonates, a group of chemicals commonly used as fungicides, are highly irritating to the skin, eyes, and respiratory tract.

Tests for pesticides frequently establish the ability of the compounds to promote and induce cancer. A further complication is that of multiple carcinogens, a multiplier effect when one is added to another. The sale and use of some 2.000 pesticide products containing 23 potentially hazardous ingredients has been restricted by the EPA to farmers and commercial users.

1.1 Pronamide

This pesticide, used mainly on lettuce, alfalfa, and to a lesser extent, on berries, turf and sugar-beet seed, caused cancer in mice. On January 15, 1979 the FPA proposed that the continued use of pronamide be allowed, but with additional precautions lo reduce potential risks to humans. FPA Assistant Administrator Steven Jellinek said: "In general, EPA concluded that for all uses the economic benefits of pronamide outweigh its risks. Most pronamide is used on lettuce in California and Arizona, which produce most of this country's lettuce. Without pronamide, the estimated loss to lettuce and alfalfa growers would be approximately $17.3 million annually. Pronamide is used primarily as an herbicide to control weeds, which compete with lettuce and alfalfa. Other herbicides available for weed control of these crops are not always as effective, and for lettuce these uses would result in additional labor costs for growers who would have to control the weeds by hand or mechanically."

Organic gardeners will attest to the fact that highly poisonous sprays are not necessary to have a bumper crop of lettuce. A few weeds among the lettuce will do no harm but may distract or repel certain pests. There can never be any legitimate excuse for using sprays that are known to be harmful to the consumer. When weeds are controlled by hand or mechanically on a regular basis, they will not harm the crops and may in addition eliminate some unemployment .

1.2 Parathion

An organophosphorus pesticide, parathion was given in feed to rats and mice for 80 weeks. It was carcinogenic to the adrenal glands of male and female rats.

1.3 Nitrofen

Nitrofen is an agricultural pesticide used as a selective contact herbicide for pre- and post-emergent control of annual grasses and broad-leaf weeds on a variety of food crops. Agricultural workers and manufacturers are exposed through skin absorption and by inhalation. The general public is exposed through ingestion due to possible persistent residual quantities of nitrofen on food crops. Adverse effects on agricultural workers following excessive exposure over prolonged periods included a reduction of hemoglobin and white blood cell counts, inhibition of cholinesterase (an enzyme in the heart muscle) and abnormalities in red-blood and serum-enzyme levels. The chemical was given to rats and mice for 78 weeks. It proved to be a liver carcinogen in mice of both sexes and in female rats.

1.4 Maleic Hydrazide

Maleic hydrazide regulates the growth of unwanted "suckers" on about 90% of the United States tobacco crop and is also applied to 10 to 15% of domestic potatoes and onions to prevent sprouting after harvest. It is highly toxic to humans and has produced central nervous system disturbances and liver damage in experimental animals. It has led to liver and other tumors in some mice. It has resulted in genetic damage in plant and animal systems, a fact that often signals a cancer-causing effect.

1.5 ETU2-Imidazolidinethione

Cancer-causing ETU, a contaminant and breakdown product of some widely-used fungicides, can contaminate plants, whether sprayed onto leaves or mixed in the soil. Readily transmitted from roots to leaves, ETU persists for as long as two weeks. For this reason it is recommended that the fungicides called ethylenebisdithiocarbamates (EBDC), in use for 30 years, should not be applied to crops two weeks before harvest.

When ETU is given in large doses, it has been shown to be carcinogenic in rats, tumorigenic in mice, and teratogenic (fetus-deforming) in rats and mice. Reports have shown that cooked spinach contained more of the cancer-causing chemical than the corresponding raw spinach; an inadvertent addition to food of a carcinogen caused by the breakdown of remaining fungicide when heated. A heat-caused degradation product of widely-used EBDC fungicide, ETU is found 10 to 90 times higher in cooked tomatoes than in raw tomatoes. During cooking, the ETU presumably is formed from residues of the parent fungicides that are present on the food. The amount of ETU formed in the cooked produce varies with the parent fungicide and ultimately depends upon the amount of fungicide residue that remains on the harvested crops. Although the amount of ETU may drop to very low levels in 14 days, that is no reflection of the amount of this carcinogen that may be found in the cooked produce.

In addition, degradation products of unknown toxicity, for instance ethylene thiuram monosulfide, are formed from the EBDC fungicides in the field. Several toxicological studies have shown that ETU was carcinogenic in the thyroid of rats, tumorigenic in the liver of mice, and teratogenic in pregnant rats. Studies have also suggested an effect of ETU on the liver.

1.6 Dieldrin

Dieldrin is a neurotoxin (a toxin that destroys nerve tissue). First introduced by cotton growers in the 1950s, when the chemical was found to be more effective than aldrin, dieldrin has also been used as an insecticide on crops, for public health pest control, and for mothproofing woolen goods. The tests showed that there was a significant increase in the incidence of liver cancers in high-dose male rats and in cancer of the adrenal glands in low-dose female rats. Tumors occurred in the pituitary and thyroid glands in tests.

1.7 Chlorinated Hydrocarbons

Hydrocarbons in which one or more of the hydrogen atoms have been replaced by chlorine are called chlorinated hydrocarbons. Many members of the group have been shown to cause cancer in animals and some of them to cause cancer in humans. Among the designated carcinogens, chloroform, vinyl chlorides bis chloromethyl ether, trichlorethylene, aldrin, chlordane, dieldrin, heptachlor, lindane, methoxychlor, toxaphene, terpene polychlorinates, and carbon tetrachloride. Concern about the potential hazard of certain chlorinated hydrocarbons is based on their ubiquity; their persistence in the environment; their capacity to accumulate in living organisms, including humans and the human fetus; and the experimental evidence of a potential carcinogenic effect.

1.8 Chlordane

An organochlorine pesticide, chlordane was introduced in 1945 and was among the first to be developed for insect control. Because of its persistence in the environment, most of its uses were suspended by order of the EPA in 1975. Several specified uses are still permitted including pest control on pineapple, strawberries, and Florida citrus crops; it is also used for a number of other pest control problems.

Chlordane and heptachlor were once used at the rate of 14 to 16 million pounds per year. Current legal usage accounts for 6 to 8 million pounds per year. Chlordane causes cancer of the liver in mice. It is less toxic than other similar pesticides, but acute exposure has the effect of stimulating the central nervous system. It has also been implicated in acute blood abnormalities, such as aplastic anemia. It is said to be absorbed through the skin. It has been found to be mutagenic. Eventually, it will probably be banned entirely.

1.9 Atrazine

One of the most widely-used pesticides in the United States, atrazine reacts under acidic conditions such as those found in the stomach, to form a potential carcinogen. It is used as a weed-control agent for corn and for noncrop and industrial sites. Found in drinking water supplies in Iowa and Louisiana, atrazine reacts with nitrite to form N-nitrosoatrazine, a suspected carcinogen. Sodium nitrite is used as a meat preservative and may also be present in acid soils because of the large amounts of nitrite fertilizers used.

1.10 Amitraz

Amitraz is a pesticide used on pears in Washington, Utah, Oregon, Michigan, New York, and Pennsylvania since 1975 on an emergency basis to control an aphid-like insect called pear psylla. It is claimed that there is no effective alternative pesticide available to control the pear psylla, which is capable of damaging both the fruit and the trees. The EPA claims that without amitraz the economic losses to growers could be as high as $33 million for three years. On January 15, 1979, the EPA proposed to approve the pesticide on the condition that certain restrictions be imposed "to reduce potential risks to human health." They said that amitraz could be used on pears for four years, pending completion of additional laboratory tests by the manufacturer. The proposal follows a full-scale review of the risk versus benefits of using the pesticide on pears. There is some evidence that it may cause tumors in laboratory animals and therefore might present "a small risk of cancer to humans." As a result, EPA would require application only by trained users wearing protective clothing. To reduce residue levels on the fruit before it is marketed, EPA would require longer time periods from the time a crop is sprayed to the time it is harvested. Amitraz is distributed in this country by Upjohn of Kalamazoo, Michigan. It is estimated that about 120,000 pounds of it might be used on pears each year.

The facts still remain that this pesticide is extremely toxic and even in small doses are definitely harmful.

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1. Environmental Carcinogens

Over the past 100 years, there has been a significant rise in life expectancy, particularly in the developed portions of the world. Since 1950, there have been no appreciable changes in life expectancy in the United States. The two leading causes of death in the United States, heart disease and cancer, have increased since 1900 at a rate much higher than may be accounted for by population growth and by aging of the population. Environmental influences may already be factors in life expectancy and health in the United States.

Cancer has more than doubled since the turn of the century. Much of the increase may be attributed to cigarette smoking, but overall cancer rates exclusive of lung cancers are also rising.

Cancer has a long latency period. In humans there is usually a 15- to 40-year period through the progressive stages that eventually terminates in cancer. Increased levels of exposure to a carcinogen carry with them an increased risk of developing cancer, a single exposure to a chemical may also result in a cancer.

About two million chemical compounds are known, and each year thousands more are discovered by the U.S. chemical industry and hundreds are introduced commercially. We know very little about the possible health consequences of these new compounds. The sheer number of chemical compounds, the diversity of their use, and the adverse effects already encountered from some make it increasingly probable that chemical contaminants in our environment have become a significant determinant of human health and life expectancy.

It must be remembered that cancer is a disease of the whole organism. It possesses attributes ranging from unrestricted growth to invasiveness.

It is true that many agents that are mutagenic, that is, responsible for cellular mutation, are also carcinogenic, capable of inducing cancer, but a direct correlation between mutagenic and carcinogenic occurs within the cell and may initiate cancer. First, for a mutation to happen, an agent foreign to the cell constituents is needed. A number of agents are capable of resulting in cellular mutations and sometimes ultimately cancer.

We can thus distinguish three steps in the development of cancer:

1. Initiation (or the first change).
2. Promotion (from the dormant to the visible stage).
3. Progression (leading to the irreversible state).

All normal cells have a finite life span. The normal cell divides in two at a constant rate, then the two daughter cells into four, and so on, but along the road of reproduction some of the cells die at a constant rate equal to the rate of reproduction. Balance is therefore maintained. But not so for cancer cells. They do not have a finite life span. Nor do they die in the same proportion as those that reproduce.

Uncontrolled growth, or geometric, not linear, reproduction occurs, the outstanding characteristic of cancer cells. The volume of the growing tissue continuously increases, and balance in number and volume is not maintained. In this first step toward cancer the transformed cells have escaped the controls and balances which govern normal cells.

Once a neoplastic cell has reached the stage of progression, the third, stage in carcinogenic growth, it is a cancer cell forever. But, before that stage, the neoplastic transformation may be reversible. The first step, initiation, or mutagenesis, does not necessarily lead to cancer; if the second stage (promotion) fails to take place, the third and definitive stage will not be attained. In other words, the initial change in the DNA of the cell may not be permanent or irreversible. In this case, if the cause of the cell irritation is removed, the cell will repair and resume normal function.

If we think of the process of neoplastic transformation in terms of the interaction in the cell of DNA, RNA, and protein, we could say that the primary change, or initiation, occurs in the base sequences of DNA; the second step, promotion, and the third step, progression, would be expressed in the perpetuation of the change as DNA replicates itself.

1.1 Chemical Carcinogenesis

It is probable that a high proportion of human cancer, perhaps 60 to 90% is due to environmental causes.

Cigarette smoke, atmospheric pollution, and various other materials in our environment contain certain hydrocarbons which can produce cancer. For centuries some meats have been conserved in salt and it has been found that the nitrates present in meat cured in this way can also be carcinogenic.

Chemical carcinogenesis is generally a two-stage process as mentioned above consisting of, first, initial ion. and second, promotion. An example of this double process is to be found in the relationship of croton oil and polycyclic hydrocarbons to skin cancer. Croton oil alone rarely produces skin cancer but if a single dose of a polycyclic hydrocarbon is applied to the skin of an experimental animal and if this is then followed by an application of croton oil, skin cancer frequently occurs: the polycyclic hydrocarbon acts as an initiator and the croton oil as a promoter of the cancer process. Observations of this type are pertinent to human cancer since we know that our natural environment contains a number of chemical carcinogens. It is logical to assume that even a low level of these chemicals might serve as initiating agents, and that association with promoting agents could result in cancer.

1.1.1 Asbestos

The naturally-occurring fibrous silicates classified as "asbestos" now are believed to be the most deadly cancer-causing agents in the workplace. There has been a thousandfold increase in output of asbestos during the past 50 years, and although it has been known for more than half a century that persons who inhaled large amounts of it in the course of their work sometimes developed disabling or fatal fibrosis of the lungs, it has only been within the last 30 years that it has been found to cause cancer. It is estimated that as many as 3,000 different products in daily use throughout the world contain some asbestos

The first suggestion that it could cause cancer was raised in 1935 by two physicians who noticed a correlation between asbestosis, a condition caused by fibers remaining in the lungs, and lung cancer. The link was definitely established around 1960 when Mt. Sinai School of Medicine researchers found that asbestos was the cause of mesothelioma, a rare and always fatal cancer of the membranes surrounding the lungs and lining of the abdominal cavity. Cancer of the stomach has also been found among American insulation workers and among the Japanese who like to eat rice coated with talc, a substance usually contaminated with asbestos. Asbestos has also been linked with cancer of the larynx, and a study by the American Cancer Society showed that asbestos workers who smoke may be 92 times more likely than the average nonsmoker to develop lung cancer. Even relatively brief exposure can increase the risk of cancer 20 to 40 years later.

Asbestos has been found in the air we breathe. An estimated 158,000 pounds of this mineral is released from automobile brake linings every year, and thousands of schools and other buildings have been constructed with asbestos insulation and flame proofing.

Dr. Irving Selikoff of Mt. Sinai School of Medicine, one of the world's leading experts on asbestos, says that a worker could be exposed heavily to asbestos for one day and develop cancer much later in life as a result, because his lungs continue to be exposed to the asbestos fibers deposited there.

Altogether, 2.5 million Americans are now working in trades involving asbestos, including asbestos mining and processing, insulation work, building demolition, and brake-clutch repair.

The modern home has asbestos from roof to basement—asbestos roofing or roof tiles, gutters, rainwater pipes, ceiling and floor tiles. The tiles, even if polished, are subject to wear and tear and presumably the liberation of asbestos. The instances of plural disease, one of them mesothelioma, have been found in workers who sanded asbestos floor tiles. Central-heating furnaces and pipes insulated by asbestos are common. Insulation of electrical equipment in the home, such as electric irons and stoves, is almost always compounded with asbestos. Ironing-board covers are made from the substance.

The latency period for asbestos-caused cancer is from four to fifty years. It primarily appears in the lungs, pleural cavity, gastrointestinal tract, ovary, skin, liver, and larynx.

1.1.2 Air Pollution

Polluted air affects the health of human beings and of animal and plants. Emitted pollutants are diluted in the atmosphere and swept away by winds, except during an inversion (when surface air cannot rise). Then, for a period that varies from a few hours to a week or more, pollutants are trapped and the dilution process is impeded. When an inversion persists for a week or more, pollution intensifies substantially, and there is an accompanying increase in the death rate. Scientists are convinced that air pollution is very definitely a factor contributing to the three major types of diseases that result in sickness and death in our country—heart disease, lung and respiratory diseases, and cancer. Studies have shown that air pollution can actually be hazardous to people who live 50 to 100 miles away from the pollution source. This is because some common pollutants while moving through the atmosphere are transformed by chemical reactions with sunlight into more hazardous pollutants, such as photochemical oxidants that poison the lungs and respiratory system. Sulfur oxides aggravate asthma, lung and heart diseases, and lung functions of children. The amount of suspended particles in the air is related to injury to the surfaces of the respiratory system, that is, to the linings of the lungs and throat. Chemicals carried into the lungs by particulates may cause cancer to develop on the lung lining. Carbon monoxide is harmful to persons who have lung disease, anemia, or cerebral-vascular disease. Photochemical oxidants may cause respiratory irritation and even changes in lung function. Nitrogen oxides in high concentrations can be fatal, and in lower concentrations they can cause acute bronchitis and pneumonia.

Air pollution accounts for a doubling of the bronchitis mortality rate for urban as compared to rural areas. In 1958 the rate of death from lung cancer was 1.56 times as high in the urban areas as in the rural areas. Stomach cancer is related significantly to a deposit index and a smoke index. The mortality rate due to stomach cancer is more than twice as great in areas of high pollution as in areas of low pollution. The mortality of all cancers is 25% higher in polluted areas than in areas of relatively clean air.

Cigarette smoke and automotive exhaust, the most common environmental air problems, are composed of gases, liquid and solid aerosols. Personal pollution from smoke is the main cause of respiratory cancer. Municipal incinerators are major sources of several toxic elements in the air of many cities. Refuse incineration can account for major portions of zinc, cadmium, antimony, and possibly silver, tin, and indium observed in airborne particles. Many of the toxic elements from incinerators are associated with predominantly small particles that can be easily inhaled into the lungs, where these poisonous elements can be dissolved in body fluids and transported about the body.

The impact of air pollution on humans generally increases with age. This indicates that air pollution has a cumulative effect on health.

It has been estimated that 25% of the deaths from lung cancer could be saved by a 50% reduction in air pollution.

1.1.3 Water

Drinking water that comes into your home may be the greatest source of cancer-causing agents to which you are exposed. There are thousands of organic chemicals potentially present in our water supplies due to industrial discharges and spills. The use of agricultural chemicals, industrial discharges and spills, and the runoff of rainwater from cities present a growing pollution problem. Groundwater—subsurface water supplied by springs, lakes, and rivers—can be polluted by surface waters, deep-well disposal, seepage from mines, landfills, septic tanks, feedlots, and pesticides. Groundwater supplies 20% of the freshwater used in the United States. It constitutes the entire water supply of more than 95% of the rural population and 20% of the 100 largest cities in the country; the semiarid Southwest is almost completely dependent upon groundwater. It is estimated that 10 million barrels of brine are injected into underground reservoirs by the gas and oil industry. While relatively little is known about the chemicals that pollute our water, it is known that many of them do cause cancer in test animals.

The NAS committee noted that chlorination results in the formation of suspected carcinogens for humans. Lead toxicity, the committee said, is a particular risk for inner-city children. Consequently, the interim drinking-water reputations for lead—established under the Safe Drinking Water Act in 1975—may provide an adequate margin of safety for adults but not for urban children. Similarly, they noted, present data support reexamination of the margins of safety provided by interim drinking-water limits for nitrate, arsenic and selenium.

1.1.4 Polycyclic Hydrocarbons

The polycyclic hydrocarbons are members of a broad class of chemicals produced by incomplete combustion of organic matter. Cigarette smoke, vehicle exhaust, forest fires, and even charcoal-broiled meat have been shown to contain substantial quantities of these potent carcinogens.

1. Smoking And Cancer

In the early part of the sixteenth century, explorers returning from the New World brought tobacco to Spain and England. The introduction of tobacco was in response to man's search for contentment; indeed pipe smoking, tobacco chewing, and the use of snuff were reputed to have medicinal action. But, since the earliest times, smoking has also been condemned as a foul-smelling, loathsome custom, harmful to health. The centuries-long controversies became particularly intense after 1930, when the production and use of tobacco, especially of cigarettes, reached enormous proportions and increasing deaths from lung cancer were becoming evident.

Based on evaluations of detailed epidemiologic, clinical, autopsy, and experimental data accumulated over the last 30 years, cigarette smoking has been clearly identified as a causative factor for lung cancer. The risk of developing lung cancer increases directly with increasing cigarette smoke exposure as measured by the number of cigarettes smoked per day, the total lifetime number of cigarettes smoked, the number of years of smoking, the age at initiation of smoking, and the depth of inhalation. Lung cancer death rates for women are lower than for men but have increased dramatically over the last 15 years coincident with the increasing number of women smokers. This increase has occurred in spite of the fact that women smokers use fewer cigarettes per day, more frequently choose cigarettes with filter tips and low tar and nicotine delivery, and tend to inhale less than men. A person who stops smoking has a decreased risk of developing lung cancer compared to the continuing smoker, but the risk remains greater than the nonsmokers for as long as 10 to 15 years after the person stops smoking.

Dr. Alton Ochsner, a nonsmoker and a renowned surgeon who has operated on many patients with lung cancers, has said (1954): "Cigarettes cause cancer ... Indeed in view of research by the American Cancer Society, the National Cancer Institute, the National Institutes of Health, and scores of independent scientists throughout the world, it is appalling that anyone could, doubt the shocking link between smoking and a dozen major health problems."

Lung cancer is not the only cancer to be-associated with smoking. If women are relatively spared by lung cancer, they are not spared by cancer of the larynx. Warren H. Gardner (1966) says that 70% of the women included in his study of laryngectomized women had been smoking until the time of surgery, and that one woman, who had started smoking at age eleven, had been smoking four packs of cigarettes a day for 35 years.

Pipe and cigar smokers experience mortality rates from cancer of the oral cavity, larynx, pharynx, and esophagus approximately equal to those of cigarette smokers. Their risk of developing cancer of the lung is lower than the risk of cigarette smokers, but it is significantly above that of nonsmokers. This is probably due to the fact that pipe, cigar, and cigarette smokers experience similar smoke exposure of the upper respiratory tract, while cigarette smokers (due to their greater tendency to inhale) have a greater exposure of their lungs to smoke than pipe or cigar smokers.

The bronchial epithelium of smokers often shows pre-malignant changes such as squamous metaplasia, atypical squamous metaplasia, and carcinoma. The pathogenesis of these changes is related to the various carcinogenic and co-carcinogenic substances in cigarette smoke; the exact mechanism of these carcinogens remains under investigation.

A recent study found that passive smoking from side-stream smoke increases a person's risk of developing lung cancer. The report states that the probability of nonsmoking wives to develop lung cancer is linked statistically to the smoking habits of their husbands. The relative risk of developing lung cancer was even higher in certain subgroups of nonsmoking women with husbands who smoke—notably those in agricultural settings—further strengthening the evidence that the lung cancers of nonsmoking women were due to their husbands' smoking, not to air pollution.

1. Other Carcinogens

1.1 Sorbic Acid

Sorbic acid consists of a white free-flowing powder that is obtained from the berries of the mountain ash and is also made from chemicals in the factory. It is used in cosmetics as a preservative and humectant. A mold and yeast inhibitor, it is also used in foods, especially cheese and beverages. It is also used as a replacement for glycerin in emulsions, ointments, embalming fluids, mouthwashes, toothpastes and various cosmetics. A binder for toilet powders and creams, it produces a velvet-like feel when rubbed or, the skin.

When injected subcutaneously in 2,600 milligrams doses per kilogram of body weight, it causes cancer

Sorbic acid is often added to dried fruit, so be sure to read the labels when purchasing packaged fruit.

1.2 Plastic Food Wrap and Packaging

Plastic food wrap is a petroleum product and is not biodegradable. Some wraps create toxic smoke when burned. In 1975 the FDA approved a plastic acrylonitrile Coke bottle. But in 1977 rats fed large doses of acrylonirile lost weight and developed abnormalities, such as lesions of the central nervous system. Another study showed migration of the chemical into the contents after the Coke bottle was kept at a temperature of 120 degrees for six months. The FDA proposed a ban on the product.

An FDA official noted that acrylonitrile is not the only troublesome chemical. Some types of polyvinyl chloride (PVC) packages are also carcinogens. PVC liquor bottles were prohibited in 1973, although PVC is used in other packages. Other commonly-used plastics in the $15 billion a year food-packaging industry are also toxic.

1.3 Hair Coloring

More than 33 million Americans use hair coloring in an effort to cover gray or to change their appearance. Permanent hair-coloring products change the color of the hair. They cannot be shampooed away but remain until the hair grows out or is cut off. There are basically three types: natural organics, synthetics, and met allies.

Researchers at NCI tested hair-dye chemicals for their ability to cause cancer by feeding them to rats and mice. Preliminary results showed that six hair-coloring ingredients are indeed carcinogenic in animals: 4-methoxy-m-henylenediamine, 4-MMPD (commonly used in permanent hair color); 2,4-toluene diamine (used in a few permanent hair colors); 4-amino-2-nitrophenol and 2-nitrophenylenediamine (used in many gold and reddish shade highlighters); direct black 38 and direct blue 6 (no longer manufactured).

Bruce Ames reported in 1977 that 150 of the semipermanent hair dyes he tested were mutagenic. An estimated 70 to 70% of the substances that are known carcinogens show up as mutagens in his test. In January 1978 NIOSH reported that a new study of beauticians and cosmetologists show they have a higher than expected incidence of six kinds of cancer. That study, along with NCI's findings, led NIOSH to recommend that 2,4,diaminoanisole be treated as a human carcinogen. On April 6, 1978, the FDA issued an order that manufacturers place a warning on the label of some permanent hair dyes that reads: "Warning: contains an ingredient that can penetrate your skin and has been determined to cause cancer in laboratory animals."

Do not use any kind of hair colorings. There is nothing more beautiful than your natural color.

1.4 Cosmetics

In relation to cosmetics, we read that "in spite of the progress made, some carcinogens are probably still present in toilet or cosmetic preparations." Not all the dyes used in lipstick and other materials have been subjected to adequate biological tests. Chloroform, which induces liver tumors in mice, still appears to be added to some toothpaste as a flavor.

Estrogens are used in some skin creams. The use of these preparations was approved provided that they were used only by women aged over 30 years, that they did not contain more than 350 international units of estrogenic hormone per gram, and that not more than 15 grams of preparation were used per week. However, the administration of even small amounts of (estrogen to post-menopausal women might facilitate the growth of hormone-dependent mammary cancer. Hormone creams should not be used by anyone. They can upset the endocrine system and result in a host of problems.

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1. Cancer Therapy

1.1 Cancer Chemotherapy

The concept of curing cancer by the administration of a drug is erroneous. It is the outgrowth of the development of drugs to "cure" infections based on the false concept of invasion by bacteria.

The difference between a normal cell and cancer cell is not comparable to the difference between a bacterium and the host, and the drugs that affect cancer cells also affect normal cells in the same host. It is therefore apparent that treatment of malignant diseases which are disseminated, such as metastatic cancer, leukemia, lymphomas, or any other widespread cancer, would, under the theory, require an agent capable of diffusing throughout the body in uniform concentrations.

The treatment of cancer by drugs is called the chemotherapy of cancer. The outstanding shortcoming of such methods is the failure of the drugs to destroy the cancer cells specifically without simultaneously seriously damaging the host.

Cancer chemotherapy has been under intensive development during the past 25 years. Physicians claim that this drug therapy has resulted in "cures"—occurring in mostly uncommon tumors—but apply the theory in treating common ones in the hope of "curing" all types of cancer. The entire concept is false since the body can never be poisoned into health. Symptoms may be suppressed, and where the disease was in the sixth stage (induration) there may be some false signs of "cure." But such illusionary recoveries never result in a state of health. As with all diseases, suppression of one symptom results in a worsened condition that may reappear in the same location or elsewhere. Thus, drug therapy during the tumorous sixth stage could hasten cancer.

1.1.1 Principles of Therapy

Cancer chemotherapy rests on the pretense that anti-tumor drugs are more efficient in killing tumor cells during DNA synthesis and active division; that is, they are more active against cycling than against noncycling cells. Some tumors are said to be "cured" by drugs because the majority of their cells, at any given moment, are making DNA and dividing (i.e., have a large growth fraction). When a drug reaches the tumor, the great majority of the cells in these phases of the cell cycle die. When the tumor is young, most of its cells are making DNA; as it ages, the growth fraction decreases, growth is slowed, and drug sensitivity is reduced. The "curable" tumors are said to be those that are in the early stages while their cells are in the growth fraction.

Nonresponsive tumors are said to be those that are old and have low-growth fractions. They are then given combined systemic chemotherapy with surgery and radiation. These are said to be effective means of removing the old portions of the tumor. Under this theory, chemotherapy kills the two categories of tumor cells left behind following local removal—the microscopic nests of cells in the tissue planes adjacent to the primary tumor left outside the surgical margin, and clinically in apparent distant metastases. Both categories of cells are in the infancy of their growth cycle and are highly susceptible to drugs given after surgery. However, old, large tumors are more likely to contain so-called "drug-resistant cells" because the large number of cells divisions is accompanied by the development of so-called drug-resistant mutants, especially if the cells have been exposed to chemotherapeutic agents.

Normal tissues that have a high percentage of cells synthesizing DNA, such as the hair roots, hematopoietic tissues, and the various GI epithelia from mouth to rectum, are also destroyed by chemotherapy.

The body creates 10,000,000 new blood cells per second. It has some 25 trillion blood cells, and their average life expectancy is about thirty days, so the body is constantly renewing itself with new cells. This means that at any given time, cells are in the state of division. Since chemotherapeutic drugs are systemic poisons, every cell and tissue of the entire body is affected. There is some damage and destruction done to trillions of healthy cells from this therapy.

In addition to killing cells during DNA synthesis or during physical mitosis, most drugs have a variable secondary killing capacity for cells in other stages of the cell cycle. A combination of drugs are given to eradicate cells in these stages of the cell cycle and it is given more intensively and for relatively long durations. Thus, more normal healthy cells are killed along with cancer cells.

In a 1981 article in In *These Times*, Ellen Cantarow states that the drugs that "cure" the rarest kinds of cancer, and which still are given for the common sorts, are themselves highly toxic to bone marrow, lungs, kidneys, heart and stomach. They cause horrible nausea, and they erode the lining of the mouth and throat. One of the ironies of treatment is that it is carcinogenic in itself.

The large American cancer institutions don't advertise such facts. Nor do they tell you that "surviving" beyond the magic five-year mark laid down as the finish line for a "cure" may mean having your hair fall out, your body mutilated, and being in pain and depression.

The American cancer establishment is bound up tightly in the multinational industrial complex. For instance, some dozen of the overseers of the world's largest private cancer center, Sloan-Kettering, are affiliated with companies like Exxon, American Cyanamid, Texaco, and Union Carbide, all major petrochemical corporations responsible for spewing billions of tons of carcinogenic chemicals into the air we breathe, the earth in which we plant our fruits and vegetables, and the water we drink.

1.2 Chemotherapeutic Agents

The chemical agents used in the treatment of cancer have a wide variety of biological effects on cells. They can have a direct effect upon the DNA of the cell nucleus, or they can interfere in the transfer of information from the DNA to the messenger RNA with the subsequent alteration of protein synthesis by the cell. They can chemically interfere with the mitotic processes of cells. They can interfere with the formation of hormones which are essential to the life of the cancer cell. In general, there are four major classes of drugs which are useful in blocking the synthesis of particular proteins or enzymes. These are (1) the alkylating agents, (2) the antimetabolites, (3) the steroid hormones, and (4) miscellaneous compounds with specific blocking effects.

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2. Antitumor Drugs

2.1 Alkylating Agents

These drugs were developed from wartime research on mustard gases. They interfere with cellular DNA preventing mitosis. Most of these drugs are absorbed after oral administration, but a few are given intravenously. They distribute to all tissues and are toxic to the bone marrow and are in themselves carcinogenic and mutagenic. Some of the agents have additional adverse effects.

Mustard gas is a highly toxic and deadly gas that causes conjunctivitis, blindness and death. Its vapor is extremely poisonous and can be absorbed through the skin. It causes cancer of the bronchi in workers exposed to it and cancer of the lung, larynx, trachea, and bronchi in cancer patients treated with it.

2.2 Antimetabolites

Antimetabolites inhibit a metabolic pathway essential for the viability or reproduction of a cancer cell. No metabolic pathway is unique for cancer cells so all body cells are affected.

Methrotrexate - This drug is toxic to the bone marrow. In addition, it is toxic to the orogastrointestinal epithelium, and two to seven days after administration one often sees oral reddening and ulceration, nausea, and vomiting. Diarrhea, dysphagia, and gastrointestinal bleeding may result as more serious effects. Skin rashes and baldness occasionally are seen. With very large doses, hepatic damage or renal damage progressing to uremia may occur. Prolonged usage is associated with liver damage with a cirrhosis-like syndrome. Leukoencephalopathy (abnormal amount of white blood cells in the brain) may occur.

6-Mercaptopurine (6MP) and 6-thioguanine (6TG) -Toxicity consists of bone marrow depression and orogastrointestinal damage similar to that seen with methotrexate.

Cytarabine (ARA-C, arabinosylcytosine) - A marked bone marrow depressant; causes lesions of orogastrointestinal epithelia, and occasionally gives rise to hepatic and renal toxicity.

5-Fluorouracel (5FU) - This drug can cause devastating bone marrow and gastrointestinal toxicity. Baldness, skin rashes, or cerebellar dysfunction are also noted.

Dacarbazine (DTICJ) - Toxicity includes bone marrow depression, gastrointestinal erosions, marked vomiting, and occasionally an influenza-like syndrome.

2.3 Antibiotics

A number of antibiotics have antitumor effects. Some are complex alkylating agents; the remainder are rather large molecules that bind to DNA.

Dactinomycin (actinomycin D) - Toxicity includes bone marrow depression, orogastrointestinal ulceration, nausea and vomiting, and baldness. A specific effect is a severe skin reaction wherever there has been previous (or concomitant) radiation.

Doxorubicin (adriamycin) and Daunorubicin (daunocycin, rubidomycin) - Toxicity includes bone marrow depression, baldness, and orogastrointestinal reactions. They also can result in cardiac failure, often severe and irreversible. Apparently the drugs accumulate in cardiac muscle and result in severe cardiac damage if a certain total dosage is exceeded.

Bleomycin - Bleomycin results in erhythema, pain, and hypertrophic changes in the skin in areas where there is a lot of keratin, and ulceration in these areas and pigmentation of the nails may occur. Pulmonary fibrosis, which is sometimes fatal, occurs in 5 to 15% of patients who receive more than 100 mg/m2. Patients are often given as much as 300 mg/m2.

Mithramycin - Bone marrow toxicity is marked. Mithramycin also results in bleeding by depressing the coagulation factors manufactured by the liver, and it inhibits the activity of osteocytes, depressing serum levels of calcium.

2.4 Alkaloids

Vincristine and vinblastine - Both drugs result in baldness and bone marrow depression. Both drugs have neuromuscular toxicity (which is more marked for vincristine) leading to severe constipation, paresthesia, loss of reflexes and weakness of extremities.

2.5 Miscellaneous Compounds

Procarbazine - In addition to nausea, vomiting, and bone marrow depression, there are neurologic effects—somnolence, confusion, and cerebellar ataxia.

Hydroxyures - Its main toxicity is bone marrow depression.

Asparaginase - Asparaginase results in many serious toxicities in man, especially in those organs that synthesize large amounts of proteins, such as the liver and pancreas. Liver toxicity is moderate, but an occasional patient will develop pancreatitis. There are occasional central nervous system manifestations and, because it is a protein given IV, some people (about 5% develop "allergic reactions" (severe sensitivities) and sometimes anaphylatic shock.

Mitotane (ortho, para-DDD) - This drug is related to DDT and is especially toxic to the cells of the adrenal cortex. Lethargy and somnolence occur in some people; less common effects include skin rashes, bone marrow depression, and liver damage.

Cisplatin - In addition to severe nausea and vomiting and hematologic depression, its effects include renal damage and ototoxicity.

As you can see, rather than "curing" anything, these drugs make it virtually impossible for the body to heal itself. The drugs are so toxic that the body must use its energies to try to eliminate or detoxify these poisons. In its weakened condition, the body becomes overcome by the toxins and permanent damage often results.

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3. Radiation Carcinogenesis

There is clear evidence that radiation can result in cancer in human beings. Although at present the number of tumors induced by artificial radiation constitutes only a very tiny fraction of all human cancer, the potential will increase because of increasing use of radioactive substances in industry and medicine.

Irradiation of cells by X rays, ultraviolet light, and other physical sources can be broadly categorized into two pathological results:

1. Direct mutagenic effects—an immediate physical or chemical event at the molecular level, within the fraction of a second.
2. Indirect mutagenic effects—an alteration of a normal balance within the organism and a subsequent neoplastic transformation in the cell through loss of normal resistance or control.

3.1 Direct Effect of Irradiation on Cells

Physical particles, such as X rays, gamma rays, fast electrons, alpha particles, and ultraviolet particles, carry high amounts of energy and when they strike a cell, a direct change occurs in the cell's chemical organization and genetic structure.

The nucleus of the cell is far more responsive to radiations than its cytoplasm and in the nucleus itself the RNA is the macromolecule affected. It is therefore logical that the function of the cell most sensitive to radiation is the reproductive one since it is engineered by the nuclear DNA.

3.2 Indirect Induction of Cancer by Radiations

Dr. Henry Kaplan and his associates at Stanford University (from 1950 to 1970) have done the most to elucidate the mechanism of irradiation induction of cancer in mice. He has essentially proven that the induction of cancer by irradiation is an indirect, not a direct, mutagenic effect. Lymphatic leukemia of the thymus in mice can be induced only if the thymus is irradiated following irradiation of the mouse's entire body.

When the upper part of the body alone was irradiated, the spleen and bone marrow cells acted as protective agents against the induction of cancer. When the bone marrow and the spleen were also irradiated, their protective capacity was annihilated and the mice developed thymic tumors.

3.3 Effects of Radiations

The indirect induction of cancer by radiations also has implications in man, particularly with respect to human leukemia.

The carcinogenic effects of irradiation have been shown for a variety of cancers in man. Sarcomas occur from ingestion of radioactive isotopes, such as those deposited in the long bones of radium dial painters; pulmonary carcinomas in underground mine workers result from exposure to alpha radiations in high concentration', from radon in the air of underground mines. In addition it is possible that polonium, existing in low doses in tobacco, is a carcinogenic agent in cigarette smoke.

Patients treated by irradiation for ankylosing arthritis of the spine and the survivor; of the Hiroshima und Nagasaki atomic blasts show an increased or excessive incidence of leukemia. Breast cancer is more frequent in women undergoing multiple fluoroscopic examinations in the treatment of pulmonary tuberculosis. A single x-ray film of the abdomen of a pregnant woman produces a significant increase in the incidence of cancer, including leukemia, in the child.

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4. Laetrile

Laetrile is a controversial drug used to treat cancer. Most physicians oppose the use of Laetrile but supporters of this drug claim that it has halted or even "cured" cancer in many patients.

Laetrile is extracted from apricot pits. Certain enzymes in many foods break down Laetrile. During this process, a poisonous substance called cyanide is released. The supporters of Laetrile claim that the enzymes are also present in cancer cells. They believe that after Laetrile is injected in to the bloodstream of a patient, cyanide is released in the cancer cells and kills them. According to this theory, healthy body cells are not affected because they do not contain the enzymes that break down Laetrile.

Laetrile is, usually administered by being injected into the bloodstream. However, some cancer sufferers take Laetrile pills, which are broken down in the stomach by certain enzymes. Cyanide poisoning, which can be fatal, often results.

Cancer patients who discontinue orthodox treatment and begin Laetrile treatment experience improvement, for several reasons. One of the major reasons is the discontinuance of the harsh and very harmful and enervating treatments of drugs, X rays, radium, etc. Laetrile, although toxic, is less so than the chemotherapy and therefore, the body has less poisons to deal with and more energy can be directed toward healing. Also, most often, a much improved dietary regime is commenced at the same time along with other healthful practices. Another reason for rapid improvement, is the possibility that there was a misdiagnosis and the person did not actually have cancer but the disease was still in the sixth and reversible stage. If the person now makes a complete recovery and health is restored, the recovery is accredited to the Laetrile. This is a false assumption. Laetrile has no ability to heal, but the body did the healing when the burdens of the chemotherapy, etc., were lifted and a more healthy lifestyle was adhered to. Recovery would be more rapid and complete, however, under a Hygienic regime.

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Questions & Answers

Can breast cancer be directly related to diet?

> Yes, Dr. John Minton of Ohio State University found that the primary causes of breast cancer in women are coffee, tea, chocolate, colas and other caffeine-dosed foods and drinks. Dr. Minton withdrew women with breast lumps from their usual diet and gave them a diet that consisted primarily of organically-grown natural foods. On this improved diet, pain, swelling and lumps disappeared within two to six months. This worked in 47 women who cooperated with Dr. Minton.

Has anyone found that a high fat diet is linked to cancer incidence?

Dr. David Kritchevsky of Philadelphia's Wistar Institute of Anatomy and Biology says that his institute's tests link fats to cancer. It doesn't matter if the fats are saturated or unsaturated. They cause cancer, especially of the colon and breast. Americans eat about 42% of their total calories in the form of fats. About 25% of 1592 Americans will have cancer and most of them will die of it. For years promoters of unsaturated vegetable oils have praised the value of their product. But it now has been proven that unsaturated vegetable oils will cause cancer just as much as animal fats. When these oils are heated, they become even more carcinogenous. When heated, they generated acrolein and acrolic acid—both deadly carcinogens

Your total fat intake should be in your ingestion of such foods as nuts, seeds, avocados and what minute amounts may be found in fruits and vegetables.

I heard that cabbage is good "anti-cancer" food. Is this true?

The concept that foods can "act" as healers is erroneous. It is true that people who eat cabbage along with an abundance of other fresh vegetables and fruits have a very low incidence of cancer. This is not because there is any "medicinal" property to these foods but simply because they are good foods. Their use will result in good health and therefore cancer will not develop.

Can condiments cause cancer?

In 1979, a scientist, Jose M. Concon of the University of Kentucky, made public his findings about a wide variety of flavorings and condiments including cinamon, vanilla, anise, black pepper and a large number of other commonly-used condiments. Dr. Concon gave these condiments to mice and observed malignant tumors develop in them, often in several organs simultaneously, Control mice fed the same diet otherwise did not develop tumors. Our best advice to you is to eschew all condiments.

I recently read that vitamin C can cure cancer. Is this correct?

No, vitamin C has no property to "cure" anything. Dosing with vitamin C in excess of the body's relatively low needs will not confer health. But this can interfere with normal body functions and result in disease. Dosing with vitamin C in response to colds, influenza and cancer does not furnish the body with a nutrient it needs—under an ailing condition it can utilize less nutrients and food than it did when it was unimpaired. What dosing amounts to is drugging.

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Article #1: Autolyzing Tumors by Dr. Herbert M. Shelton

The word autoloysis is derived from Greek and means, literally, self-loosing. It is used in physiology to designate the process of digestion or disintegration of tissue by ferments (enzymes) generated in the cells themselves. It is a process of self-digestion.

Enzymes exist throughout nature. All organic processes are accomplished by their aid. Seeds sprout by the aid of enzymes. Every tissue has its own enzyme.

It is now common knowledge that the processes of digestion that take place in the mouth, stomach and intestine are made possible by active agents or ferments known as enzymes. For instance, starch is converted into sugar by digestive enzymes that are said to be starch splitting, or amylolytic; proteins are converted into amino acids by protein-splitting, or proteolytic, enzymes. The digestive enzymes digest only "dead" substances and therefore, do not digest the stomach and intestine.

Acids and alkalies do not accomplish the work of digestion. They only supply favorable mediums for the work of the digestive enzymes. The enzyme, ptyalin, of the saliva acts only in an alkaline medium and is destroyed by a mild acid; the enzyme, pepsin, of the gastric juice works only in an acid medium and is prevented from working by an alkali.

It should be equally well known that the chemical changes that take place in the cells and tissues are instigated by enzymes, of which there are a number in every living thing. Simple sugar (monosaccharide) is absorbed from the intestine and carried to the liver where it is converted, by an enzyme, into glycogen (animal starch) and stored until used. When the body needs sugar, the glycogen is reconverted into sugar, again by enzymic action. It is now general knowledge that insulin secreted by the pancreas is necessary to the metabolization (oxidation) of sugar and that when the pancreas fails to turn out sufficient insulin, unoxidized sugar is excreted in the urine.

A number of autolytic enzymes are known and are included under the general terms, oxidases and peroxidases. Physiologists know that proteolytic (protein-digesting) enzymes are formed within many, if not in all, living tissues.

These various intracellular enzymes play a conspicious part in the metabolism of food substances; that is, in the normal or regular function of nutrition or metabolism. A few familiar examples of autolysis will prepare the reader for what is to follow about tumors.

When a bone is broken, a bone-ring support is built around the fractured section, extending each way from the point of fracture. After the bone is reunited and knitting or healing is completed, and the circulatory channels are reestablished, the bone-ring support is softened and absorbed, except about a quarter of an inch about the point of fracture.

If planaria, or flat worms, are cut into small pieces and placed where they can absorb nourishment, each piece will grow into a small worm. If they cannot get nourishment, they cannot grow. Each piece, therefore, completely rearranges its materials and becomes a perfect, but very minute worm. The piece that contains the pharynx, finding this too large for its diminished size, will dissolve it and make a new one that fits its new size.

The manner in which an abscess "points" on the surface of the body and drains its septic contents on the outside is well known to everyone of my readers. What is not generally known, is that this "pointing" on the surface is possible only because the flesh between the abscess and the surface is digested by enzymes; that is, it is autolyzed and removed.

Certain animals have specialized stores in which they store up a reserve of nutrition to feed them during periods of scarcity or during hibernation. These physiological storehouses are analogous to the "water tank" possessed by the camel. Examples of this are the big-tailed sheep of Persia, the gila monster of our Western plains and the Russian bear. Other animals, including man, possess only the generalized reserves found in the bone marrow, liver, blood, fatty tissue, etc., and the private reserve possessed by each cell in the body.

Both types of animals may draw upon these reserves for supplies with which to nourish their vital tissues, if raw materials from without are not to be had; or, if, due to sickness, they cannot be digested.

These tissues (fatty tissue, bone marrow, etc.) and food substances (glycogen) are not fit to enter the bloodstream before they are acted upon by enzymes. Indeed human fat, or human muscle is no more fitted to enter the circulation without first being digested, than is fat or muscle from the cow or sheep.

Glycogen (animal starch), stored in the liver, must be converted into a simple sugar before it can be released into the bloodstream. This conversion is accomplished by enzymic action.

Many more examples of autolysis could be given, but enough have been presented to convince the reader that it is a common fact of everyday life. It remains now to show that the body possesses control over this process, just as it does over all the other processes of life: that the process is not a blind, undirected bull-in-a-china-shop affair.

A remarkable example of this control is afforded by the piece of diced plenarium that contains the pharynx. Here is manifest the ability to tear down a part and shift its constituent materials. The same thing is seen in the softening and absorption of the bone-ring support around a point of fracture. Only part of the bone-ring is digested, the remainder is allowed to remain to reinforce the weakened structure.

The phenomena of fasting supply many examples of the control the body exercises over its autolytic processes. For instance, tissues are lost in the inverse order of their usefulness—fat and morbid growths first, and then the other issues. In all animals, from worms to man, the various organs and tissues differ very greatly in their rates of loss while fasting. Usually the liver loses more in weight relative to the rest of the body than the other organs, especially in the earlier stages, due to the loss of glycogen and fat. The lungs lose almost nothing and the brain and nervous system still less.

The vital tissues are fed on the stored reserves and the less vital tissues, so that abstinence from food can produce damage only after the body's reserves have been exhausted.

The body possesses the ability to shift its chemicals and fasting furnishes many remarkable instances of this. The digestion and reorganization of parts seen in worms and other animals, when deprived of food, the digestion and redistribution of reserves and surpluses and nonvital tissues, as seen in all animals, when forced to go without food, constitute, for the writer, some of the most marvelous phenomena in the whole realm of biology.

The body is not only able to build tissue; it can also destroy tissue. It can not only distribute its nutritive supplies; it can also redistribute them. Autoloysis makes redistribution possible.

I propose now to show the reader that this process of autolysis can be put to great practical use and be made to serve us in getting rid of tumors and other growths in the body. This fact is not exactly new for it has been known for a long time. Over a hundred years ago, Sylvester Graham wrote that when more food is used by the body than is daily supplied, "it is a general law of the vital economy" that "the decomposing absorbents (the old term for the process of autolysis) always first lay hold of and remove those substances which are of least use to the economy; and hence, all morbid accumulations, such as wens, tumors, abscesses, etc., are rapidly diminished and often wholly removed under severe and protracted abstinence and fasting."

To fully understand this, it is necessary for the reader to know that tumors are made up of flesh and blood and bone. There are many names for the different kinds of tumors, but the names of all indicate the kind of tissue of which the tumor is composed. For instance, an osteoma is made up of bone tissue; a myoma is composed of muscular tissue; a neuroma is constituted of nerve tissue; a lipoma consists of fatty tissue; etc.

Tumors being composed of tissues, the same kinds of tissues as the other structures of the body, are susceptible of autolytic distintegration, the same as normal tissue, and do, as a matter of experience, undergo dissolution and absorption under a variety of circumstances but especially during a fast. The reader who can understand how fasting reduces the amount of fat on the body and how it reduces the size of the muscles, can also understand how it will reduce the size of a tumor, or cause it to disappear altogether. He needs, then only to realize that the process of distintegrating (autolyzing) the tumor takes place much more rapidly than it does in the normal tissues.

In his *Notes on Tumors*, a work for students of pathology, Francis Carter Wood says: "In a very small proportion of human malignant tumors spontaneous disappearance for longer or shorter periods has been noted. The greatest number of such disappearances has followed incomplete surgical removal of the tumor; they have occurred next in order of frequency during some acute febrile process, and less frequently in connection with some profound alteration of the metabolic processes of the organism, such as extreme cachexia, artificial menopause or the puerperium.

No more profound change in metabolism is possible than that produced by fasting and the change is of a character best suited to bring about the autolysis of a tumor, malignant or otherwise.

The conditions Dr. Wood mentions as causing spontaneous disappearance of tumors are, for the most part, "accidents" and are not within the range of voluntary control. Fasting, on the other hand, may be instituted and carried on under control and at any time desired. It is the rule that operations are followed by increased growth in the tumor. Spontaneous disappearance following incomplete removal is rare. The same may be said for extreme cachexia and artificial menopause. In fevers, we have rapid autolysis in many tissues of the body and much curative work going on, but we cannot develop a fever at will. Pregnancy and childbirth occasion many profound changes in the body, but they are certainly not to be recommended to sick women as cures for their tumors. Even if this were desirable, it would be a hit-or-miss remedy. The effects of fasting are certain. There is nothing hit-or-miss about the process. It works always in the same general direction.

Fever is a curative process and does help to remove the cause of the tumor. None of Dr. Wood's other causes of spontaneous disappearance assist in removing the cause of tumors. Fasting does assist greatly in the removal of such cause.

During the fast, the accumulations of superfluous tissues are overhauled and analyzed; the available component parts are turned over to the department of nutrition to be utilized in nourishing the essential tissues; the refuse is thoroughly and permanently removed.

I could quote numerous men of wide experience with fasting to corroborate what I am going to say about autolyzing tumors, but I do not desire to weary any reader with quotations. I will content myself with one quotation. Mr. Macfadden says: "My experience of fasting has shown me beyond all possible doubt that a foreign growth of any kind can be absorbed into the circulation by simply compelling the body to use every unnecessary element contained within it for food. When a foreign growth has become hardened, sometimes one long fast will not accomplish the result, but where they are soft, the fast will usually cause them to be absorbed."

Due to a variety of circumstances, some known, others unknown, the rate of absorption of tumors in fasting individuals varies. Let me cite two extreme cases to show the wide range of variation in this process.

A woman, under forty, had a uterine fibroid about the size of an average grapefruit. It was completely absorbed in twenty-eight days of total abstinence from all food but water. This was an unusually rapid rate of absorption.

Another case is that of a similar tumor in a woman of about the same age. In this case, the growth was about the size of a goose egg. One fast of twenty-one days reduced the tumor to the size of an English walnut. The fast was broken due to the return of hunger. Another fast a few weeks subsequent, of seventeen days, was required to complete the absorption of the tumor. This was an unusually slow rate of tumor absorption.

Tumor-like lumps in female breasts ranging from the size of a pea to that of a goose egg will disappear in from three days to as many weeks. Here is a remarkable case of this kind that will prove both interesting and instructive to the reader.

A young lady, age 21, had a large hard lump—a little smaller than a billiard ball—in her right breast. For four months it had caused her considerable pain. Finally she consulted a physician who diagnosed the condition, cancer, and urged immediate removal. She went to another, end another and still another physician, and each made the same diagnosis (an unusual thing) and each urged immediate removal.

Instead of resorting to surgery, the young lady resorted to lasting and in exactly three days without food, the "cancer" and all its attendant pain were gone.

There has been no recurrence in thirteen years and I feel that we are justified in considering the condition "cured." Hundreds of such occurrences under fasting have convinced us that many "tumors" and "cancers" are removed by surgeons that are not tumors or cancers. They cause us to be very skeptical of the statistics issued to show that early operation prevents or "cures" cancer.

The removal of tumors by autolysis has several advantages over their surgical removal. Surgery is always dangerous; autolysis is a physiological process and carries no danger. Surgery always lowers vitality and thus adds to the metabolic perversion that is back of the tumor. Fasting, by which autolysis of tumors is accelerated, normalizes nutrition and permits the elimination of accumulated toxins, thus helping to remove the cause of the tumor. After surgical removal, tumors tend to recur. After their autolytic removal, there is little tendency to recurrence. Tumors often recur in malignant form after their operative removal. The tendency to malignancy is removed by fasting, in Europe and America literally thousands of tumors have been autolyzed during the past fifty years, and the effectiveness of the method is beyond doubt. The present writer can give no definite information about bone tumors and nerve tumors; but, since these are subject to the same laws of nutrition as all other tumors, he is disposed to think they may be autolyzed as effectually as other tumors. These things are certain—the process has its limitations and tumors that have been allowed to grow to enormous sizes will only be reduced in size; while, not all cysts will be thus absorbed. It is advisable, therefore, to undergo the needed fast or fasts while the tumor or cyst is comparatively small.

One other limitation must be noted; namely, tumors that are so situated that they dam up the lymph stream will continue to grow (feeding upon the accumulated excess of lymph behind them) despite fasting.

Reprinted from Health For All

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Article #2: Some Prefer Cancer By Lewis E. Machatka

A surgeon from Ohio State University, Dr. John F. Minton, has given his female patients a choice to either give up coffee drinking or undergo surgery to remove breast lumps. He gave 47 women the choice of abandoning coffee or going under the surgeon's knife. The breast lumps disappeared after two months in one woman who decided to give up the caffeine habit.

The cancer-causing culprits are known as methylated xanthines. These chemicals are found in conjunction with caffeine in coffee, tea, colas and cocoa. They cause the speedy growth of fibrous protective tissues, known as tumors. These chemicals also interfere with the functioning of certain tissue enzymes needed for tissue building and cell metabolism.

These fibrous tissues sometimes grow into massive lumps. They are not usually cancerous, but the women who develop them are four times more likely to develop malignant growths. It is also suspected that methylxanthines may cause prostate enlargement. The tissue of the prostate gland is similar to that of the breast, but fibrous growths on the prostate are much harder to detect.

These are some of the preliminary results of continuing research. It is clear that a word of caution has been sounded to all coffee, tea, cola, and cocoa drinkers.

It appears that the elimination of these caffeine products may be "hard medicine to swallow," as of the 47 women who had a choice of either giving up coffee or undergoing surgery, 27 preferred the operation. Those 27 have a surprise in store. By continuing the intake of caffeine-related carcinogens, they'll merely cause cancer somewhere else in their bodies.

Reprinted from Health Crusader March 1980

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Article #3: Black Pepper Causes Cancer!

Confirmation of Life Science's teaching that anything taken into the body that is not a food is poisonous and harmful comes from the research laboratory of the University of Kentucky.

Life Science teaches not to use condiments on, in or with our foods—or by themselves. In fact, we teach to eat only foods that are a gustatory delight in themselves. For good health we must eat only those foods that don't call for the addition of seasonings or spices of any sort. Foods and so-called foods that have to be jazzed up with condiments are unhealthful.

When black pepper was given to mice at the University of Kentucky, they developed problems aplenty, including cancer of the liver, lungs and skin. This is a prime example of how toxic condiments really are. Cayenne pepper, chili powder, salt, basil, cumin seed, caraway, vinegar, garlic.In cases where complete absorption is not obtained, the and hundreds of other condiments (herbs, seasonings, tumor is sufficiently reduced in size to not constitute a menace. Thereafter, proper living will prevent added growth. Indeed, we have seen a number of cases where a further decrease in size followed right living subsequent to fasting. Spices are likewise pathogenic and carcinogenic.

To attain and maintain health, you need to drop condiments from your life—forever. Eat only fresh raw succulent fruits, vegetables, nuts, seeds and sprouts. The better your diet, the better you'll look and feel.

Reprinted from Health Crusader April 1980

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Article #4: Ten Commandments of Cancer Prevention

Dr. Michael B. Shinkin, formerly with the National Cancer Institute, has formulated the following ten commandments for cancer prevention. Our comments will follow but we do think that Dr. Shinkin's commandments bear repetition for health-conscious individuals:

1. Do not smoke tobacco or substitutes. (Cigarette smoking may be responsible for as much as 50% of the cancer in males, according to some experts, and a smaller, but significant percentage in women. Smoking marijuana may also cause cancer.)
2. Do not drink alcohol. (Alcohol in excess is believed to promote tumor formation.)
3. Eat sparingly a "prudent diet." (Too great a calorie intake and an excessive fat consumption have been associated with a higher incidence of some cancers.)
4. Avoid unnecessary X rays. (Shinkin emphasized the word "unnecessary.")
5. Avoid excessive sun exposure. (Sunbathing has been linked to an increased rate of skin cancer.)
6. Avoid inappropriate drug intake. (Some medications are suspected of being carcinogenic.)
7. In the work place, avoid or minimize contact with irritants.

8. At work, avoid or minimize swallowing foreign materials.
9. Avoid or minimize breathing foreign materials.
10. Use appropriate protective measures and devices while working.

These commandments appeared in conjunction with an article in the *Los Angeles Times* headlined "Cancer War Making Slow Progress." The fact that it is not going to make any progress is highlighted by this quotation which says, in effect, medical people are completely baffled by it: "But although 44% of the National Cancer Institute budget goes toward basic research, a basic understanding of the cause of cancer is decades away, according to some scientists."

This quotation sums up the results of the medical approach: "So far, after 50 years of cold war and 10 years of highly-publicized warfare, no major inroads have been made into the overall death rate from cancer." Both cancer deaths and the cancer death rate are now the highest in history and are getting even higher.

These ten commandments for cancer prevention should be labeled *ten prominent causes of cancer*, for most of the strictures deal with carcinogens. Cancer does not have to be prevented—it has to be caused and subjecting ourselves to carcinogens is definitely cancer causing. One commandment has to do with sunshine. This will not cause cancer except in the toxemic. And the toxemic condition must get the blame for the cancer, not the sunshine. Sunshine is a healthful influence, not a pathogenic factor.

Tobacco, coffee, salt, herbs, teas, hot foods—anything that continually poisons or interferes with our body processes (such as hot stuff down the esophagus)—can evolve into cancer.

Do not drink alcohol. This should also apply to anything and everything except pure water and only the most wholesome of liquid foods (juices). Vinegar is a first cousin to alcohol and is carcinogenic. So are teas, coffees, and hot drinks of all descriptions.

Eat sparingly. Yes, overeating will cause cancer but of the foods Dr. Shinkin refers to, even a sparing diet is cancer causing. Animal fats, hydrogenated and/or heated vegetable fats, fried foods and biologically-incorrect foods are all carcinogenic.

Avoid inappropriate drug intake. We must recognize that *all* drug intake is inappropriate because all drugs are carcinogenic.

The simplicity of *cancer prevention* is that it will not happen unless caused. We must either cause it ourselves or subject ourselves to causes. If we say let nothing into your body but those essential elements and influences for great health, we automatically exclude everything that is abnormal to the body. So we can be like little children in avoiding and resisting *medicines, chemicals, foreign materials* and so on. It's our well-being and we'd do well to heed our inner wisdom in taking care of ourselves.

Reprinted from Better Life Journal

Lesson 76 - Ulcers

- 1. Peptic Ulcers
- 2. Why Peptic Ulcers Are Developed
- 3. Other Types Of Ulcers
- 4. Questions & Answers
- Article #1: Stomach Ulcer By Dr. Herbert M. Shelton
- Article #2: Gastric And Duodenal Ulcers By Dr. Herbert M. Shelton

1. Peptic Ulcers

Peptic ulcers occur most commonly in the first part of the duodenum where it is known as a duodenal ulcer. They are also common along the curvature of the stomach and are called gastric ulcers. They may occur in other sites but duodenal and gastric ulcers are by far the most common.

The roots of diet manipulation in the treatment of patients with peptic ulcer extends far back in medical history. As early as the first century, Celsus ordered smooth diets free of "acrid" food, and practitioners of the seventh century wrote of their belief in "special healing properties" of milk for patients with digestive disturbances. In the first half of the nineteenth century, peptic ulcer became established as a pathologic and clinical entity, and physicians generally advocated a liberal dietary regimen with frequent feedings.

However, in the latter part of the nineteenth century, a radical change developed in medical opinion concerning peptic ulcer treatment. The belief spread that food was harmful to the ulcer, and only complete rest—meaning an empty stomach—would allow the stomach to heal itself. Fasting regimens became the accepted practice among European physicians and were soon introduced in the United States.

Dr. J. H. Tilden, one of the early Hygienic practitioners advocated the fast for peptic ulcer patients. He said, "When disease has been suspected, or if suspected and not properly treated until hemorrhage has taken place, the patient must be kept quiet in bed, without any food, for at least forty-eight hours after the hemorrhage ceases."

Hereward Carrington endorsed the fast as an effective means for regeneration and renewal. In his book, *Vitality, Fasting and Nutrition*, he says: "The moment the last morsel of food is digested, and the stomach emptied, a general reconstructive process begins; a new tissue formation, owing to the fact that the broken-down cells are being replaced by healthy ones—which is Nature's method of repairing any destroyed or injured part of the organism. This replacement of cells means gradual replacement of tissue; replacement of tissue means that a new stomach has been created—a stomach in every sense of the word new—as new as every anatomical sense as is the filling in wounds, or between the fractured ends of bones."

Many early Hygienic practitioners endorsed the fast for ulcer sufferers including Dr. George Weger, Dr. Sylvester Graham, Dr. R.T. Trall, Dr. James C. Jackson, and others. Their success cannot be denied and indeed many patients who were considered "hopeless" by the orthodox physicians became well under the Hygienic regime endorsed by these pioneers.

Apparently, however, this "natural" regime was too easy and simple for the medical physicians to accept. Then in 1915, an American physician Bertram Sippy rejected the practice of fasting and established a regimen of dietary control and alkaline medication. Sippy introduced the principle of frequent feedings that is still followed by many dietitians today.

Sippy's traditional diet was based on the principles that the food must be both acid neutralizing and nonirritating. His diet, therefore, according to his theory began with milk and cream feedings every hour or so, to neutralize free acid with the milk protein, suppress gastric secretion with the cream, and generally "soothe" the ulcer by coating the stomach. Although these principles are used today his assumptions have not been supported by research. Since he also claimed the food should be non-irritating, he eliminated very hot or very cold food, spices, seasonings, coffee, tea, alcohol, raw foods and whole grains.

In over 50 years of experience, Dr. Shelton found that patients with peptic ulcers regained a superb state of health following the initial fast and then following a diet of raw ripe fruits, vegetables, nuts and seeds.

The orthodox approach today is divided between diet therapy utilizing the "bland diet" as outlined by Bertram Sippy and a more liberal diet allowing "anything the patient desires to eat" except possibly eliminating black pepper and the more irritating foods and beverages. Along with this diet therapy, drug treatment is invariably given and surgery is performed in the most chronic cases, especially when there is hemorrhage.

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2. Why Peptic Ulcers Are Developed

According to the *Merck Manual*, "Peptic ulcer occurs only if the stomach secretes acid." It goes on to say, "Most people secrete acid; some develop ulcers and others do not." This is misleading. Everyone secretes acid, in fact, it is imperative for protein digestion. Hydrochloric acid is secreted for this reason. Then why doesn't everyone develop peptic ulcers? There are many factors to take into consideration, but dietary habits play an important part in the etiology of this disease.

Many people abuse their stomachs with a diet that is primarily, if not entirely, acid forming. For example, a diet that consists principally of meat, bread and pastries would be definitely acid forming. The parietal cells of the gastric glands secrete the hydrochloric acid from chlorides such as sodium chloride, found in the blood. The chloride ion combines with the hydrogen ion and is then secreted upon the free surface of the stomach as hydrochloric acid. In normal gastric juice it is found in the proportion of about 0.5 percent, having a pH value of about 1. It serves to activate pepsinogen and convert it to pepsin, a digestive, proteolytic enzyme, and to provide an acid medium which is necessary for the pepsin to carry on its digestive functions; to swell and denature the food protein giving easier access to pepsin; to help in the hydrolysis of sugar and starch.

Most Americans use an excessive amount of salt (sodium chloride) on their food (any amount is excessive). This could be one reason for an abnormal secretion of hydrochloric acid in people with peptic ulcers. Sodium chloride is essential for normal digestion but only that form that is obtained from natural sources such as found in tomatoes, celery, lettuce, cucumbers, avocados, etc. When we obtain this mineral from natural food sources, imbalances and excesses do not occur.

Meat in itself contains many acids that are difficult for our body to handle, for example uric acid. It also requires a large amount of hydrochloric acid for its difficult digestion. Continued abuse will eventually weaken an organ or gland and may result in abnormalities. Thus, hydrochloric acid could continue to be excreted in excess even when not needed in such large amounts. However, continued abuse weakens; rest restores. So fasting is the logical step to restore function to a deranged organ.

Other factors can result in peptic ulcers as well. Alcohol, cigarette smoking and coffee drinking are causative factors. Stress has been implicated as a common factor. Certain drugs, such as aspirin and other nonsteroidal anti-inflammatory drugs, reserpine, and possibly corticosteroids may initiate the formation of an ulcer. These ulcers tend to heal when the drug is discontinued and are unlikely to recur unless the drug is taken again.

2.1 Development of Ulcers

A single ulcer is most common, but two and occasionally more (duodenal, gastric, or both) do occur. Ulcers penetrate into the submucosa or muscular layer. A thin layer of gray or white exudate usually covers the crater base which is composed of fibroid, granulation, and fibrous tissue layers.

Duodenal ulcers are almost always benign, but a gastric ulcer may be malignant. Keep in mind, however, that this situation does not occur overnight. The same pattern of events must first occur as in all other disease processes. Beginning with enervation, the stages of diseases run through toxicosis, irritation, inflammation until we arrive at ulceration. If the causes are not removed by this time, the process will run through induration and end in cancer.

The time to halt the development of ulcers is at the first sign of enervation. A fast and a thorough examination of your lifestyle is in order at this point. If the process has run further along the stages leading to ulceration, health can still be restored through a physiological rest and adherent to a healthful lifestyle.

2.2 Signs and Symptoms

Symptoms vary with the location of the ulcer and the person's age. Some people may not notice any symptoms; others notice them when some severe symptom such as hemorrhage or obstruction develops. The "typical" pain is described as burning, gnawing, or aching, but the distress may also be described as soreness, an empty feeling or hunger. The pain may be steady, mild or moderately severe. Dr. Shelton tells us to stop eating whenever there is any discomfort at all and this is good advice. By following this rule, you may interrupt the development of the ulcer and halt the reason for its occurrence. But you must also stop those bad habits that caused the irritation in the first place. In other words, it does no good to fast and then go back to your old eating habits. You must remove the cause.

In people with duodenal ulcers, the pain, often tends to follow a consistent pattern; it is absent when the person awakens, but appears in mid-morning. It disappears after eating, but recurs two or three hours after a meal. Pain often awakens the sufferer at 1 or 2 a.m. Frequently, the pain occurs once or more each day for one to several weeks, and may then disappear. However, recurrence is usual, if the cause of the distress is not removed.

2.3 Healing

With medical treatment, symptoms are palliated with drugs. Under this type of treatment, healing may occur, but takes six weeks or longer. Most often, however, true healing does not occur at all and more than 50% of the people have recurrent pain within two years of completing treatments.

When tissue is damaged, as in an ulcer, an attempt is made by the cells of the tissues to restore the structure and function to normal. To do this, it is necessary first to remove the damaged material and secondly to replace it by proliferation of pre-existing cells.

Cells have a limited life and are replaced by a process of cell division of pre-existing similar cells. Cell division and proliferation is mainly done in the bone marrow of the ribs, sternum, pelvis and spine. The dividing cells may be a mature specialized cells which produces two similar daughter cells. Often, cells which divide are "stem" cells, one of which stays in the stem cell pool in the bone marrow to divide again. The other daughter cell either matures itself, or divides again to form two "grand-daughters" which mature and differentiate into specialized cells.

Healing of an ulcer is the same as wound healing. When the skin is broken, the tissue is first sealed by plasma which leaks from the severed ends of small capillary blood vessels. It clots forming a glue-like substance which binds the sites of the wound together. This substance is largely protein in nature.

Small buds of cytoplasm from the capillary lining cells move into the clot where they fuse in the middle. The neutrophils and macrophages now move to the site and remove debris and phagocytosis. Fibroblasts begin to synthesize collagen fibers which are laid down in amounts greater than normally found in the skin. This forms the scar tissue which is normally seen after healing of any cut. The epithelial cells move and divide and eventually restore the skin to normal proportions.

The body has this system of healing that restores health and integrity to any severed part. Nothing we can do (in the form of drugs and treatments) will do any healing. The best thing to do is to "intelligently do nothing."

Under a Hygienic regimen, healing occurs perfectly and completely with no recurrences as long as the person strays with the healthful lifestyle outline for him. That is, proper rest and sleep, proper food and water, pure air and sunshine, exercise, emotional poise, etc.

2.4 Treatment

Orthodox treatment for gastric and duodenal ulcer is designed to neutralize or decrease gastric acidity, even when gastric acidity is normal in patients with gastric ulcer. Sedatives or tranquilizers are given to those people who show anxiety or depression.

Keep in mind that health can never be restored with this system of palliation. It can only result in worse diseases and complications. Let us now examine some specific treatments given to these patients and see where their weaknesses lie.

2.5 Diet

Most physicians do not educate their clients regarding a proper diet. Although they often suggest eliminating spicy and fatty foods, coffee, tea, cocoa, and cola drinks, their dietary recommendations are not conducive to health. The "bland diet" is still recommended by some, and this diet could not keep a well person healthy—much less contribute to the restoration of health to a sick individual.

After the fast, a diet of fresh raw fruits, vegetables, nuts and seeds should be introduced. At the very beginning, it may be necessary to start with blended fruits or fruit juices and the most tender succulent vegetables. Nuts may be taken in the form of nut milks. Very soon, however, whole fruits and vegetables will be handled very well. If a person stays on this diet and does not overeat, peptic ulcers will not recur.

2.6 Drugs

2.6.1 Antacids

Antacids give symptomatic relief but do not restore health as causes have not been removed or corrected. There are two types of antacids. The first is *absorbable antacids*. Sodium bicarbonate and calcium carbonate, the most potent antacids, are occasionally taken for short-term symptomatic relief, but because they are absorbable, continuous use may result in alkalosis. Since symptoms of this toxicity are not distinctive (nausea, headache, weakness), the disorder may progress unrecognized to kidney damage.

It is essential that the body maintain a proper acid-base balance. The problem of regulating acid-base balance is essentially one of preventing alterations in hydrogen ion concentration secondary to the continuous formation and expulsion of the acid end products of metabolism.

The acidity of a solution is determined by the concentration of hydrogen ions. Acidity is conveniently expressed by the symbol pH. Neutral solutions have a pH of 7. The pH of a strongly basic, or alkaline, solution may be as high as 14, while that of an acidic solution can be less than 1. The pH of extracellular fluid in health is maintained at a slightly alkaline level between 7.35 and 7.45. To prevent acidosis or alkalosis, several special control systems are available in the body: (1) All the body fluids contain buffer systems which prevent excessive changes in hydrogen ion concentrations. (2) The respiratory center is Stimulated by changes in the carbon dioxide and hydrogen ion concentrations to alter pulmonary ventilation, which affects the rate of carbon dioxide removal from bodily fluids. Since carbon dioxide forms a weak acid in solution, its removal lowers the hydrogen ion concentration. (3) The kidneys also respond to changes in hydrogen ion concentration by excreting either an acid or an alkaline urine.

These control systems operate together in the maintenance of the body fluid pH. The buffer system can act within a fraction of a second, whereas the respiratory system takes one to three minutes to readjust the hydrogen ion concentration after a sudden change. The kidneys, although the most powerful of, all, acid-base regulatory systems, require from several hours to a day to readjust the hydrogen ion concentrations.

A solution that has a tendency to resist changes in its pH when treated with strong acids or bases is called a buffer. A buffer solution contains weak acid or base and a salt of this acid or base. In biological fluids the bicarbonate-carbonic acid system, the phosphate system, the hemoglobin-oxyhemoglobin system, and the proteins act as the principal buffers in the regulation of pH.

The sodium bicarbonate-carbonic acid buffer system is present in all bodily fluids. It should be noted that carbonic acid is a weak acid; that is, it binds its hydrogen ions strongly. If a strong acid (one that is loosely attached to hydrogen), such as hydrochloric acid is added, it reacts almost immediately with the bicarbonate to form carbonic acid and sodium chloride. The system operates by changing the strong acid into a weak acid and successfully prevents a major change in pH. The fact that the carbonic acid can easily be reduced to carbon, dioxide and water and removed from the body through respiration greatly enhances the combined efficiency of these mechanisms in responding to changes in hydrogen ion concentration.

If a strong base such as sodium hydroxide is added, the carbonic acid reacts immediately with it to form sodium bicarbonate and water. Again the buffer mechanism has prevented a major change in pH by changing a strong base into the less alkaline sodium bicarbonate.

When an excess of sodium bicarbonate and calcium carbonate is present, abnormal alterations in acid-base balance occur, resulting in a state of alkalosis.

Another type of antacids given to peptic ulcer sufferers is the *nonabsorbable antacids*. These antacids are relatively insoluble salts of weak bases. Suspended antacids present a large surface area of interaction with hydrochloric acid; this activity forms nonabsorbed or poorly-absorbed salts, thereby increasing gastric pH. The activity of pepsin diminishes as the pH rises above 2. Complications can also arise here, too, when there is such interference with acid-base balance and continued use can also result in alkalosis although not as quickly.

Aluminum hydroxide is another antacid commonly used. Phosphate depletion may develop as a result of binding of phosphate by aluminum in the gastrointestinal tract. Symptoms include anorexia, weakness and malaise. If there is bone resorption to compensate for phosphorus loss, urine calcium raises and there may be bone pain. If depletion is sufficiently severe and continues over years, osteomalacia may develop. Aluminum hydroxide also binds fluoride and this too may contribute to osteomalacia.

Since calcium and phosphorus are intimately related in metabolism, two ratios between them are significant. (1) the dietary calcium to phosphorus ratio affects absorption of these minerals; for adults a 1:1 1/2 ratio of calcium to phosphorus is required. (2) the serum calcium to phosphorus ratio is the solubility product of the two minerals in the serum.

An increase in one mineral causes a decrease in the other to maintain a constant product of the two. The normal serum level of calcium is 10 mg. per 100 ml.; of phosphorus, 4 mg. per 100 ml. in adults.

If this ratio is unbalanced, the body will compensate by drawing on its stores to compensate. Therefore, an excess of phosphorus will result in the withdrawal of calcium from body stores—which may come from the bones.

Magnesium salt is frequently given to people with ulcers in spite of the fact that it often results in diarrhea. This is a clear indication that the body cannot utilize this inorganic mineral and finds a way to quickly dispose of it.

2.6.2 Anticholinergics

Anticholinergics impede the impulses or action of the fibers of the parasympathetic nerves. They are given to delay emptying of the stomach and thus prolong antacid retention. These drugs often result in dry mouth and blurred vision.

Upon administration of this type of drug, a worse condition is immediately incurred. With delayed emptying of the stomach, fermentation and putrefaction of food materials are very likely to occur. This results in the liberation of extremely toxic by-products of this decaying process. The end result is a worsening of the toxicosis that is already present in all peptic ulcer patients. We should strive to eliminate toxicosis and certainly do nothing to contribute to it. Why should you compound a problem by ingesting these toxic substances? You are immediately creating two problems: First, the addition of toxins from the drug itself and second, the interference of that drug with normal bodily processes.

2.6.3 Histamine h3 Receptor Blocking Agents

Many physicians use histamine h3 receptor blocking agents. Histamine is widely distributed in tissues, the highest concentrations are in skin, lungs and stomach. The specific homeostatic function of histamine remains unclear. Its actions in man are exerted primarily on the cardiovascular system, extravascular smooth muscle, and exocrine glands, and they appear to be mediated by two distinct histamine receptors, termed H1 and h3. The effects of histamine h3 receptor in the exocrine glands is to stimulate gastric acid secretion. The drug *Cimetidine* is given to patients with gastric ulcers to block the stimulation of gastric acid by histamine and thereby reduce gastric acidity. Being a new drug, its toxic effects have not yet been proven but we know that all drugs are toxic and interference in any bodily function is contradictory. Again, this drug does nothing but suppress symptoms and causes are not even given a thought. There is no "cure" with *cimetidine*. In some cases the ulcers will temporarily heal, but will reappear because the same conditions that resulted in the ulcer in the first place still exist.

2.7 Requirements To Heal Peptic Ulcers

REST. That is the main requirement. When the stomach is given to a total rest, the ulcers will heal. During the first two or four days, there will be some pain but soon the gastric juices will subside and there will be no pain after that for the remaining of the fast. Dr. Shelton found this to be true for the many people who fasted under his supervision with gastric ulcers. This is the most effective, surest, and safest way to attain proper healing. When this method is employed, there will be no recurrences. Following the fast, however, old habits must not be resumed. Smoking, alcohol and coffee drinking must be eliminated and a healthful diet must be adhered to. In addition to this; an exercise program should be initiated and the other requirements for health met for optimum health.

3. Other Types Of Ulcers

3.1 Ulcerative Colitis

Ulcerative colitis is a condition where the colon becomes inflamed and, due to constant irritation and toxemia, ulcers develop. There is moderate to severe diarrhea with loss of blood in some cases.

This is a very serious condition where a situation has developed due to a long period of abuse. This condition only arises when an extreme toxicosis exists throughout the body. It develops due to improper eating and drinking habits—fried foods, meats, refined and processed foods, etc.; lack of exercise; lack of fresh air and sunshine; lack of sleep; stress; etc.

Most physicians do not restrict the diet of such patients except in the use of raw fruits and vegetables. They say that the roughage in these foods are too irritating for the patient to handle. In truth, these are the only foods that will promote health. However, it is important that such patients first initiate healing of the colon. The fast is in order for all such conditions. This fast, however, must be taken under the supervision of a person who is experienced in conducting fasts. To document the effectiveness of the fast in regard to the healing of ulcerative colitis, read *Triumph Over Disease by Fasting* by Dr. Jack Goldstein. In this book Dr. Goldstein tells of his experiences with ulcerative colitis. He ran the gamut of all the orthodox treatments but he only became worse. After reading some books on Natural Hygiene, he undertook a six-week fast followed by a natural-foods diet. He was so much improved that he was soon able to return to work. Several subsequent fasts allowed his body to completely regenerate and heal so he is now in superb health. I highly recommend that you read this book.

Many people experience acute diarrhea and colitis when on a diet that contains dairy products. These symptoms occur due to lactose deficiency. Lactose is the sugar in milk that most adults cannot tolerate due to lack of the enzyme lactase that is needed to split the lactose into the mono-saccharides glucose and galactose. It therefore becomes a toxic component to the body. The case in milk is also indigestible because we lack rennin to break down this protein. Thus, a case of toxicosis is initiated. This debilitates all bodily systems and in some, results in colitis. If incorrect dietary habits are persisted in, the colitis may evolve into ulcerative colitis.

3.2 Ulcers on the Skin

When a condition of toxicosis exists throughout the body, the skin may be used as an outlet for its toxic overload. Through a process of autolysis, a break in the skin will be made. This is done by the autolytic enzyme called lysosome. This enzyme is liberated from the cell and is capable of digesting protein tissue. Soon, a small pustule will appear on the skin. This may take the form of a pimple, boil or cyst. The pustule will enlarge in size until it really liberates its toxic contents. This is the body's method of housecleaning and the procedure should not be interfered with.

Tremendous improvements have been made during a fast for such conditions. Pustules enlarge and empty their toxic contents during the fast and healing then takes place, this process unburdens the body, alleviates toxicosis, and suits in a generally-improved state of health. If, anywhere during the course of this process, a drug is taken to oppress the symptoms, the toxic matter will be redirected back into the system. Now the crisis becomes more severe toxicosis increases. The body must now initiate a more desperate attempt to eliminate its overload and a more stressful type of "disease" follows. You can see how much more sense it makes to cooperate with your body at the first sign of "disease" (housecleaning). The body will purify itself and homeostasis will be maintained.

3.3 Varicose Ulcers

Valved veins of the lower limb are of three types: deep vains, perforator veins, and superficial veins. Venous flow most efficient during muscular activity when the contracting muscles compress the sinusoids (minute blood vessles) and deep veins, thereby pumping the blood toward le heart; the direction of flow is controlled by the venous valves.

Veins function to conduct blood from the peripheral tissue to the heart. Blood pressure in these vessels is extremely low compared to that in the arterial system, and blood must exit at an even lower pressure, creating a need or a special mechanism whereby blood will be kept moving on its return to the heart rather than being allowed to pool and create more resistance to capillary flow. To achieve this, veins possess a unique system of *valves*. They serve to direct the flow of blood to the heart, particularly in an upward direction, preventing backflow when closed, movement of blood in veins toward the heart is brought about largely by the massaging action of contracting skeletal muscles and by the pressure gradient created by-breathing when, during inspiration, the pressure in the thoracic cavity decreases and the pressure in the abdominal cavity increases. Insufficiency of the valves can cause veins to become varicose, that is, swollen with accumulated blood, knotted, and painful. The veins lose their elasticity as a result of the continuous distention. Varicosity commonly occurs in the superficial veins of the lower extremities, which are subject, to strain when the individual stands for long periods of time. Obesity hastens their development.

Initially, superficial veins are tense and may be palpated but are not visible. Subsequently, they become visibly dilated or painful. Eventually pigmentation (from red blood cells diffusion through the capillaries), eczema, edema, subcutaneous induration and ulceration occur. The ulceration is usually small, superficial, and very painful because of exposure of nerve endings. These ulcerations may start following minor trauma to an area of pigmentation, induration, eczema, or edema, and are usually chronic by the time they are seen.

Treatment usually consists of compression "with hosiery, injection of the veins, or surgery. As with any such treatment, causes are not removed and health is not restored. Dr. Shelton advocated the fast for all cases of varicose veins. He said, "For more than 40 years I have advocated the employment of the fast in cases, of varicose ulcers. In many such cases that I have cared for, I have not had one to fail of healing." Also in regard to varicose ulcers and fasting, Dr. Shelton quotes Dr. Harry Clements. He cites an article that appeared in *The Lancet*, June 15, 1968, entitled "Fasting for Obesity," the article read, "Perhaps the most unexpected effect was the rapid healing of varicose ulcers. Case 10 had had ulceration continuously for 18 years, following an operation on her varicose veins, but after six weeks starvation the ulcers had completely healed whereas case 12 had ulcers which had remained active for seven years in spite of seven months' treatment in 1964, yet they healed in three weeks."

The body will heal when provided with the proper conditions for healing and repair. As with all toxic conditions, rest is the primary condition, and the fast met that requirement.

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3. Questions & Answers

How does stress affect the formation of peptic ulcers?

> Dr. Hans Selye found that ulcers may occur if there is an excess secretion of the anti-inflammatory hormone produced by the adrenal glands. This hormone is ecreted in larger amounts during stress. This might be an litiating factor in the formation of ulcers, but they

> would not occur in a simultaneous condition of toxicosis did not ccur.

Is it true that taking supplements of zinc will result in healing of gastric ulcers?

> Some researchers have found that gastric ulcers heal more rapidly when zinc was administered. However, this is an illusion. The body will wall off any poisonous substance to preserve its integrity. Inorganic zinc is a toxic substance and, like any other drug, cannot heal or result in health for the individual taking such supplements.

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Article #1: Stomach Ulcer by Dr. Herbert M. Shelton

He had a stomach ulcer for over four years. During this period he had grown "better" and "worse" by turns. At one time, a hemorrhage occasioned by the ulcer had almost resulted in death. For weeks he lay in bed, weak, anemic, attenuated to a skeleton. He gradually grew stronger and put on weight and was again able to be up and around.

Smoking, drinking and economic worries helped to add to his sufferings and his ulcer persisted and grew slowly worse. Physicians and surgeons wanted to operate, but this he persisted in refusing.

This was the wreck of a patient that, finally, came into the hands of a Hygienist for care. Why do people continue to try every possible wrong remedy before they turn to the right one? Why do they try all of the artificial and destructive methods before they resort to the natural and constructive ones? Why is "Hygiene" the last, rather than the first resort?

If Natural Hygiene can restore good health to the scraps and derelicts, after they have been through the hands of all the physicians and surgeons that their money can buy, will they not produce health much more rapidly, much more satisfactorily, if the patient employs these first? Why suffer for years and spend a small fortune on futile and destructive methods when all this may be avoided by adopting Hygiene at the outset? Do we like to suffer; or, do we like to spend our money needlessly? If Hygiene will save us much suffering, much time and many dollars, why do we not employ it exclusively?

Hygiene does not wreck constitutions. It does not destroy organs. It does not build complications. It does not accelerate the evolution of pathology. In all of these things it does the opposite. It is constructive, regenerative and tends always to preserve and restore organic and functional integrity. The differences between medical methods and Hygienic methods are basic and immense.

Our patient finally found his way to a Hygienist who put him in bed and stopped him from eating. He was given daily exercise and a daily sun bath. Beyond these things, water, air and encouragement are all that he received.

But what a difference in results when contrasted to the old methods. Day by day he improved. His improvement was apparent after the first three or four days. Symptoms slowly subsided and completely disappeared. After the fast was broken, he was fed a natural diet composed chiefly of an abundance of fruits and vegetables. He gained in weight and strength and returned home well, strong and happy.

An ulcer is simply an open sore, "a circumscribed loss of tissue," or "a dissolution of continuity in the soft parts of shorter or longer standing." The following three cardinal distinctions between a wound and an ulcer should be of interest to readers:

1. I wound arises from the action of an extraneous body—the cause of an ulcer is inherent in the economy.

2. A wound is always idiopathic (not secondary to another disease)—an ulcer is always symptomatic.
3. A wound has essentially a tendency to heal, because the action of its cause has been momentary—an ulcer, on the contrary, has a tendency to enlarge, because of the persistence of its cause.

Peptic ulcer, as ulcer of the digestive tract is called, may develop in the lower end of the esophagus, the stomach, duodenum and, after gastroenterostomy, in the jejunum. The ulcer is more often, single, but sometimes multiple. They are of varying sizes and tend to enlarge under "regular" mismanagement.

The most common symptoms of gastric (stomach) ulcer are indigestion, paroxysmal pain, localized tenderness, vomiting, gastric hyperacidity, and hematemesis or hermorrhage from the stomach.

The pain is paroxysmal, localized and severe and may radiate to the back or sides. In many cases it is aggravated by eating and persists until the stomach is emptied, either by vomiting or by the food passing into the intestine. In other cases the pain is present when the stomach is empty and is relieved by eating.

Two small areas of tenderness may often be found; one in front and just below the lower end of the breast bone, the other behind and a little to the left of the tenth or twelfth dorsal vertebrae.

Vomiting often takes place in from one and one-half hours to two hours after eating. The vomitus usually consists of gastric juice and undigested food. Although the acidity of the gastric juice may be normal, a test usually shows its acidity to be increased.

Loss of blood (hematemesis) occurs in more than fifty percent of cases; the loss of blood being given as the cause of death in approximately twenty percent of all "fatal cases." The blood is fluid and unaltered in most cases, but in cases where it is retained in the stomach for some time before being ejected, it may have a "coffee-ground" appearance, in some cases no blood is vomited or emitted, but is discharged entirely through the bowels. In some rises the blood is invisible to the in aided eye ("occult") ;.rd can be directed only by tests.

There are cases in which all of the above symptoms, except that of dyspepsia, are absent and others in which all of these symptoms are missing. The first indication of ulcer in such cases is perforation of the stomach wall or a profuse hemorrhage. Perforation, which occurs in 8 to 10% of cases under medical care results in peritonitis, often abscess.

Because of the persistence of the causes of the ulcer and to the increasing tissue degeneration that occurs, cancer frequently evolves out of an ulcer. Some medical authorities say that twenty percent of ulcers evolve into cancer.

Ulcers are not always discovered by X ray and many mistakes are made in diagnosis. The following conditions are often mistaken for ulcer of the stomach: gastralgia, gastric cancer, ulcer of the duodenum, and gallstones.

Medical authorities tell us that the prognosis "is guardedly favorable in recent cases." Under their care, the mortality in all cases runs from eight to ten percent. They say "some ulcers run a rapid course and end fatally through hemorrhage or perforation; others, even without treatment, persist for many years. Relapses are common." One I famous surgeon, when asked when an operation would be performed for gastric ulcer, replied: "After it has been cured nine times."

Medical men are completely at sea as to the cause of stomach ulcers. In giving its cause they say: "It is more common in women than in men. The majority of cases occur between the ages of twenty and forty. Chlorosis and anemia are important predisposing factors." They also say, "It is generally admitted that these ulcers are due to the digestive action of the gastric juice upon an area of local malnutrition. The cause of malnutrition is obscure." The fact that ulcers occur more often in women than in men is not a cause of ulcer. In other words, "female sex" is not a cause. Many men do develop the disease and most women do not develop it. In like manner, time of life is not a cause.

Diagnosis is difficult, etiology is unknown, prognosis is unfavorable, treatment is unsatisfactory and the undertaker is waiting—this well sums up the present medical view of gastric ulcer.

Operations to remove the stomach, or part of it, or both the stomach and the duodenum are often performed. These vandalistic procedures are dignified by such highbrow terms as gastrectomy, or partial gastrectomy. These operations "are indicated" if "there is evidence of pyloric obstruction, or of hour-glass contraction or other serious deformity of the stomach, or if the disease does not yield to medical treatment and the life of the patient is endangered by malnutrition."

Alkalies, silver nitrate, bismuth sub-nitrate and alkaline laxatives are the chief poisons used to "cure" gastric ulcers. Sodium bicarbonate, magnesia and chalk are favorite alkalies. Artificial Carlsbad salt is a favorite laxative in this condition. Morphine is given hypodermically if the pain is severe.

The medical diet is a tragedy. It is made up of milk, buttermilk, beef-juice, animal broths, egg white, thin pap, soft-broiled eggs, scraped beef, boiled sweet-breads (pancreas), tender parts of oysters, white meat of chicken, "well-made gruel" and custard pudding. It is an almost exclusively animal-food diet and with the possible exception of the sweetbread, is made up wholly of acid-forming food. "Rectal feeding" by means of "nutritive or saline enemas" is attempted if "hemorrhage has recently occurred or if vomiting is urgent," so that feeding is impossible. The diet is almost as bad as the drugging program.

Rest, if a patient can really rest on such a program, is the only thing they give the patient that is helpful. "Rest and appropriate diet," they tell us, are most important. How important! Yet, how much neglected! When will they learn the meaning of rest? When will they learn what an appropriate diet is? A worse diet than the above is almost inconceivable. Rest under a program of drugging is almost impossible.

In general, it may be said that ulcers arise from poor health. No ulcer develops unless one is living in such a manner as to favor the development of disease. For instance, there is an undoubted connection between tobacco using and gastric ulcer. The same undoubted connection exists between ulcer and alcoholism. Irritating spices and many drugs prove also to be causes of ulcer.

Gastric ulcer is concomitant with an excess of acid in the stomach. The medical profession assumes that the hyperacidity is purely local. The Hygienic school considers it to be rather a merely local expression of a general lowering of alkalinity, or acidosis. The ulcers are merely forms of scurvy. In all cases one finds these patients to have lived on a diet that is predominantly acid forming.

Worry, anxiety, jealousy, disappointment in love, etc., due to their power to derange function throughout the body, and to derange the digestive function in particular, aid in causing ulcers.

Indeed, it may be truly said that anything and everything that impairs health, aids in causing gastric ulcer. For, peptic ulcers, of all kinds are outgrowths of a number of corolated antecedents.

First there are enervation and toxemia. There is imprudent eating and predominantly acid-forming dietary. The fluids of the body lose more or less of their normal alkalinity. Calcium deficiency and vitamin deficiency result in a mild scurvy.

Enervation and imprudent eating cause indigestion and fermentation. Poisons and gases, resulting from food decomposition, cause catarrhal inflammation (gastritis). The inflammation becomes chronic and results in induration (hardening); this, in time, results in a breaking down of the indurated areas, or ulceration.

Because of chronic provocation, the persistence of the causes of ulceration, perforation of the stomach occurs, resulting in peritonitis, and, perhaps, death.

Every step in the evolution of this condition is built on the preceding one and prepares for the succeeding one. Gastric ulcer, perforation, peritonitis, death—these are evolutions out of uncorrected causes. The ulcer and indigestion are not separate and distinct diseases, but separate links in a syndrome of causes and effects extending from childhood to death.

Not all ulcers produce perforation. Many of them heal. Indeed, it is said that post-mortems have shown that a very large number of ulcers heal. Some of them heal without the individual ever having known he had the condition. Dr. Tilden says: "My experience has been that the chances of recovery are very good."

The late Dr. Weger wrote: "A postoperative picture, quite disconcerting, can often be painted by those who have had one or more gastroenterostomies, subsequent operations for relief of adhesions, and not infrequently gallbladder drainage or removal, yet have not learned how to eat properly afterwards. The appendix may have been disposed of early in case. The disillusionment that accompanies the return of the symptoms, often in an aggravated form, leaves bitterness and disappointment that shatters faith in surgery and medicine." Fortunately, as Dr. Weger adds: "Even in such apparently, hopeless cases, with loss of continuity of structure or loss of important organs or secretions of organs, there is a way by which comfort can be restored and compensatory adaptations to abnormal states is possible of attainment."

Any change to a "bland" diet, or to one requiring less motion of the stomach causes less immediate irritation than does food containing much roughage, but it will not remove the causes of the ulcer. Alkalies will temporarily neutralize the excess acids in the stomach, but they do not remove the causes of ulceration. Their continued use does produce a condition known as alkalosis.

The first step necessary to remedying gastric ulcer is a thorough reformation of the patients mode of living. Every harmful and enervating habit and influence must be corrected. Unless this is done these things will daily add to the cause of the ulcer and make satisfactory healing impossible.

Next, to assure rest of the stomach, normal body chemistry and normal gastric secretion, a fast is necessary. No food, just water, should be taken. The duration of the fast will vary in individual cases from a few days to a few weeks and should be taken under the supervision of a competent Hygienist.

Indeed, since rest and quiet and freedom from responsibilities and irritations are essential in these cases, both during the fast and subsequently for some time, the fast is best taken in an institution away from home, business and friends, neighbors and relatives.

Dr. Weger says, "Dependable healing will not take place if the fast is broken too soon. *The fast must be continued until all reactions indicate that systemic renovation has been completed.* True, many patients are already thin and depleted and look the part of chronic sufferers. This state, while deplorable, is not a contraindication to the complete fast. There is no other way that is lasting."

After the ulcer has healed and the fast is broken, proper food, sunshine, exercise, mental poise and good general Hygiene will complete the evolution of good health, and so long as, by these means, good health is maintained, there will be no recurrence of the ulcer.

Reprinted From Dr. Shelton's Hygienic Review, Jan. 1980

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Article #2: Gastric And Duodenal Ulcers by Dr. Herbert M. Shelton

I have a letter from a reader who informs me that he has a sister and a brother, both of whom are suffering with stomach ulcers. They have been told: "once an ulcer, always an ulcer," that "you just have to learn to live with it." He also informs me that the sister is "now taking the highly controversial Miltown" (one of the tranquilizing drugs) and that she says that it is "better to suffer the side effects of this (drug) than to be doubled up half the day with ulcer pains."

What an indictment of "medical science!" What a confession of failure! What an experience they have that leads them to say: "once an ulcer, always an ulcer," and that you just have to learn to live with it."

The woman is being transformed into a drug addict because the boasted "science" of medicine can offer her no hope of recovery, the letter says nothing of how they are being fed, but we may safely assume that they are eating the usual bland diets and are eating at all hours of the day and night, the next thing will be an operation to remove portions of the stomach; to be followed by the recurrence of another ulcer and another operation. In the end, the entire stomach may be removed and the esophagus united with the duodenum. But the sister also has a duodenal ulcer—what will be done with this?

People expect to be *cured* and they expect the *curing* to be done by something outside of themselves—by drugs, electricity, baths, massage or some other power or agency hat drives out *disease* and restores health. All the practices of all the schools of so-called healing are based upon his erroneous idea. In the case of ulcer, however, they are being taught that there is no cure; they simply have to learn to live with their ulcers—"once an ulcer, always an ulcer."

Why should the ulcer case get well? Drugs are employed o "relieve" pain, food is used as a palliative, no cause is ever removed, the primordial requisites of health existence are neglected. With the causes of disease existing, the condition of health unsupplied and the energy of the patient constantly depleted by exhausting personal habits and by the treatment employed, what right has the sick person to expect to recover? How can effects cease while cause remains? How can results be obtained when the requisite conditions are not supplied? How can important vital functions be normalized if there is lack of functioning power?

In every other science these subjects are carefully studied and true principles applied to the achievement of results. It is only in the *curing* professions that the plainest principles are ignored and effects are sought to be obtained by the operation of thoroughly speculative methods. The key to robust life, to functional vigor, to the preservation and recovery of health, lies in an understanding of the normal means by which life is evolved and maintained.

The removal of the causes of disease involves a study of their causes and their bearings upon the individual; so that any true science of health/disease must include the science of etiology. As sure as effects follow causes in any and all departments of nature, an understanding of the causes that lead to the evolution of disease will enable us to remove these causes and provide the causes of health and thus to restore health. So long, however, as we are content to ignore causes and to palliate symptoms, no restoration of health is possible.

The ways or processes by which the sick recover, no matter what the name given to the disease, or what the treatment employed, are strictly biological processes and are not susceptible of duplication or imitation by the practitioners of any school of so-called healing. The forces and processes of the living organism alone restore health and these processes and operations are always in obedience to the same general principles of life; the power and the processes by which the organism is developed and maintained are the same by which wounds are healed and health restored in disease.

The means of recovery are the same as those by which the original evolution of the organism, from zygote to maturity, are made possible. This means that the elements of health, of normal life, are the means of recovery. The subject of getting well by the use of the same means that keep you well, should be of utmost interest to everyone, well or sick. The means employed must harmonize with physiology and biology as manifested under the peculiar circumstance of disease. All of this simply means that we recover strength and vigor in the same way and by the same means that we originally obtained these; that we repair tissue (heal lesions) in the same way and by the same means that we originally evolved the tissue; that the means that enable us to live in health are the requisites of recovery when we are sick.

The power of healing resides in the organism and the process is the process of life. It is ever active, it is never asleep, it never rests so long as life lasts, if there is anything to be healed. The success of its work depends first of all upon the removal of the cause of the disease and then, upon the proper quantities and qualities of the primordial requisites of organic existence. By this last is simply meant that the amount of food one should eat, the amount of exercise one should take, the time one should spend in the sunbath, the amount of bathing one should indulge, the rest and sleep that should be secured, the water taken, etc., is dependent upon the ability of the impaired organism to appropriate and use these substances and conditions. The more vigorous person may bathe frequently, exercise vigorously and eat heartily; the feeble patient must rest more, bathe less, eat little or not at all and treat himself with the utmost gentleness. Any heroic measures will prove harmful.

I have emphasized the importance of placing our reliance upon the means and materials by which we maintain ourselves in health as being, also, the means and materials by which we are to be restored to health, simply because the schools of so-called healing constantly ignore them or misuse them. It is the worst kind of folly to think that we require healthful materials in health and disease-inducing substances when we are ill; that the sick are to be restored to health, not by use of the means by which health is built in the first place, but by means which are well known to produce disease when given to the healthy.

Why should we be afraid to trust the modified use of these normal elements of living, when we are sick, as means of recovery? Why should we impose our trust in substances and processes that have no normal relation to life, are not needs of life, cannot be used by the body in either health or sickness and are invariably harmful, often lethal, when introduced into or applied upon the body—whether well or sick? Why talk learnedly about the "side effects" of these damaging substances and close our eyes to the obvious fact that these so-called *side effects* are an integral part of the general effects of the poison employed?

I have stressed the modified employment of the normal elements of living for the reason that the impaired organism is limited in one way or another in its capacities and abilities to appropriate and use these normal factors of life. Much as the healthy man may need exercise, the pneumonia or typhoid patient needs rest. Much as the healthy worker requires a certain amount of food daily, the typhoid patient cannot digest and utilize food. The ulcer patient is strongly needed and is the surest and most certain-way of providing the rest of the stomach that is requisite to healing of the ulcer. Instead of feeding every two hours of the day and night, all feeding should be discontinued for a period of time commensurate with the toxic state of the patient.

This commonly, though by no means always, means an increase in suffering for the first three to four days, after which the pains begin to subside and daily grow less end less until they cease altogether. Just recently a young man fasted at the Health School for a gastric ulcer. There was no pain from the moment the fast was instituted. In those cases where there is increased pain, the pain lasts but a few days and the patient certainly suffers far less under the plan of care than under the plan of mere palliation, for under this plan the suffering goes on year after year, the ulcer becomes larger, others evolve, perforation develops with the escape of the contents of the stomach into the peritoneal (abdominal) cavity and the patient dies of peritonitis or from loss of blood or cancer evolves and the patient dies of cancer.

Gastric and duodenal ulcer grows out of a long-standing catarrhal inflammation of the lining membrane of the stomach and duodenum. This is the result of chronic toxemia and chronic abuse of the stomach in eating and drinking. The line of evolution is irritation, inflammation, induration (hardening) and ulceration. The next step in this pathological evolution is fungation, which is cancer. Repeated gastric crises (gastritis) develop over the years before the condition becomes chronic. The enervation and toxemia that are back of the gastritis and ulceration are outgrowths bf a mode of living that uses up nerve energy in excess of the body's abilitiy to replenish it.

This all simply means that an enervating mode of living produces enervation; enervation checks elimination so that metabolic waste is retained, producing toxemia. Toxemia produces irritation and inflammation and, ultimately hardening and ulceration. The remedy for the evolutionary results of wrong life is to correct the life. This must be done, however, before an irreversible stage of the pathological evolution is reached. Once the condition has evolved into cancer, there is no turning back.

Under Hygienic care ulcers of the stomach heal and under Hygienic living they remain healed. This is to say, the same means and measures that evolve good health also preserve good health. This is exactly the same principle that provides that the same causes that produce disease perpetuate the disease. Remove cause and effects cease.

Reprinted from Dr. Shelton's Hygienic Review March 1957

Lesson 77 - Gastrointestinal Diseases

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1. The Gastrointestinal Tract

The gastrointestinal tract begins with the mouth and ends with the anus. Disease symptoms may arise anywhere along that route if we do not follow the *Laws of Life*, i.e., if we live unhealthfully. A few of the most common "diseases" will be discussed and the reason for their occurrence. It is not necessary to elaborate upon every disease known, as all diseases stem from a common cause—toxicosis. First of all, it is necessary for you to have a brief review of the function and structure of the normal gastrointestinal tract.

1.1 The Mouth

The tongue, composed primarily of striated muscles and covered by mucous membrane, plays important roles in the mastication of food and in the act of swallowing. The teeth have an important role in the mechanical mastication of food prior to swallowing.

Solid food taken into the mouth is reduced by mastication into smaller particles to facilitate swallowing. Food in the mouth also is mixed with saliva, which moistens and lubricates the food mass. In addition, digestion of starches commences in the mouth by the action of ptyalin in the saliva.

The chief source of ptyalin (salivary a-amylase) is the glands in the mouth. Ptyalin acts most effectively at an optimal pH of 6.7, and it catalyzes hydrolysis of starch into two disaccharides, maltose and isomaltose. In le stomach, ptyalin may act for up to an hour in the center of the food mass before the fundic contents are mixed with acid gastric secretions.

Once pH of the food in the stomach declines below 4.0, the activity of ptyalin is inhibited. Before this inhibition takes place, up to 40 percent of ingested starches will have been converted into maltose by ptyalin. The activity of ptyalin is also inhibited by the presence of protein because he presence of any protein food in the stomach initiates the secretion of the hydrochloric acid for its digestion. Therefore we recommend that proteins and starches not be eaten together.

As digestive enzymes act solely at the surface of food particles, the rate of digestion is related directly to the extent to which food is masticated.

1.2 The Pharynx and Esophagus

The pharynx is the portion of the digestive tract serving is a passageway for both the respiratory and digestive systems.

The esophagus is a long, straight tube extending from the pharynx to the stomach. Passage of food is facilitated by ordinary gravitational forces, as well as by the type and arangement of muscles in the tube itself. It is located between the trachea and the vertebral column. Esophageal glands serve to lubricate food during its passage from the pharynx to the stomach.

1.3 The Stomach

The stomach is the most widely-dilated portion of the digestive tract. It functions to store and digest food. In the stomach, solid food ultimately is converted into a semifluid mass by contraction of the muscular wall combined with mixture of the food with the glandular secretions of the gastric mucous membrane. Although food in the upper region of the stomach may remain solid for relatively long periods, food becomes transformed into a pulpy fluid mass (chyme) in the lower part of the organ.

Chyme is then ejected into the small intestine in small quantities once a proper consistency has been achieved.

The stomach consists of three parts: the *fundus*, an upper portion ballooning toward the left; a *body*; the central portion; and the *pyloric portion* (antrum), a relatively constricted portion at the terminal end just before the entrance into the duodenum.

The *cardia* is the opening between the esophagus and the stomach. The *pylorus* is the opening between the stomach and the duodenum. The circular muscle layer is thickened in the pyloric region to form the *pyloric sphincter.*

1.3.1 Gastric Juice

Cells of the gastric glands secrete a total volume ranging between two and three liters per day. This digestive fluid contains a number of substances. In addition, gastric mucous cells and glands secrete a thick alkaline mucus that forms a thin coating on the stomach wall. Thus, it is of great importance in protecting the epithelial lining of the stomach.

The gastric glands secrete digestive juices. Of particular significance are the *chief cells* that secrete pepsinogen and parietal cells that secrete hydrochloric acid.

Pepsinogen. The proteolytic enzyme pepsin, which degrades ingested proteins into polypeptides, is secreted by chief cells of the stomach in an inactive form, pepsinogen. When pepsinogen is secreted into the gastric lumen, it contacts hydrochloric acid and pepsin which had been formed earlier. Cleavage of the pepsinogen molecule now occurs so that more active pepsin is produced. Pepsin is active enzymatically only in a highly-acidic medium (optimum pH 2.0); it is inactivated above a pH of 5.0. Consequently, secretion of hydrochloric acid is essential to protein digestion in the stomach by pepsin.

Hydrochloric Acid. Parietal cells of the gastric glands secrete free hydrochloric acid into the lumen of the stomach. These cells can perform the osmotic work necessary to concentrate hydrogen ions to a level of over 4,000,000 times greater than in arterial blood.

Energy for hydrocholoric acid secretion is provided by aerobic glycolysis. That is, the conversion of glycogen into glucose. Energy is needed for the transport of hydrogen ions across the membrane of the parietal cell1. Chloride ion also is secreted actively by the parietal cells.

1.3.2 Histamine and Gastric Acid Secretion

Histamine is a powerful stimulant to gastric acid secretion, and the action of histamine is mediated by cyclic adenosine monophosphate. As the gastric mucosa normally has a high concentration of histamine, liberation of this compound has been implicated as the chemical mediator in stimulation of acid secretions.

Chemical agents in addition to histamine also appear to have a role in acid secretion by the stomach, for example, gastrin.

1.4 The Small Intestine

The small intestine extends from the pyloric sphincter to the cecum, the first portion of the large intestine. It is approximately 18 feet in length and is divided into three portions: the duodenum, jejunum and ileum. The duodenum is the shortest, widest and most fixed portion of the small intestine. It receives secretions of the liver and pancreas.

The small intestine has three major functions: 1) to transport chyme onward from the stomach; 2) to continue digestion of chyme by means of special digestive juices elaborated by intrinsic and accessory glands; and 3) to absorb nutrients produced by the digestion of various foodstuffs.

This organ exhibits two important structural modifications that greatly enlarge the total surface area for absorption of nutrients, but without increasing its total length. These modifications are the grossly visible plicae circulares and the microscopic intestinal villi.

Plicae Circulares. Plicae circulares are permanent ridge-like folds that extend into the lumen of the intestine. The plicae not only increase the absorptive area of the intestine, but also mix chyme and digestive juices and slow the rate of transport of chyme so that more thorough absorption of nutrients can occur.

Intestinal Villi. Intestinal villi are minute flattened (in the duodenum) or fingerlike (in the ileum) projections of the mucous membrane that cover the entire surface of the intestinal mucosa.

1.4.1 Enzymes of the Small Intestine

Many enzymes are found in the small intestine:

1. A number of *peptidases* are present. These substances are proteolytic enzymes that cleave polypeptides into their constituent amino acids.
2. A small quantity of *intestinal amylase* is present. This enzyme converts polysaccharides into disaccharides.
3. Four enzymes are present in the intestinal fluids that split disaccharides into monosaccharides. These include *sucrose*, *maltase*, *isomaltase* and *lactose* (in children).
4. An intestinal lipase is also present, and this enzyme degrades neutral fats into fatty acids and glycerol.

1.4.2 Accessory Digestion Secretions Pancreatic Secretion

Pancreatic secretion

The pancreas secretes between 1,200 and 2,000 ml/day of digestive fluid rich in bicarbonate and a number of enzymes. The pH of pancreatic juice is about 8.0. This alkalinity, together with the neutrality or slight alkalinity of the bile and intestinal juices, neutralizes acidity of the gastric chyme as it enters the duodenum. The pH of duodenal chyme is raised to between 6.0 and 7.0. Therefore, when chyme reaches the jejunum it is approximately neutral. Consequently, the intestinal contents almost never exhibit an acidic reaction.

Pancreatic juice contains a number of potent enzymes for digestion of proteins, carbohydrates, fats and other compounds. The proteolytic enzymes secreted by the pancreas include *trypsin* and two *chymotrypsins*. These enzymes cleave whole and partially-digested proteins. *Carboxypeptidase* is a pancreatic enzyme that attacks peptide chains at their ends, thereby liberating the terminal amino acid with its free carboxyl group. In addition, a *ribonuclease* and *deoxyribonuclease* are present in pancreatic juice. These enzymes split ribonucleic acid and deoxyribonucleic acid, respectively. *Pancreatic a-amylase* hydrolyzes starches, glycogen and many other carbohydrates into disaccharides. However, this enzyme does not hydrolyze cellulose, an important polysaccharide found in plant material. *Pancreatic lipase* hydrolyzes neutral fats into glycerol and fatty acids.

Bile

Bile is secreted continuously by hepatic cells and excreted via a system of ducts into the bile duct and eventually passes into the duodenum.

Bile is a complex fluid containing a number of components. It contains no digestive enzymes, but is of importance in digestion because of the bile salts it contains. Bile salts perform the important task of emulsifying fats in the intestine, thereby increasing enormously the total surface area of these substances exposed to the action of pancreatic and intestinal lipases. Exclusion of bile from the intestine results in a loss of up to 25 percent of ingested fat in the feces.

1.5 The Large Intestine

The large intestine differs from the small intestine in several ways, including its greater width and the following characteristics:

1. There are no villi on the surface of the mucosa.
2. The glands are of greater depth, are more closely packed, and contain many goblet cells.
3. The longitudinal muscle layer of the cecum and colon is limited to three bands, visible on the surface, called teniae coli.
4. Many extensions of fat-filled peritoneum are apparent along the free border of the colon.

The *cecum*, or first portion of the large intestine, is an elongated pouch situated in the right lower portion of the abdomen. Attached to its base is a slender tube, the appendix.

The *ascending colon* extends upward from the cecum on the right posterior abdominal wall to the undersurface of the liver just anterior to the right kidney. The *transverse colon* overlies the coils of the small intestine and crosses the abdominal cavity from right to left below the stomach.

The *descending colon* begins near the spleen, passing downward on the left side of the abdomen to the iliac crest to become the pelvic colon. The descending colon is six inches in length and does not possess a mesentery. The pelvic, or sigmoid, colon is so called because of its S-shaped course within the pelvic cavity.

1.5.1 Large Intestine Secretions

Mucus

The large intestine is provided with enormous numbers of goblet cells both in the glands as well as on the mucosal surface. These cells secrete quantities of a viscous mucus having a pH around 8.0. This is the only major secretion of the large intestine. The mucus serves not only to protect and lubricate the intestinal wall, but to bind fecal material together. The mucus also serves to protect the colon from acids formed by the enormous amount of bacterial activity that takes place in the fecal matter itself.

1.5.2 Water and Electrolytes

Irritation of the intestinal mucosa (e.g., when a drug is taken such as a cathartic) results in secretion of large quantities of water and electrolytes in addition to mucus. This water and electrolyte secretion serves not only to dilute the irritant, but the colonic distension also stimulates rapid movement of the watery feces to the anus, causing diarrhea.

Water and electrolyte loss from a patient can result in dehydration of the body tissues and a severe electrolyte imbalance that can have rapidly fatal consequences, especially in infants.

2. Digestive System Disorders

2.1 Nausea and Vomiting

Nausea and vomiting may occur for several reasons but basically, they are the body's way of telling you that it wants to "close down shop for repairs." When hunger is not present and you are experiencing some nausea, you should not eat. The body must redirect all of its energies for the healing crisis that is going on within you. If food is taken at this time, it most likely will be vomited. Fast until hunger returns and health will be restored at the same time.

Nausea and vomiting will also occur when a poison is taken and the body dispels this substance in the quickest way that it can. This is your body's way of preserving and protecting itself and we should admire and cooperate with its wisdom and not suppress its vital defensive processes with drugs.

The stimulation for vomiting initiates in the chemo-receptor trigger zone, cerebral cortex or vestibular apparatus of the brain or can be relayed directly from peripheral areas of the gastric mucosa. Most antiemetic drugs interfere with these neural pathways. Any time you interfere with normal body activity, you are creating a worse problem (plus the problems of the additional toxins ingested as the drug). Thus, the body may be so devitalized as to be unable to carry out its repairs.

2.2 Dumping Syndrome

"Dumping syndrome" illustrates the severe consequences of surgical interference. This syndrome may follow surgical drainage procedures, particularly with gastrectomy (partial or whole removal of stomach). Weakness, dizziness, sweating, nausea, vomiting and palpitation occur soon after eating. Symptoms of hypoglycemia may occur about two hours after a meal. Usual recommendations include a high-protein diet and increased caloric intake, in the form of frequent small feedings of dry foods. A more rational approach would be frequent feedings of juicy fruits. These foods require no digestion in the stomach and pass through this organ quite rapidly.

After awhile, the body will compensate for its loss, but ideal health cannot be attained after organs have been removed. If you follow the Hygienic/Life Science program, you will not have the surgery that results in this "dumping syndrome."

2.3 Appendicitis

Appendicitis occurs when there is an extreme condition of toxicosis within the body. Under this condition, toxins accumulate in the appendix and inflammation occurs. Most physicians will tell you that "acute appendicitis results from bacterial invasion of the appendix." While it is true that large numbers of bacteria will be found in the appendix of a toxic individual, the bacteria is not the cause of the disorder. The bacteria proliferate where there is an accumulation of toxic debris. Toxins accumulate due to unwholesome living practices.

The usual "cure" for appendicitis is surgery where the appendix is removed. Does this approach remove the cause for the inflammation? No. It removes the most obviously affected organ and cripples the sufferer. When the reasons for the toxicosis are removed, the appendix will heal and health will be restored. However, rest and fasting are essential during the acute phase of this "disease" so that the body will have every chance for repair. Those who have undergone an appendectomy are 17 times more likely to have bowel cancer.

2.4 Peritonitis

Referring to the etiology of peritonitis, the *Merck Manual* says "... the most common causes are the infecting bacteria escherichia coli and streptococcus faecalis; other pathogens and occasionally fungi have been identified. Organisms or irritants escape from the intestinal tract most often following perforation of the appendix or a peptic ulcer. Peritonitis may also complicate any operation j in the abdominal cavity or may result from the spread of pelvic infection into the peritoneal cavity..."

This is the generally accepted concept, but it is an erroneous one. Bacteria and fungi are not causes of peritonitis although they are found associated with this condition, Toxicosis must first exist before inflammation of the peritoneum/begins. Irritants in the form of additional toxins may aggravate the situation. This condition may also be precipitated by the suppression of "disease" symptoms elsewhere, and the body has concentrated its toxins in this particular area.

2.4.1 Signs and Symptoms

Onset of this condition is marked by severe localized or diffuse abdominal pain. In the early stages, moderate abdominal distension is present, usually with nausea and vomiting and occasionally, diarrhea. Direct abdominal tenderness and marked muscle spasm are present. If the causes are not removed at this time, more severe symptoms will appear. They include fever, tachycardia, chills, rapid breathing and leukocytosis. Dehydration and acidosis may develop. The eyes become sunken and the mouth becomes dry; circulatory irregularities can occur.

If causes are not removed and symptoms are continually suppressed, acute renal failure, acute respiratory insufficiency and, sometimes, liver failure, may occur.

2.4.2 Treatment

The usual treatment for peritonitis is antibiotic drugs and intravenous fluids. The rational mode of action is to rest and fast. Fluid replacement is necessary in cases of severe dehydration. If fasting is utilized at the onset of symptoms, recovery will be rapid.

2.5 Diarrhea

Diarrhea is defined as "increased volume, fluidity, or frequency of bowel movements relative to the usual pattern for a particular individual." This is accurate when applied to a normal healthy individual, but when applied to the abnormal pattern of the average unhealthy American, our definition may be somewhat lacking. So we must not look at "average" or "usual" patterns but to the ideally healthy state.

On a healthful fruit and vegetable diet, the stools should be soft but formed. Increase in stool frequency or fecal volume, marked changes in stool consistency, or blood, mucus or pus in the stool indicates that the body is initiating a "disease" (housecleaning) process.

There are several physiologic reasons why the body has chosen this particular route of elimination.

1. *Osmotic diarrhea* occurs when excess nonabsorbable, water-soluble solutes are present in the bowel and retain water in the lumen. This occurs with lactose (due to the absence of lactase), and when such nonorganic salts (magnesium sulfate and sodium phosphate) are taken as saline laxatives. The body dilutes these toxins with increased secretions and quickly eliminates them
   Ingestion of large amounts of the hexitols, sorbitol and mannitol, used as sugar substitutes in dietetic foods, candy, and chewing gum, results in diarrhea by a combination of slow absorption and rapid small-bowel motility. Again, the body in its wisdom moves this toxic material along the digestive tract as rapidly as possible. The severity of symptoms is proportional to the amount consumed and the condition disappears as soon as the cause is discontinued, this is, when intake stops.

2. *Secretory diarrhea.* The small and large bowels normally reabsorb salts and water which are ingested with our food or which reach the lumen as a consequence of digestive secretions. Diarrhea may occur when the small and large bowels secrete rather than absorb electrolytes and water. Substances which induce secretion include bile acids (after surgical interference on the ileum, such as ileal resection); unabsorbed dietary fat when this is taken in excess or in an indigestible form; cathartics, castor oil and other drugs.
3. *Malabsorption.* Malabsorption may result in diarrhea by either of the above mechanisms. In generalized malabsorption, as may occur in severe toxicosis of the small intestine, fat malabsorption (resulting in colonic secretion) and carbohydrate malabsorption (resulting in osmotic diarrhea) can coexist.
4. *Exudative diarrhea.* Some chronic conditions where a state of toxicosis has existed for some time (such as mucosal inflammation, ulceration or swelling) may result in an outpouring of plasma, serum proteins, blood, and mucus, thereby increasing fecal bulk and fluidity.
5. *Altered intestinal transit.* Chyme must be exposed to an adequate absorptive surface of the gastrointestinal tract for a sufficient amount of time if normal absorption is to occur. When there has been surgical resection of the small or large bowel, gastric resection, surgery on the pyloric sphincter, or surgical bypass of intestinal segments, exposure time decreases. Drugs, toxic substances or hormonal agents speed transit by stimulating intestinal smooth muscle.

2.5.1 How to Correct the Reason for Diarrhea

The most effective means of overcoming the uncomfortable and inconvenient symptoms of diarrhea is to fast. The fast in itself does not "cure" this problem. But the fast will provide the conditions under which the body can eliminate the toxic burdens which caused the diarrhea in the first place. Even without a fast, good results can be achieved by merely adhering to a normal Hygienic diet of fresh raw fruits, vegetables, nuts and seeds. The body then has the materials to maintain normal health and repairs will take place. If surgery has taken place, recovery and a return to normal will take longer but the body will compensate for its partially missing organs, although total health may not be possible. In these cases, a normal Hygienic diet of moderate quantities correctly combined is the best course of action.

Above all, avoid all drugs. They will never produce health and will only result in more toxic conditions. Avoid also all refined and artificial food products, and all inorganic salts, minerals, etc.

2.6 Constipation

Constipation is marked by difficult or infrequent passage of feces. On a normal diet of fruits, vegetables, nuts and seeds, constipation will not occur. You need not even give it a thought. When your health is normal, your entire system works normally, including your bowels.

Acute constipation instigates a definite change of bowel habits. If constipation occurs, you should examine your diet and general lifestyle and correct those errors that resulted in this condition. Certain drugs will also result in constipation due to their enervating effect on the organism, especially their paralysis of peristaltic nerves.

Chronic constipation signifies a long-term abuse and general systemic debility. As with all "diseases" constipation should not be "treated" symptomatically but improvements in lifestyle will increase health in general and constipation will be self-corrected. On a normal diet of fruits, etc., you need not worry about getting enough bulk or enough electrolytes and water because they are all there in quantities that are optimal for exuberant health.

The most serious problems arise when any sort of drugs are taken to "remedy" this disorder.

Bulking agents, such as bran, psyllium and methyl cellulose are often given for chronic constipation. Although these agents are less toxic than other drugs given for the same purpose, they are quite irritating to the intestinal mucosa. They are prescribed for their "natural" effects and because they are "not habit-forming." Why take any agent for a "natural" effect when you can receive better results naturally? That is, on a natural diet. Bulking agents, although not addictive in themselves, can nevertheless become habit forming if a person relies on them instead of correcting those errors that resulted in the constipation in the first place. Taking bulking agents does not remove the cause and it does not build health.

Laxatives and cathartics interfere with absorption of food nutrients. These drugs result in rapid peristalsis of the digestive tract and usually the food particles beyond their optimal absorptive locus. Laxatives and cathartics are divided into several classes:

1. *Wetting agents* (detergent laxatives) soften the stool by increasing the wetting ability of the intestinal water. These break down surface barriers, allowing water to enter the fecal mass, soften it, and increase its bulk. Mineral oil is one example of a wetting agent. Mineral oil itself decreases absorption of fat-soluble vitamins such as vitamins A and E. Serious vitamin deficiencies could result if mineral oil is taken on a long-term basis.
2. *Osmotic agents or saline cathartics* are used to prepare patients for some diagnostic bowel procedures and occasionally in the therapy of parasitic infestations. They contain poorly absorbed polyvalent ions (e.g., phosphate, magnesium, sulfate) and/or carbohydrate (e.g., lactose, sorbitol). Inorganic magnesium and phosphate are partially absorbed and may be detrimental, especially in cases where there is renal insufficiency. The sodium that is present in these preparations is also detrimental. These drugs also upset fluid and electrolyte balance.
3. *Secretory or stimulation cathartics*, such as senna and its derivatives, cascara, phenolphtalein, bisacodyl, and castor oil irritate the intestinal mucosa and result in neuronal stimulation. With continued use, neuronal degeneration in the colon and "lazy bowel" syndrome occur. The normal peristaltic movements of the bowels become less and the person finds that he is taking these drugs with more frequency in order to have daily bowel movements. Serious fluid and electroylyte disturbances result.

The simple answer for constipation is to live normally. When you eat normally, exercise daily, procure sufficient rest, etc., bowel action will also be normal.

2.7 Diverticulosis

Diverticula are small, saccular, mucosal herniations through the muscular wall of the colon. They may occur in any part of the colon, but most frequently in the sigmoid region. Recent evidence confirms that a highly-refined, low-residue diet plays an important role in the formation of diverticula. The lack of dietary bulk is associated with spasm of the musculature of the colon, especially in the sigmoid. Pressure in the lumen builds up and the mucosa eventually pushes through the muscular coat at weak points.

When this condition persists for any length of time, fecal matter and toxins accumulate in the diverticula and inflammation occurs. If causes are not removed and the condition worsens, ulceration may occur with bleeding. With repeated inflammation, the colon wall thickens, the lumen narrows, and acute obstruction may occur.

This condition need not progress to this point. When the body is supplied with the requirements for health, these diverticula will heal and inflammation will subside.

2.8 Dyspepsia

Dyspepsia, commonly referred to as "heartburn" is described as a feeling of gaseousness, fullness or pain that is gnawing or burning and localized to the stomach and esophagus.

Indulgence of alcoholic beverages markedly increases the symptoms of heartburn. A pattern of eating foods that are incompatible in digestive chemistry, such as starches with proteins, may cause the problem.

When starches and proteins or proteins and sugars are eaten together, emptying time of the stomach is delayed. When the delay is rather prolonged, the acid contents of the stomach are regurgitated or backflowed from the stomach into the esophagus. This is very irritating. It can cause the stomach and esophagus to be inflamed and ulcerated.

2.9 Celiac Disease (Non tropical Sprue)

This is chronic intestinal malabsorption caused by sensitivity to the gliadin fraction of gluten, a cereal protein found in wheat and rye, and to a lesser degree in barley and oats. Gliadin combines with other protein fractions within the body to form a new complex in the intestinal mucosa that promote the aggregation of lymphocytes. In some way, this results in mucosal damage with loss of villi and proliferation of crypt cells.

The *crypts glands of Lieberkuhn* are lined by a low-columnar epithelium contiguous with that found on the villi. Cells in mitotic division are abundant in the epithelium of the crypt, and as newly-produced cells migrate upward, they differentiate either into absorptive epithelial ells with striated borders or into goblet cells that secrete mucus. If there is cellular damage of the villi, increased production of crypt cells from the *crypts of Lieberkuhn* will replace these damaged cells.

Symptoms may appear in infancy when the child begins to eat foods containing gluten or may not appear until adulthood. These symptoms are the result of deficiencies due to malabsorption. They may include anemia, weight-loss, bone pain, paresthesia, edema, skin disorders, etc.

Grains do not constitute part of a natural diet for humans. We are biologically frugivores and are adapted to eat fruits, vegetables, nuts and seeds such as sunflower seeds that can be eaten and digested in their raw state. We are ill-equipped to handle the starch and protein found in grains. However, the human body can accommodate to all sorts of diets. This does not mean that we can maintain optimum health on any diet other than our natural frugivorous one. If you become especially devitalized due to additional incorrect living habits, your body may no longer be able to maintain homeostasis. This is when such disorders as "celiac disease" occurs. When it occurs in infants, we must look to the health of the parents and prenatal nutrition for the reason of the disorders. Infants should not be fed anything except mother's milk anyway, and when they are ready to be fed other foods, fruits are in order—not bread.

There is a simple solution to this "disease"—avoid all grains.

2.10 Hemorrhoids

It is estimated that over 40 million people in the United States suffer from hemorrhoids. In a medical study at the world-famous Mayo Clinic, it was found that more than half (52%) of those examined proctoscopically had hemorrhoids. That study was done in 1959. Today statistics indicate that as many as four out of five people over 40 years of age have hemorrhoids.

What are hemorrhoids? Hemorrhoids (piles) are anal or rectal veins that have become swollen and inflamed. Such irritated blood vessels may remain entirely within the rectum where their presence may not be felt. As the condition worsens, they may slip out of the anus as firm projections and are often tender and painful. Discomfort may include itching, bleeding and mucus discharge. Physicians have cited a number of causes for this condition such as constipation, excessive sitting, straining to lift heavy objects, pregnancy and childbirth, excessive coughing or sneezing, etc. It is absurd to even consider any of these reasons for causes of the hemorrhoids.

Hemorrhoids are merely one symptom of total bodily impairment due to general unhealthful lifestyle. Improper diet and lack of exercise are important factors in the development of this condition. Hemorrhoids actually begin, most often, during the teens or early twenties but do not present themselves until a person is in his 30s or 40s. It takes that long for the abuse that we burden our bodies with to exceed the tolerance point. When the body becomes enervated through unhealthful practices, toxins accumulate in the body, cells become impaired, tissues become weakened, and acute "disease" results.

2.10.1 How Hemorrhoids Develop

To understand how hemorrhoids happen, you have to visualize the veins in the rectum and anus as being at the bottom of a long vertical column of blood. This means that the entire weight of this column bears on these small blood vessels exerting constant pressure. The pressure increases when you strain to stool—particularly if the stool is hard and dry and takes more than usual effort to move out of the rectum. The hemorrhoidal veins are especially thin-walled, so they can expand to four or five times their normal size. After the stool and the pressure pass, the veins slowly shrink back to their normal size. However, if the straining occurs frequently and the veins are especially thin-walled and weak, they will stay swollen and not shrink.

Thus engorged with nonflowing blood, the veins bear the pressure of defecation, causing the hemorrhoidal veins to "pop." Lifting a heavy object can do this too. The swollen veins produce a vague feeling of fullness, perhaps some itching, and even pain. Not only are some hemorrhoidal veins affected, but other blood vessels can rupture and leak blood under the surface. If you continue to have hard-dry stools and keep up the straining, the sack that is the hemorrhoid may tear a bit and leak. As a result you will find fresh, red blood on the toilet paper and even in the toilet bowl.

So what is the solution? Take laxatives? Surgery? If straining or hard dry stools were the irritating cause we must then look to the underlying cause. What caused the constipation? Look to your own violations of life's laws for the answers.

2.10.2 Kinds of Hemorrhoids

There are three kinds of hemorrhoids—external, anal, and internal. External hemorrhoids are located around the edge of the anus. They are not troublesome unless a blood clot forms or the hemorrhoid may be injured and ruptured in this particular type of pile by individuals who assume that it is an internal hemorrhoid that has protruded and attempt to replace it within the anus with their fingers. Since an external pile cannot be displaced, this would be impossible.

The anal hemorrhoid is found within the anal canal and is situated between the external and internal hemorrhoid. The internal hemorrhoid is above the anal canal and is covered by the mucous membrane of the rectum. One great difference between the external and anal and the internal is that there is very little bleeding associated with the external and anal hemorrhoid, whereas bleeding with internal hemorrhoids is often one of the earliest symptoms.

2.10.3 Blood Clots

A blood clot (thrombosed hemorrhoid) occurs when the vein has ruptured and some blood has escaped into the surrounding tissue. This condition causes considerable pain and tenderness in the immediate area.

Blood clots may appear at three different locations in the area of the anal canal:

1. *Beneath anal skin*—The type of blood clot most frequently experienced is that which develops beneath the modified anal skin (just within the anal opening). The swelling causes the clot to bulge outside the anus. This bulge has the appearance of a firm grape, being tender to the touch and impossible to permanently tuck back within the anus. This swelling causes pain similar to that of a large blood blister. This condition is often referred to as an "attack of hemorrhoids" or a "swelling of hemorrhoidal tissue due to inflammation." Hemorrhoids do not "attack" you, they are developed due to a toxic condition that undermines blood vessels' vitality.
2. *Beneath mucosa*—When the blood clot occurs beneath the mucous membrane lining of the anal canal, it is rarely noticed due to the lack of sensitivity of that tissue.

3. *Beneath external skin*—Blood clots may also appear in tissue that is completely outside of the anus. This is often the result of prolapse of a strangulated internal hemorrhoid which obstructs the circulation, thereby causing clotting to occur in the adjacent external mass. This form of blood clot can be extremely painful.

Blood clots will always disappear on their own without any outside "assistance." The body's innate wisdom knows how to take care of such abnormalities. This fact is taken advantage of by many drug manufacturers. When a person purchases a product that is claimed to "relieve hemorrhoidal symptoms" and the pain does, indeed, go away, the product is given the credit. If nothing was done at all, the pain would disappear equally as fast if not faster.

On August 28, 1964, the Federal Trade Commission filed a complaint alleging that American Home Products (the manufacturer of Preparation H) was guilty of making "false advertisements" implying "that the use of Preparation H Ointment and suppositories" would:

1. Reduce or shrink piles;
2. Avoid the need for surgery as a treatment for piles;
3. Eliminate all itch due to or ascribed to piles;
4. Relieve all pain attributed to or caused by piles;
5. Heal, cure or remove piles, and cause piles to cease to be a problem."

The government called nine qualified witnesses, each specializing in proctology. During the testimony before the hearing examiner, it was noted that the discomforts of hemorrhoids frequently subside spontaneously. Dr. Hopping said, "Nature and the resources of the body frequently take care of the immediate acute situation and heal it in the course of time. They (the drugs) don't heal the hemorrhoids." Another witness, Dr. Eisenberg, said during testimony, "Just mother nature and time, both of which are excellent helpers, and we see patients many times who have made appointments for an acute episode of what they call hemorrhoids and if we are not able to see them for several days, by the time they come in, much of their symptomology has been relieved, spontaneously, though they have done nothing. So we know from experience that many of these complications will subside spontaneously."

2.10.4 Why You Have Hemorrhoids

Concerning the reason for this condition, Susanna May Dodds, M.D. states, "The predisposing causes of this affection are essentially the same as of constipation; the habitual use of seasonings and condiments, or of fine flour bread or other concentrated food, is a leading factor in either case."

Instead of examining the general lifestyle, most people take medications to suppress the symptoms of hemorrhoids. Besides being almost totally ineffective, much harm may result. It has been estimated that at least ninety out of each hundred persons who use these specifics for the "cure" of their hemorrhoids, are decidedly injured by their use, and the remaining ten, though not sensibly injured, are not sensibly benefited. The reason for this failure to "cure" the piles by specific medication grows out of a misunderstanding of the nature of disease. Physicians have led people to believe that disease is local in its origin as well as in its nature. In truth, piles are of a secondary nature resulting from a general toxic and enervated condition of the body.

When drugs are administered for any reason, the body attempts to relieve itself of these powerful poisons. As this practice is repeated, the body becomes more and more enervated, all organs become depleted of vital energy, bowels become sluggish and constipation results. Subsequently, inflammation of the very lower portion of the bowel sets in that eventually gives rise to hemorrhoid formation.

When enervation and toxicosis do not result from taking poisonous medications, they are very likely to occur when the individual leads a sedentary lifestyle, uses concentrated and refined foods, eats foods that are highly seasoned and stimulating, and neglects the other requirements for health. When such enervating habits are persisted in, the bowels become deranged and the nervous energy upon which all activity depends becomes deficient. Congestion of the blood vessels occurs and soon tumorous-type growths appear and become excessively painful. Whenever the person experiences a bowel movement, the veins become large and under the pressure of the sphincter muscle, become so overloaded with blood and toxic material that this pus and fluid escape and the person has what is called "bleeding hemorrhoid."

2.10.5 What to Do If You Have Hemorrhoids

Dr. James C. Jackson supervised many chronically sick individuals at his institute at Dansville, New York. His natural approach to health produced beneficial results in every case. Concerning hemorrhoids, he said:

"Let these rules then, be laid down for the treatment of piles:

1. Purgatives should never be taken. Persons who take internal medicine for piles make a mistake. No one is ever benefited by them, nor is there any real benefit derivable from any one of the panaceas. Quack medicines are all delusions, thorough cheats, doing no good. If one is relieved thereby he is, as I have before stated, more likely than not to have, as a substitute for the piles, a disease still worse.
2. Whoever having piles would get rid of them must eat unstimulating, simple food. Meats, cakes, dressings of rich gravies for the table, must be abandoned, and in their place vegetables and fruits substituted. Then, if the person is so situated as not to overtax the nervous system by labor or thought, and can give to himself or herself plenty of time in the open air whereby to re-invigorate the blood and make it pure, there is good chance that the person may recover."

Since hemorrhoids develop due to a general condition of toxicosis, you should consider the body as a unit and aim for total health. In other words, when general health is achieved, the hemorrhoids will disappear on their own. This can be achieved only through healthful living.

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3. Questions & Answers

Does constipation cause hemorrhoids?

> It is a common conception that constipation causes hemorrhoids and so laxatives are taken. The fact is, constipation does not cause hemorrhoids. It may be an irritating factor resulting in bleeding of the hemorrhoids if the stools are very hard but it is not a causative factor. The bowels are sluggish due to debility of the colon resulting from general systemic enervation and toxicosis.

Why are you against the use of all types of laxatives?

> The use of laxatives leads to the very condition they are claimed to remedy. *The Handbook of Nonprescription Drugs* (1973) states: "Chronic constipation frequently begins during adolescence. The use of laxative agents probably plays a significant role. Many persons begin the use of such agents while in their teens. By the time they become adults, many persons cannot remember when they could maintain themselves without a laxative agent ..." The editors of *Consumer Reports* tell us: "The misuse of laxatives is another important cause of chronic constipation. Moreover, there are comparatively few users of cathartics (laxatives) who have not suffered from fissure of the anus or hemorrhoids. If you think you have chronic constipation, the first thing to do is stop taking laxatives."

Mineral oil is one of the most frequent ingredients in laxatives. The dangers associated with its ingestion include:

1. Chronic constipation.
2. Incompetence of the ileocecal sphincter (this sphincter's function is to prevent backflow of fecal content from the colon into the small intestine).
3. Rectal leakage and resulting irritation.
4. Malabsorption of nutrients.
5. Foods remain in the stomach longer, resulting in putrefaction and fermentation with by-products of toxin bacterial metabolism.
6. Lipid pneumonia, a condition where mineral oil has coated the pharynx, thereby gaining access to the trachea and then the lungs

   As you can see, much harm may result from taking laxatives. This is a fragmented approach anyway. You cannot achieve health by palliating symptoms. You must examine your total way of living and correct those errors that caused sickness.

Should I take bran to ensure regular bowel movements?

Many articles and books have been written about the necessity of fiber in our diet. Bran has been claimed to be the ideal fiber to alleviate constipation and to prevent its reoccurrence. A high-fiber diet is supposed to prevent cancer of the colon and assorted other ailments. This again is a fragmented approach with a fragmented food

Bran is the outer fibrous layer of grains. It is entirely indigestible and passes through the intestinal tract virtually unchanged. Bran does absorb water in the large intestine and this is why it is thought to be a "sure cure" for constipation since more bulky stools result

Constipation is an indication of total ill health. It is not a separate "disease" in itself or an occurrence that is independent from the rest of the body. When we eat the wrong food, get insufficient rest and sleep, lead a completely sedentary life and disobey the other requirements for health, our entire body is affected. All bodily systems will eventually become weakened and this includes the bowels and constipation results

It has been suggested that if a person prefers a diet devoid of the natural fibers found in vegetables, fruits and nuts, then bran should be consumed. This is nonsense. There are few people who would not rather eat a juicy piece of watermelon, or a nice sweet orange or a ripe banana than some dry tasteless bran. The fresh fruits will not only provide us with a delightful meal but will supply all necessary nutrients needed to maintain total health. A vital body and colon have no problems

In addition to being a fragmented food in itself devoid of calories and nutrients, bran is very irritating to the intestinal tract. There are many sharp protrubances on the bran that cause intestinal irritation. Also, a great deal of vital energy is needed to eliminate this worthless fiber. It takes a minimum of twenty-four hours to process bran once it has been ingested

Wheat and other grains contain large amounts of phytic acid. This compound reduces the absorption of iron in the small intestine. Consuming bran in the amount usually recommended (about one tablespoon before each meal) may result in iron deficiency due to being bound by phytic acid.

Article #1: Colitis by Dr. Herbert M. Shelton

The colon functions by carrying the residues of digestion upward from the cecum, across the transverse colon, and downward through the sigmoid to the rectum and to the outside world. Digestion is completed in the small intestines and it is there that the digested portions of the food are absorbed. Some water and electrolytes may be absorbed from the colon, but there is no further absorption of food. There is no absorption of toxins from the colon unless abnormal poisons are put there, e.g., caffeine, allicin, mustard oil, mercury, strychnine, etc.

The colon, like the rest of the alimentary tract, is lined with a skin or membrane that is called mucous membrane. Irritation or inflammation of the colon is known as colitis or colonitis. Supposed by some authorities to be perhaps the most common disease of civilized man, colitis is asserted to be very rare among uncivilized peoples. Constipation is perhaps the most annoying symptom of colitis, although it is likely to be alternated with diarrhea. If the colitis is acute (diarrhea) there may be mucus in the loose, watery stools. All the forms of colitis discussed in this article come under the general technical classification of "mucous colitis."

A state of spasm of the colon is common in cases of colitis, especially if the condition is marked. Frequently, also there is a sagging of the transverse colon—enteroptosis. The colon may sag in the absence of colitis and colitis may exist without sagging, but spastic colitis is almost certain to accompany both conditions.

It is a mistake, however, to think of spastic constipation as the cause of mucous colitis. This view is no more rational than to think of colitis as the cause of spastic constipation.

In chronic colitis the more marked inflammation may be located at different parts of the colon, the acute exacerbations of which will be named after the location of the more severe inflammation, as sigmoiditis, proctitis, etc.

For long periods the condition may be obscure, the individual merely being conscious of abdominal distress, which he may attribute to constipation or to gas. When mucus appears in the stools, the condition is already well advanced. As the colitis becomes more marked the mucus may appear in the stools in masses of jelly-like consistency, in suspicious looking ropy shreds like casts of the bowels, or the feces may be coated with mucus and this may be reaked with blood. There is now no mistake that colitis is present.

I do not intend here to attempt to cover all the variations from the common picture of colitis. These may occur often, but for all practical purposes, they are of little significance. As the colon is divided into a few sections, it becomes possible to have such special forms of colitis as proctitis, sigmoiditis and others, but the so-called disease is the same in each case.

Let us look at the two "diseases" just named. There is no actual dividing line between the sigmoid and the rectum. If we imagine a hairline dividing the two continuous sections of the colon, we may recognize the folly of naming inflammation on one side of this line sigmoiditis, and, if it extends only an eighth of an inch over the line into the lining membrane of the rectum, calling this proctitis. It is like naming pimples on the left cheek one disease and pimples on the right cheek something else.

We make the same confusing classifications of inflammation according to locations throughout all parts of the body. Inflammation of the lining membrane of the nose is rhinitis, inflammation of the lining membrane of the nasal sinuses is sinusitis, inflammation of the bronchial tube is bronchitis; but these are only different names for precisely he same condition in the different locations. Gastritis is he same condition in the lining membrane of the stomach. To call all of these local inflammations different diseases is only to add to growing confusion.

Often great skill is needed to diagnose correctly the form of colitis with which the patient suffers, and to detect just where the inflammation is located. Skill in diagnosis may not indicate familiarity with cause. The greatest diagnostic technique is often harnessed to the most ineffective means of mere palliation.

We are here more interested in what is causing the patients trouble than in what particular section of the colon is irritated or spastic. Symptoms of colitis are alike in kind, differing only in location and degree. One significant fact that has received much notice is that every case that presents the marks of chronicity has a *colon complex*; that is to say a negative or *depressive psychosis*.

People who are ill or who suffer are rarely cheerful and happy. Anxiety, apprehension and consequent depression form the rule in sickness of every nature. It is rarely possible for one to remain mentally or emotionally indifferent to physical discomfort. A certain measure of self-pity creeps into the consciousness of the most sanguine and stoical. When we consider the nature of colitis, it is not surprising that the sufferer becomes depressed and anxious. Many so-called neurotics and psychotics are such only because of long-standing colitis.

In at least 95% of cases of chronic colitis, constipation is an outstanding feature. It frequently continues over a period of years, during which time the sufferer tries laxatives, purgatives, teas, oils, enemas, colonic irrigations and other means of securing "relief" from his constipation, never once realizing that the constipation is only a symptom. Although these measures often afford some temporary relief, they serve, in the end, to aggravate greatly the condition.

All colitis sufferers complain of indigestion, both gastric and intestinal, and of rumbling of gas in the intestines, with more or less pain, sometimes of a colicky nature. They have a sense of fullness and uneasiness. Commonly there is a dull and constant or sharp and intermittent headache. Marty of these patients complain of a feeling of stiffness and tension, even pain, in the muscles of the neck, often with pain just below the juncture of the neck and the head.

Frequently colitis sufferers describe their symptoms as a "drawing" sensation." Most of these cases appear anemic and dysemic. They are thin and undernourished, as a rule, although colitis is by no means confined to the properly nourished. The tongue is commonly coated, the tastes unpleasant, and the breath offensive.

There may be a feeling of extreme exhaustion with a lack of enterprise and ambition. Nausea may develop immediately upon the expulsion from the colon of a large accumulation of mucus. Invariably this is followed by a feeling of great relief.

In colitis the facial expression is one of dejection and misery, frequently combined with anxiety, although many try bravely to repress their feelings, while others appear to be in a constant state of unconcealed apathy. The patient may become very nervous, irritable, excitable, even border on melancholia and hysteria.

Not only a trial to themselves, they become a trial to everyone about them. In severe and long-standing cases, the patient's whole thinking centers on his physical state. Few conditions can compete with colitis in engineering obsessions.

Many colitis sufferers become habituated to the taking of drugs. They try everything that is advertised as a remedy. They exhaust the list of laxatives, cathartics, tonics and digestants. They go from one physician to another, studying their symptoms and confusing their feelings. Enemas, cascades, irrigations, different methods of dieting and psychiatrists are all tried in vain. Some study anatomy, physiology and foods and acquire an extensive technical vocabulary, often quite meaningless.

It has been suggested more than once that the milder types of insanity often have their origin in colonic irritation. At least mental diseases requiring restraint have evolved in colitis sufferers. Such cases at least make it clear that the mental reactions to colitis are real and not mere fancies. One man of great prominence gives as his opinion that a chronically-diseased colon forms the basis of more mental and physical troubles than any other single functional abnormality.

Most important in caring for the sufferer with colitis is to ignore symptoms and the acute exacerbations, and to recognize and remove the cause of the suffering. We are fully convinced, that the development of colitis is concomitant with the retention of toxic waste and its accumulation in the blood and lymph. Whatever will free the body of its accumulated toxic load will prove adequate care for the colitis sufferer.

The mind of the patient and the mind of the one who cares for him must both be freed from the tyranny of local symptoms. The discomforts must be persistently minimized for the reason that the mucus, the gas, the rumbling, the spasticity, the constipation and the nervous irritability are neither singly nor collectively the cause of the trouble.

Recovery cannot be expected without complete and prolonged rest, away from friends and relatives and away from the enervating environmental factors. Physical rest means going to bed and remaining there. It means ceasing physical activities and relaxing. Mental rest requires poise. It means the elimination of worry, fear, anxiety and depressing emotions. Sensory rest requires quiet and freedom from sensory excitement. Physiological rest can be obtained only by going without all food. Fasting soon results in a relaxation of the spastic bowel and stomach.

Instead of bulk-free diets, a fast is indicated. Fasting speeds up that part of metabolism that eliminates waste and rejuvenates fatigued nerve and cell structure. It permits the body to establish a normal blood chemistry in its own inimitable manner. No man understands how to establish a normal blood chemistry. No one can either duplicate or imitate the ways of the body in re-establishing its normal blood chemistry.

The continual irritation of the bowels by drugging can only add to the suffering of the patient, as this makes the condition worse. Medicated enemas are highly irritating. Enemas containing soapsuds, molasses and other such substances are also to be condemned.

It is important to know that colitis is but a part of a general irritation and inflammation of the mucous surfaces of the body (just a few years ago it would have been called a general catarrh) and that whatever frees the patient of his colitis will, at the same time, free him of his other itises in other regions—in the nose and throat, in the womb or in the bladder, to name a few local mucous membrane inflammations.

The common condition called diarrhea is simply a colitis of short duration. Not serious in the average case, and lasting but a day or two (to a few days) it is the rule of many to neglect the state of the colon and resort to means of suppressing the diarrhea. Often the condition is nothing more than a temporary irritation of the bowels by unsuitable or fermenting food. This is especially true when it develops in children. But repeated crises of this kind tend to evolve chronic colitis.

As long ago as 1918, Richard C. Cabot, M.D., of Harvard University Medical School and the Massachusetts General Hospital, wrote in his book for social workers, *A Layman's Handbook of Medicine*: "Simple diarrhea or acute colitis of adults gets well as a rule in a week or ten days. The important remedies are rest and warmth and starvation." He indicates that this same care is best for infants and children, although he thought that a purge at the outset of the diarrhea should help. The important thing for us to note, however, is the recognition of the value of the fast in diarrhea. I think it should be added that a week to ten days constitutes more time than is required for most cases of diarrhea to come to an end if fasting is instituted at the first sign of diarrhea. Often two or three days are enough.

Amoebic dysentery is a form of colitis that is said to be caused by an amoeba. It is quite common in many parts of the world and I have had opportunity to handle a number of cases coming to me from Mexico and South America. I do not think that the dysentery is caused by the amoeba, but I am convinced that the amoeba and the medication aimed at this microbe tend to perpetuate a disease that, initially is but a simple inflammation of the bowel. The disease would "run its course" in a week to ten days in almost all cases, if not complicated by feeding and drugging.

When the true cause of the disease is understood and removed, a speedy return to health follows; but if these cases are treated in the usual manner, the disease may last for years and end in death. Drugs to kill amoeba, medicated enemas to kill parasites—these build ulcerative colitis and proctitis. The fact is that the war that is supposed to be made on the amoeba too often kills the patient before the disease is controlled. Some day amoebicides, parasiticides and germicides will be given up. as they tend to kill the patient too.

Instead of making war on the amoeba, the fast provides an opportunity for the body to cast off its nutritive redundancy and its toxic load and the diarrhea comes, to an end. Whatever part the amoeba plays in the causation of the disease, it cannot be specific nor can it be primary, as this microbe ceases to annoy when the fast has progressed for a few days.

Two lovely young girls of the same family, citizens of this country, but living with their parents in Mexico City, where the father was stationed, developed a sickness diagnosed as amoebic dysentery, a disease very common in Mexico.

They had been treated in the regular manner: Drugs to kill the amoeba and plenty of "good nourishing food." In spite of the drugs, perhaps because of them, the dysentery persisted; in spite of the "nourishing food," they continued to lose both weight and strength. Their parents began to despair of their lives. They knew of deaths in the disease in Mexico and began to fear that they were going to lose both of their daughters.

Then a New Yorker visited the family. He told them of Natural Hygiene and urged them to. give it a chance to restore the health of the two girls. The mother brought them to this country, where they were given a fast of only one week each.

The diarrhea ceased, they became more alert and developed a demand for food. The sisters were fed on a diet of fresh fruits, nonstarchy vegetables and minimum quantities of proteins. Their recovery was rapid and they put on weight on a diet that would not ordinarily sustain weight. Now after the passage of more than fifteen years, these two young ladies are still enjoying excellent health.

Ulcerative colitis is but a further evolution of mucous colitis. The chronic inflammation has resulted in hardening and ulceration of the membrane of the colon. Severe ulcerative cases may evolve out of acute colitis, but this is not the rule. Those who carry out the instructions given for mucous colitis will not evolve ulcerative colitis.

In a syndicated newspaper article published October 24, 1962, Walter C. Alvarez, M.D. declared that chronic ulcerative colitis is "unfortunately ... a disease which we physicians do not understand well. We don't know for sure what causes it." He explains that no germ or virus has been found that can be blamed as causing the often severe diarrhea and says that some cases seem certain to start with a nervous cause, such as an unhappy marriage. He adds that some physicians are sure that the disease begins and is kept going by "an allergic sensitiveness to some food or foods." Then he says: "However it starts, it often ends with a bad ulceration of the inner lining of the large bowel."

The patient develops fever, there is diarrhea with blood and pus in the feces, and, eventually, the colon shrinks and becomes deformed and shortened. In ulcerative colitis, constipation frequently alternates with diarrhea. This condition may evolve after years of suffering with chronic colitis or it may evolve immediately after a severe acute inflammation of the colon.

In either case, it is correct to say that when colitis has passed through the successive stages of irritation, inflammation, ulceration and induration, it is ready for the evolution of cancer, which needs but the addition of a continuous bath of decomposition from excess and unsuitable food. It is essential to understand that all chronic forms of inflammation begin with irritation, followed by inflammation and ulceration. If the location favors stasis—stoppage of the blood flow—induration and cancer follow. In its origin, irritation is absolutely innocent of all taint of malignancy, hence there is no reason why it cannot be remedied.

When ulcerative colitis is established, cancer is not far away. Indeed, the objective symptoms of cancer and ulcer are far from pathognomonic—that is, undeniably proving the presence of either. But there seems to be no reason to doubt that eating to the point of keeping the colon and rectum saturated with putrefaction is the one and only way to complete the evolution of cancer of the bowel. The beginning of the trouble is simple inflammation, which is absolutely innocent of all taint of malignancy until the diseased membrane of the colon or rectum has been mascerated, so to speak, in a continuous bath of decomposition.

The care of chronic inflammation of the colon and rectum should be successful at any stage before the beginning of malignancy. After the malignant stage is reached, hope flies out the window. This is to say, when colon disease has evolved through irritation, inflammation, ulceration and induration to cancer, any remaining possibility of recovery is wrecked by methods of diagnosis and treatment that set up psychosis or mental depression as deadly as cancer itself. Operation for cancer of the rectum or colon, making an artificial anus above the cancer, a questionable palliation, creates a blind pouch out of the cancerous portion of the colon or rectum, thus producing a miniature gehenna within the patient's body.

Alvarez says: "In a few cases, if no medical treatment helps, as the last resort the colon can be removed surgically." The drug treatment he describes is purely symptomatic: barbituates to enable the patient to sleep, copavin or codeine to "quiet" the bowels and "give rest," extra fluids, and "some iron" for his anemia. He recommends antibiotics and cortisone-like drugs for other symptoms. One gets the idea that "treat the symptoms as they arise" is still good medicine.

Reverting to the article by Alvarez, he also says: "... the patient should be kept in bed awhile, on a liberal diet, and one tasty enough so that he will eat it, and not leave it on his plate. He must have enough food and vitamins so that he can keep up his nourishment."

This is a slightly different way of expressing it, but what he says is only a restatement of the old advice that the patient must "eat plenty of nourishing food to keep up his strength." Eating prevents the bowel from healing and keeps alive the disease process. If the fast were instituted at the outset of the diarrhea, the formation of the ulceration could perhaps be avoided.

The remainder of the advice as to treatment which is given by Alvarez may prove enlightening. He says: "He will probably need barbituates so that he can sleep at night, and he should have copavin, or codeine, to quiet his bowels and give him rest. He may need extra fluids, and he may need some iron for his anemia. One authority on this disease, Dr. J. A. Bargen of the Scott & White Clinic of Temple, Texas, gives an antibiotic, Azulfidine, which helps in some cases. Dr. Kirsner, of the University of Chicago, Dr. Ingelfinger, of Boston, and other authorities get results in some cases by giving cortisone-like drugs for a while. In a few cases, if no medical treatment helps, as a last resort the colon can be removed surgically."

Apparently from this, the authorities are floundering about, trying first one thing and then another, hoping that something may prove to be of value. But without a knowledge of cause, there is nothing constructive that they can do. To remove the colon as the last resort certainly does not remove the cause of the suffering. It seems to be an open confession of failure.

It is essential to understand that irritation is absolutely innocent of the taint of malignancy, hence there is no reason why it should not be remediable. Malignancy is the ending, not the beginning of the pathological process. Those who carry out the instructions given for mucous colitis will not evolve ulcerative colitis.

Reprinted from Fasting Can Save Your Life

Article #2: Chronic Gastritis by Dr. Herbert M. Shelton

The old term, catarrh, has fallen into disuse. We no longer hear of catarrh of the nose, but rhinitis, not of catarrh of the womb, but of metritis, etc. In like manner, the old terms, dyspepsia, and catarrh of the stomach have been supplanted by the term chronic gastritis, meaning chronic inflammation of the stomach. One may have acute inflammation of the nose, as in what we used to call nasal catarrh. In like manner, inflammation of the lining membrane of the stomach may be either acute or chronic. Chronic (from *chronos*—time) is a term applied to lingering diseases. The symptoms of chronic diseases are commonly not as severe as are the symptoms of acute disease.

There are many and varying degrees of chronic gastritis from that which passes almost unnoticed, and manifest only by a coated tongue, bad breath and a slight uneasiness following meals, to the case of the man who spends much of his time searching for a drug which will relieve or a food that will agree. Customary habits of eating entail so much wear and tear upon the stomach that there are but comparatively few people who do not suffer with more or less indigestion with the resultant irritation of this organ.

The almost universal practice of overeating, of eating at all hours of the day and night, of eating improper food, and of eating wrongly-combined foods, coupled with the practice of taking drugs to "relieve" the consequent discomfort and distress, is the chief, though not the only cause of chronic indigestion and chronic gastritis. The human stomach, especially in this country, is almost always overburdened by overeating and by eating in such a manner and under such conditions that digestion is retarded.

Too frequent eating is as great a source of gastric irritation as the habit of overfilling the stomach at each meal. There may be occasional exceptions (although this may well be doubted), but eating three times a day is too often. This is especially true when each meal is a banquet. Most men and women can eat a breakfast of fruit, a light lunch and a heavy evening meal, but when they eat a hearty, breakfast of bacon and eggs, toast, cereal and milk, fruit and other foods, a big meal at noon and another big meal in the evening, they are sure to overeat. Such eating does not permit the stomach sufficient rest from one meal to the next.

While, perhaps overeating and eating food combinations that impede normal digestion may be regarded as the chief causes of chronic irritation of the stomach, the habits of eating in a hurry, failure to properly masticate the food, eating hot and cold foods, eating when fatigued, when emotionally stressed, when cold, and the practice of eating a hearty meal and returning immediately to work, impede the digestive process. All such abuses help to lay the ground work for disease of the stomach.

While taking such *stimulants* as tea, coffee, and cocoa, and such *narcotics* as tobacco and alcohol contribute towards the causation of gastric impairment, the habit of using condiments is often worse. Acrid sauces, burning peppers, pungent spices, stinging mustard, mordant vinegar, biting alcohol, irritation-causing salt—when, how, and why did man begin the practice of abusing his digestive system with these piercing, caustic substances? Curry and cayenne, mustard and horse radish, chili and tobasco sauce, whiskey and gin—what unfit substances to introduce into the human stomach! They have no food value, are indigestible and retard the digestion of the real foods. When taken regularly, they keep the stomach in a state of chronic inflammation. They damage the intestines and liver also. They lack a single redeeming feature and none of the defenses of their "use" are valid.

It should be understood that any act, habit, or indulgence that lowers functioning power, this is to say, anything that causes enervation, will lessen digestive function and pave the way for the evolution of chronic gastritis. Overwork, loss of sleep, lack of rest, stimulation, food deficiencies, emotional stresses, etc., by lowering the power of the nerves to maintain normal function, produce indigestion.

Chronic gastritis frequently follows upon the heels of recurring acute gastritis. This tendency of acute gastritis to become chronic grows out of the fact that the causes of the recurring acute crisis are not removed. As soon as the sufferer recovers from acute gastritis, he begins again to build the condition all over again. Both forms of gastritis are due to the same cause or causes. Acute gastritis is more common in the young; chronic gastritis is more often found in adults.

Chronic gastritis often follows acute diseases, such as typhoid fever and dysentery. In these instances the gastritis, except the initial acute gastritis that is sure to be present, is most likely caused by the drugging for dysentery and typhoid. Drugging in acute disease frequently so impairs the stomach that chronic gastritis evolves. Feeding in acute disease doubtless assists in the development of chronic gastritis. In like manner, the chronic gastritis that is said to be caused by arthritis, gout, etc., is due, in large measure, to the drugging. Aspirin, for example, has a very irritating effect upon the stomach. When chronic drugging is added to the wrong feeding and other causes of disease in these diseases, chronic gastritis is almost inescapable.

The drugs employed in treating acute and chronic diseases are not the only ones that damage the stomach and cause chronic gastritis. The drugs commonly used with which to smother the effects of big dinners and other common abuses of the stomach—bicarbonate of soda,, milk of magnesia, Alkaseltzer, Rolaids, Turns, Pepto-Bismol, etc.—as well as those drugs usually employed in the treatment of chronic gastritis, damage the function of the stomach, occasioning irritation, exhaustion, and impeding the work of digestion. The temporary "relief" they afford is paid for at a fearful price, even including in its costs gastric ulcer and cancer.

Belching (eructation) of gas, sour and fermenting foods, bitter substances, a condition commonly called "heart burn," the gases often searing the throat and nose, a bad taste in the mouth, a coated tongue, foul breath, discomfort in the stomach, often a frontal headache, diarrhea or constipation or both, alternately, weakness, an "all gone feeling," a finicky appetite or no desire for food at all, a feeling of fullness, bloat after meals—these symptoms continuing, often for years, make the life of the man or woman who has chronic gastritis one of misery.

A capricious appetite, inability to eat certain foods that do not "agree," periods of excessive hunger, loss of weight from malnutrition, palpitation of the heart from gas pressure, pains in the chest from the same cause, sometimes difficulty in breathing from gas pressure, weakness, inability to sleep, mental depression, melancholia, "nervousness," even in some cases, mild mental symptoms, the degrees and combinations of symptoms varying with individuals, almost completes the picture of the misery of what our grandfathers called the "dyspeptic."

To carry the picture a bit further, however, let us briefly think of the case in which thickening of the pyloric membrane results from the long-continued irritation and inflammation. This obstructs the pyloric valve (the valve opening to let the digested food pass into the intestine), thus preventing normal emptying of the stomach, with the resulting pains of obstruction. The treatment of this is usually the gastroenterostomy, or the formation of a fistula between the stomach and the duodenum, thus bypassing the pyloris.

This is the same of medico-surgical malpractice. It is as easy to reduce a thickened pyloric mucosa (membrane) by fasting as it is to reduce a thickened membrane in the nose that obstructs the nasal passage and compels mouth breathing. We can watch the process in the nose; we can "see" it in the stomach only symptomatically. We can see the symptoms of pyloric obstruction clear up and normal emptying of the stomach take place.

Perhaps no state of impaired health is more responsive to the physiological rest than chronic indigestion. It should not be necessary to have to say that all causes of enervation, all causes of impaired digestion, all causes of stomach irritation should be removed. No recovery of health is possible so long as these remain. Remove these causes and provide the disabled stomach with a much-needed rest and it will repair its damages, recuperate its forces and begin to function normally again.

Do not get the idea from this that the process is simple in long-standing cases. Some of these victims of abuse recover slowly and with many "set-backs," so that much skill is required to pilot them back to good health. Feeding after the fast is specially important and often presents problems. Blanket diets, cut-and-dried feeding formulas, feeding programs based on the laboratory fallacy that every man and woman, regardless of his or her peculiarities, occupation or digestive capacity, should eat a certain amount of certain kinds of food each day, all meet their Waterloo in chronic gastritis.

Eating must be moderate, sometimes but two meals a day and in occasional cases, but one meal a day. Correct combinations must be rigidly adhered to, the meals should be simple and all articles of food with which the individual has difficulty must be excluded from the diet. Rest and sleep are highly important, as is exercise at the right time and in keeping with the strength and endurance of the sufferer. Fresh air and sunshine and a peaceful, poised mental atmosphere help immensely.

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Lesson 78 - Reproductive Problems Of Men And Woman

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1. Introduction

When you study the physiology of the male and female reproductive system, you will see the delicate interaction of organs, nerves, tissues, cells and hormones. Disturbance of one part affects the whole system. Likewise, disturbance of any organ of the body affects the whole organism. Thus, when there is any disorder in one organ of the reproductive system you should not consider it as a single disease entity. It is simply one symptom indicating that your entire body is sick and in need of repairs.

As with all other "diseases" that we have been discussing in previous lessons, reproductive problems should not be "treated" at all. First look for the underlying causes and correct those errors in your general lifestyle that resulted in these abnormalities. Health will be restored when the conditions for health are provided.

In this lesson, we will discuss some of the more common reproductive disorders. First of all, we will have a review of the male and female reproductive system. A general knowledge of anatomy and physiology will enable you to communicate with your clients in an understanding and intelligent manner.

2. The Reproductive System

The reproductive system is unique among the organ systems. The organs of this system vary greatly between the sexes. Male and female children do not differ remarkably in body form until they reach the age of puberty. At this time, under the influence of hormones, striking changes occur in several systems. The voice gradually changes in the male to a deeper masculine tone; the beard becomes a little stronger; pubic, axillary and body hair develop; and the body gradually assumes the characteristics of the adult male. The body form of the adult male develops increased musculature, with broader shoulders and narrow hips. The female at puberty develops a feminine contour due largely to deposition of subepidermal fat and she mammary glands become larger. The internal and external genitalia approach maturity, and the gonads begin to produce mature sex cells.

2.1 Female Reproductive System

The internal reproductive organs of the female are the ovaries, fallopian tubes (or oviducts), the uterus and the vagina. The ova arise and develop in the ovaries. When they are mature, they rupture from the surface of the ovary and pass down the fallopian tubes to the uterus. If the ovum is fertilized during is passage down the oviduct, the developing blastocyst becomes implanted in the lining of the uterus. If it remains unfertilized, it soon breaks down and becomes lost in mucous secretion. The uterus leads into the vagina, which is a narrow passageway opening to the exterior.

2.1.1 Ovaries

The paired ovaries lie on either side of the uterus and below the fallopian tubes. The internal structure of the ovary consists of a connective-tissue framework, which supports the developing germ cells, muscle cells, blood vessels and nerves.

The ova develop within the ovarian follicle. The various stages of oogenesis are passed there, and the developing ovum in one of the more mature follicles is in reality a primary oocyte. Follicles develop under the influence of the follicle-stimulating hormone (FSH) and luteinizing hormone (LH) originating in the pituitary gland. From puberty to menopause, mature follicles approach the surface of the ovary and rupture mature ova through the surface at fairly regular monthly intervals in the process known as ovulation. Ovulation occurs about the middle of the 28-day menstrual cycle, but the follicle cells persist, undergoing a transformation into the corpus luteum.

2.1.2 Corpus Luteum

After ovulation, the follicular cells enlarge and increase in numbers so that the number of cell layers increases. The cavity of the old follicle becomes filled with blood, but the blood is gradually resorbed as new cell layers fill in the cavity. Connective tissue and blood vessels grow in from a connective-tissue layer surrounding the old follicle. A yellowish thick-walled body called the *corpus luteum* replaces the old follicle. The cell cytoplasm contains a lipid substance known as *lutein*. In the period between ovulation and menstruation the corpus luteum secretes the hormones progesterone and estrogen, which exert a sustaining influence on the lining of the uterus. If the ovum is not fertilized, the corpus luteum begins to degenerate toward the end of the menstrual cycle and menstruation follows. If the ovum is fertilized, the corpus luteum of pregnancy reaches the height of its development about the third month, after which it begins to degenerate.

2.1.3 Fallopian Tubes

The tubes that conduct the ova from the ovaries to the uterus are usually called oviducts in animals. In humans they are more commonly referred to as fallopian tubes, or uterine tubes. They lie in a horizontal position above the ovaries. The far ends near the ovaries flare out in a funnel-like fashion. The funnels bear fringed processes called fimbriae which aid in guiding the ovum into the tube.

2.1.4 Uterus

The uterus is a thick-walled organ located in the upper part of the pelvic region. Its function is to receive the blastocyst and to provide protection and nourishment to the developing embryo and fetus after implantation. The position of the uterus varies, but it is usually tipped forward over the urinary bladder. The lower part of the uterus is more cylindrical in shape and is called the cervix. Its external orifice opens into the vagina.

2.1.5 Vagina

A canal leading from the vestibule of the external genitalia to the cervix of the uterus is called the vagina. The vagina receives the penis of the male during sexual intercourse; a seminal emission releases sperm near the external orifice of the uterus. At childbirth the vagina becomes greatly distended to form the birth canal from the cervix to the exterior.

The external orifice of the virginal vagina is partially closed off by a fold of membrane known as the hymen.

2.2 Male Reproductive System

2.2.1 Testes

Spermatogenesis takes place in the testes. The testes descend from an abdominal position before birth and come to lie in a sac called the scrotum. Occasionally the testes fail to descend into the scrotum, a condition known as cryptorchism. Undescended testes are almost invariably sterile, although they produce the male sex hormone.

2.2.2 Epididymis

Immature sperm are not motile but are propelled up through the convoluted tubules into a network of fine tubules and on into the ducts of the epididymis. The epididymis is a body containing a tightly convoluted tubule and is located behind the testis.

2.2.3 Vas Deferens

The duct of the epididymis is continuous with a larger duct, the ductus deferens or vas deferens, which leads the sperm away from the testis. The vas deferens extends upward from the testis through the spermatic cord. It passes through the inguinal canal, over the pubic arch, and behind the urinary bladder to terminate in the ejaculatory duct. The right and left ejaculatory ducts open into the urethra within the prostate gland. They are much smaller ducts than the vas deferens and only two centimeters long.

2.2.4 Seminal Vesicles

The seminal vesicles are lobulated sacs located behind the surface of the bladder. They secrete a fluid that forms a part of the semen. The fluid passes down a small duct and enters the ejaculatory duct. It is thought to contribute to the viability of the spermatozoa.

2.2.5 Prostate Gland

The prostate gland is a muscular and glandular organ that is located below the bladder and in front of the rectum. The base of the urethra passes 'through it. The prostatic secretion is alkaline, somewhat milky, and contributes to the odor of semen. The base of the urethra runs almost vertically through the anterior portion of the gland when the body is in a standing position.

2.2.6 Penis

The penis is the copulatory organ of the male. The body of the penis is composed of three longitudinal columns of erectile tissue. Erectile tissue is composed of blood spaces, which ordinarily are not distended with blood, the penis then being soft and flaccid. Sexual excitement causes blood to pour into these spaces faster than it is drained away by the veins. As a result the walls of the tissue become distended with blood, and the penis becomes hard and erect. It is in this condition that it is inserted into the vagina in the act of sexual intercourse. After sexual excitement has passed, blood is drained out of the erectile tissue and the penis becomes soft again. Erectile tissue is also present in the clitoris.

The smooth tip of the penis is the glans portion and is covered by loose skin called the foreskin or prepuce. Sometimes the foreskin covers the glans too tightly or, becomes adherent if this area is not cleansed properly. Circumcision is an operation to remove the foreskin. The operation may be complete or partial. The area behind the glans contains modified sebaceous glands that secrete a soft, whitish substance, which soon deteriorates. The reason given by physicians for performing circumcision is to expose the surface of the glans and make it easier to clean the area where the secretion has collected. This is an unnecessary and cruel operation. Daily cleansing of this area will keep it clean so that secretions will not collect. You need not worry about the skin becoming adherent if you keep this area clean.

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3. Menstruation

All the structural and physiologic changes in the uterus that occur during a female sexual cycle depend on the secretion of estrogens, chiefly estradiol and estrone.

Following the onset of puberty and menarche, follicle-stimulating hormone (FSH), secreted by the anterior pituitary, is responsible for the early maturation of ovarian follicles. Later in the menstrual cycle, a combination of FSH and luteinizing hormone (LH) underlies final maturation of the ovum. Ovulation takes place following a sudden increase in pituitary secretion of LH.

Secretion of FSH and LH by the anterior pituitary are regulated by FSH-releasing factor and LH-releasing factor. These releasing factors originate in the hypothalamus and are transported directly to the pituitary via a specialized portal vascular system.

Circulating estrogens apparently act directly on the hypo-thalamus to inhibit secretion of FSH releasing factor by the pituitary, thus to decrease FSH secretion. In addition, the increase in circulating estrogens observed immediately prior to ovulation is responsible for producing the sudden rise in LH secretion that stimulates ovulation. Secretion of FSH and LH by the anterior pituitary is inhibited by the elevated levels of estrogen and progesterone in the circulation during the luteal phase of the menstrual cycle. Thus the body maintains equilibrium.

3.1 Endometrial Changes During The Menstrual Cycle

Throughout each sexual cycle, the endometrium of the uterus exhibits a sequence of changes. These changes may be divided into three phases that relate to the functional state of the ovary.

1. *Follicular Phase* - This phase takes place simultaneously with growth of the ovarian follicles and the secretion of the ovaries of estrogen hormones. The endometrium increases in thickness and the tubular glands increase both in length and in number. The coiled uterine arteries elongate somewhat
   In the average unhealthy women, the endometrium increases in thickness about threefold. If you are living healthfully, these changes may not be so great.
2. *Luteal Phase* - The luteal phase takes place following ovulation, when the corpus luteum is functionally active and is secreting progesterone. As the glands grow they become more or less contorted depending on your state of health and your body's ability to carry on in a normal fashion. The coiled arteries lengthen and become more :oiled during the luteal phase. Eventually, they grow into he superficial region of the endometrium. Again, these changes are subtle in the healthy individual.
3. *Menstrual Phase* - If fertilization fails to intervene, then two weeks after ovulation endometrial stimulation by ovarian hormones decreases and alterations in the vascular supply to the endometrium occur. Profound changes occur n the toxic individual, subtle changes in healthy women.

Prolonged vasoconstriction of the coiled arteries results in a decreased blood flow to the superficial part of the endometrium lasting up to several hours. Secretion by the lands of the uterine mucosa ceases. Following about two ways of alternating vasoconstriction and vasodilation, the oiled arteries shut down, while blood flow is still mainlined in the basal vessels. Thus, the superficial region of the endometrium becomes highly ischemic (lack of blood in that area). After several hours, however, the constricted vessels open again for a short interval. The vessels that were deprived of oxygen near the surface rupture. Blood flow flows into the uterine lumen.

Ultimately, fragments of the endometrial tissue become detached from the surface, leaving the ruptured ends of the arteries, veins and glands open.

The deeper endometrial layer remains intact during menstruation, and even before vaginal discharge is complete, epithelial cells from the ends of the glands begin to move out. These rapidly generate a new surface ephithelium. The circulation is restored, and the follicular phase of the next cycle commences.

3.2 Menstrual Abnormalities

Extremely heavy flow, pain and cramps during the menstrual cycle is abnormal. These symptoms indicate toxicity and the need for a fast and general renovation of your lifestyle. A healthy individual should experience no pain during this time and a flow of short duration. Some Hygienists experience no flow at all and this is also considered normal. A sick individual could also experience absence of menstrual flow and this could be due to several reasons. Hormonal imbalances, extreme weakness and underweight (due to a state of toxicosis), trauma, etc., could result in cessation of menstruation. A fast and a change in lifestyle is in order in this case. After health has been restored, menstruation may or may not recommence. If it does, flow will be light and there should be no pain.

3.3 Premenstrual Tension

This condition occurs seven to ten days before menstruation and disappears a few hours after the onset of menstrual flow. It is characterized by nervousness, irritability, emotional instability, depression and may include headaches and edema. It seems to be related to fluctuations in estrogen and progesterone and to the fluid-retaining action of estrogen.

During some of his experiments with rats, Dr. Hans Seyle found that an excess of progesterone "acts very much like an excess of alcohol, ether and certain narcotics which tend to cause excitement followed by depression."

Other studies show that during the menstrual cycle, changes occur in carbohydrate metabolism, in adrenal production of corticosteroids, and in other functions. You can not pinpoint it to any one thing as the whole body is involved. Hygienic practitioners have found that these symptoms often disappear following a few short fasts and an improved lifestyle.

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4. Vulvitis

Vulvitis is inflammation of the vulva. It may be the result of trauma; mechanical and chemical irritations; neglect of Hygiene; local reactions to clothing, detergents or drugs. Systemic antibiotic therapy, excess moisture and irritation from tight pantyhose, the use of oral contraceptives, may also result in vulvitis. It may also occur in diabetics indicating systemic toxemia.

4.1 Symptoms

Acute vulvitis is marked by edema and redness of the vulva, burning and itching. Pain may be so severe that the individual can neither sit nor walk. Ulceration, pustules or vesicle formation may be present in the most toxic individuals.

Chronic vulvitis occurs when the acute form is suppressed over a long period of time and the causes for this disorder are not removed or corrected. In the chronic form, the inflammatory reaction is less severe. Due to enervation, the body is less able to respond normally. Edema may be severe with extreme itching. Ulcerative lesions may result in destruction of the vulva. In either case, the area involved may be localized or may include the entire vulva and perineum and extend to the mons, thighs and anus.

4.2 What to Do When Symptoms Occur

Usual treatment consists of assorted drugs and creams. We know that such treatments never result in health and only worsen the situation. If fasting is instituted during the acute phase and a Hygienic lifestyle is adhered to, health will be restored. Even the chronic form can be helped through a Hygienic regime, if tissue destruction has not progressed too far.

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5. Salpingitis

Salpingitis is inflammation of the fallopian tubes. This condition occurs most often with women who use intra-uterine devices (IUDs). According to the *Merck Manual*, "The principal pathogen is *Neisseria gonorrhoeae*; but others, including gram-negative bacilli and gram-positive cocci, as well as *Mycoplasma* and viruses, are being implicated with increasing frequency. ... When salpingitis follows pregnancy or abortion, anaerobic streptococci or staphylococci are usually involved." This is the medical viewpoint. As students of Life Science, you know that bacteria or viruses do not cause disease even though they may be found associated with these disorders. An extreme case of toxicosis is always the underlying cause.

5.1 Symptoms

Acute salpingitis: Severe lower abdominal pain increases progressively with tenderness and discomfort that increases with cervical motion. High fever, leukocytosis, and copius purulent discharge from the cervix are common. The above symptoms are normal bodily responses to abnormal conditions. The body discharges toxic materials via these routes.

Chronic salpingitis may follow an acute episode that has been suppressed by drugs. There may be tubal and pelvic scarring and adhesions, chronic pain, menstrual abnormalities, and, possibly, infertility. An obstructed tube may be filled with toxins. Chronic interstitial salpingitis has reached the sixth stage of disease, enduration, and the tube is enlarged due to the thickened wall.

As you can see, it is not the N. gonorrhoeae bacteria that caused this disease but the accumulation of toxins due to a variety of unhealthful practices. Substitution of these practices with more healthful ones when symptoms first appear will result in health. Do not wait until enduration occurs. At this point health may still be restored after a series of fasts and healthful living between fasts, but you should not let your body deteriorate down to that point.

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6. Menopause

Menopause results from declining ovarian function and usually occurs between ages 40 and 50, but in the healthy individual it would occur much later in life. As the ovary atrophies and ceases to respond to gonadotrophic stimulation, the few remaining follicles undergo retrogression and urinary gonadotropin excretion increases sharply.

Menopause should be asymptomatic. When symptoms do appear, they are due to estrogen deficiency and autonomic nervous system responses may be severe and last a few months or years. Hot flushes and sweating are due to vasomotor instability. However, the primary underlying cause is toxicosis. Other symptoms that may appear in the unhealthy person include nervousness, fatigue, lassitude, depression, irritability, insomnia, palpitation, numbness and tingling, urinary frequency and incontinence, and varied gastrointestinal disturbances. Back pain may be due to osteoporosis.

These symptoms appear only in unhealthy, toxic women.

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7. Carcinomas

Carcinomas of the female reproductive tract may appear almost anywhere along that tract. It may be seen on the endometrium, cervix, ovaries, vulva, vagin or fallopian tubes.

If cancer is known or suspected to exist, the usual treatment is partial or radical hysterectomy. The uterus is removed plus the ovaries in a radical hysterectomy. This procedure does not restore health. In all such cases, disease has progressed through all seven stages. If, however, disease is still in the sixth stage, recovery is still possible under Hygienic care. If it has advanced to cancer, Hygienic care may offer comfort and may slow down the cancer.

Many misdiagnosis have been made regarding carcinomas of the uterus and Hygiene should be the first resort not the last, as is often the case.

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8. Oral Contraceptives

There are two major categories of oral contraceptives. They are combination and progestogen only. The combination types contain both a synthetic estrogen and a synthetic progestogen and are given continuously for three weeks. No medication is given for the fourth week to allow for "withdrawal bleeding." Progestogen alone is given in small doses every day but this form of oral contraceptive is not used frequently due to its more severe consequences.

8.1 General Effects

Many effects such as nausea, breast tenderness, fluid retention and depression are related to the dose of synthetic estrogen. Progestogens result in weight gain, acne and nervousness. In addition to effects on the female genital tract, the metabolic activities of synthetic hormonal components of oral contraceptives affect nearly every other organ system of the body.

During lactation the amount of milk produced is diminished, and the concentration of protein and fat in the milk is reduced; also, measurable amounts of the hormonal compounds can be found in the milk. You can see why it is especially dangerous to take these substances while lactating. It would have severe adverse effects upon the infant.

Serum protein changes occur while taking the pill. Serum copper and iron levels are increased, while tests of thyroid function are altered to the same extent that occurs in pregnancy; e.g., thyroxine-binding globulin capacity increases, while free thyroxine remains normal.

In some individuals, deep vein thrombophlebitis and thromboembolism occur. Thrombus formation appears to be related to increases in blood clotting factors, an increase in the number of platelets, and increased platelet adhesion. These changes are the result of the estrogenic component, and the increased incidence of thromboembolism is related to the amount of estrogen given.

Central nervous system effects of oral contraceptives include stroke, nausea and vomiting, headache and depression. The incidence of stroke is three times greater in oral contraceptive users than in nonusers. Alterations in glucose metabolism have also been associated with oral contraceptives. Serum levels of some vitamins, trace elements, and lipids may be altered by these drugs. Levels of pyridoxine and folic acid and most other vitamins, as well as ascorbic acid, calcium, manganese, and zinc, are decreased, while vitamin A levels are increased. Serum lipid levels, mainly triglycerides, are elevated in nearly all oral contraceptive users, and cholesterol concentration is increased in many. Studies have proven hat this increase in triglycerides is a direct result of the synthetic estrogen.

Discoloration of the skin occurs in some women indicating that the body is trying to discharge this drug via that route.

Concerning the dangers of the pill, Dr. Mendelsohn says,

> "In 1977, the FDA required a warning brochure emphasizing the astronomical risk of cardiovascular disease among women over forty taking the Pill. Whether these warnings will do much good remains to be seen. Women over forty are still taking the Pill, either because they are not properly informed or because they choose to accept the risks. The overwhelming

> majority of women on the Pill are under forty. The risks are great for these women, too, and they include not only cardiovascular disease, but liver tumors, headaches, depression, and cancer. While taking the Pill over age forty multiplies the risk of dying from a heart attack by a factor of five, from age thirty to forty the Pill multiplies it by a factor of three. All women taking the Pill run a risk of high blood pressure six times greater than women not taking it. Their risk of stroke is four times greater, and their risk of thromboembolism is more than five times greater
>
> Doctors maintain the enormous market for the Pill by telling women it's safer to take the Pill than to get pregnant. Of course, that argument defies logic as well as science. First of all, the dangers of the Pill are just beginning to surface. They are the dangers of an unnatural substance interfering with body processes. Pregnancy, however, is a natural process, which the body is prepared to deal with—unless it is unhealthy in some way. To take the Pill is to *introduce* disease into the body. Comparing the risk of pregnancy to the risk of taking the Pill illogically jumbles together rich women, poor women, healthy women, sick women, women on the Pill, women off the Pill, women using other contraceptives, women using no contraceptives, married women, single women, teenagers, adults, promiscuous women, and non-promiscuous women. When these women get pregnant, they already bring to the statistics risk factors which have nothing to do with pregnancy."

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9. Hysterectomy

Dr. Mendelsohn notes the frequency of unnecessary surgery. He says, "Women also seem to be the victims of a lot of unnecessary surgery. Another operation steadily climbing toward the million-a-year mark is the hysterectomy. The National Center for Health Statistics estimated that 690,000 women had their uteruses removed in 1973, which results in a rate of 647.7 per 100,000 females. Besides the fact that this is a higher rate than for any other operation, if the rate continued, it would mean that half of all women would lose their uterus by age 65! That's if the rate holds steady. Actually, its *growing*. In 1975, 808,000 hysterectomies were performed.

"Very few of them were necessary. In six New York hospitals, forty-three percent of the hysterectomies reviewed were found to be unjustified. Women with abnormal bleeding from the uterus and abnormally heavy menstrual blood flow were given hysterectomies even though other treatments—or no treatment at all—would have most likely worked just as well."

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10. Male Infertility

A recent article in *Health Fact News* explained that the reason that many men have difficulty in fathering children is that their sperm clump together instead of swimming singly. Stuck to each other in this fashion, individual sperm can't get enough momentum for any one of them to penetrate and fertilize a female egg.

The authors of this article suggest taking doses of vitamin C since this vitamin is shown to be deficient in those men whose sperm tend to clump. Vitamin C is present in many foods, but it is destroyed by heat. Thus, if you eat a diet of totally cooked foods, this vitamin may be lacking enough to result in sperm clumping. Even a small amount of raw fruits and vegetables in your daily diet will more than adequately meet your requirements for vitamin C. In synthetic (pill) form, this vitamin is unusable by the body and therefore toxic.

Most often, male infertility cannot be traced to any one particular thing, but results after a lifetime of unhealthful practices.

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11. Prostatic Enlargement

The prostate gland is a conical body about the size of a chestnut lying in front of the bladder. It surrounds the first inch of the urethra and secretes a thin, milky, alkaline fluid which aids in maintaining the viability of sperm cells. In older men a progressive enlargement of the prostate commonly obstructs the urethra and interferes with the passage of urine. At this point, surgical removal of a part of the prostate gland is often performed.

You should not be too hasty in submitting to such surgery. Where the obstruction is not due to fibrous tissue or cancerous growths, a fast will take care of the problem.

Regarding prostatic enlargement, Dr. V. Virginia Vetrano says: (*Dr. Shelton's Hygienic Review*, 6/76)

> The condition is sometimes remediable by Hygienic means and sometimes is not. If the individual's lifestyle has been totally anti-biotic, by the age of forty many degenerative changes have already begun. These changes are atrophy (decrease in size) of the smooth muscle cells, and an increase of fibrous tissue with the deposition of collagen fibers. Also the epithelial cells change from tall column-like cells to shorter cells. The deposition of fibrous tissue and changes in epithelial cells come about because of chronic irritation. Irritation, from excess toxins in the blood and tissues, causes the destructive changes to take place in the gland. The same toxic condition which creates irritation in the prostate gland itself also irritates other tissues of the body. The endocrine glands, such as the pituitary and adrenal cortex, are effected by toxemia. Toxemia causes their secretions to be excessive or out of balance with each gland. It is also well known that hyperplasia develops from irritation."

Dr. Vetrano points out that when the gland is mainly hyperplastic with more glandular and epithelial cells than fibrous tissue then the condition is remediable. At any rate, fasting should be tried before surgery is resorted to.

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12. Abnormalities Of Pregnancy

12.1 Spontaneous Abortion (Miscarriage)

About 20 to 30% of women bleed or have cramping sometime during the first 20 weeks of pregnancy; 10 to 15°/o actually spontaneously abort. Since in 60% of spontaneous abortions the fetus is either absent or grossly malformed, and in 25 to 60% it can be found to have chromosomal abnormalities incompatible with life, spontaneous abortion may be a natural rejection of a maldeveloping fetus. In other words, it is a response of the body to things that are abnormal.

But if the woman is healthy, miscarriages will not occur and the fetus will not maldevelop. According to the *Merck Manual*, "Maternal factors that have been suggested as causes of spontaneous abortion include an incompetent, amputated, or lacerated cervix; congenital or acquired anomalies of the uterine cavity; hypothyroidism; diabetes mellitus; chronic nephritis; acute infection; or severe emotional shock. Many viruses, mostly notably cytomegalo-, herpes-, and rubella viruses, have been implicated as causative."

Diabetes mellitus cannot be considered the cause of miscarriages as diabetes is a symptom in itself. The same is true of all the so-called "causes" listed by this manual. The underlying causes of all these disorders is toxicosis and that is also the cause of spontaneous abortion. Likewise, viruses are not the cause of any so-called "disease." They are lifeless particles of waste materials and cannot "cause" anything.

12.2 Anemia

Anemia during pregnancy is defined as a hemoglobin concentration of less than 10 grams per 100 ml of blood. (Normal averages 14-16 gm/100 ml.) Most anemia during pregnancy is said to be due to dietary iron deficiency, to normal loss of iron in blood with menses which approximates the amount normally ingested each month, so iron stores are never built up, or to previous pregnancy.

Dietary deficiencies of iron could easily occur on the "junk-food diet" that many women eat. Food that is so processed and overly cooked is either devoid of iron completely or this mineral is so changed that it is unusable. Certain foods will interfere with the absorption of iron. Good examples include onions and spinach.

Where does the Hygienist get iron? From just about everything eaten! When you eat your food raw and in compatible combinations, the iron that you receive is readily absorbed and utilized by your body. A large raw salad every day will supply adequate amounts of iron. Other sources high in iron include pistachio nuts, sunflower seeds, almonds, raisins, Brazil nuts, filberts, dates, figs and to a lesser extent all other fruits, vegetables and nuts. The Hygienist need not worry about this dietary factor.

Iron-deficiency anemia is often treated with supplements of inorganic iron. However, it is quite obvious that the body cannot handle iron in this form. This is evidenced by the toxic symptoms upon ingesting this drug.

12.3 Preeclampsia and Eclampsia

Preeclampsia is accompanied by the development of hypertension, albuminuria (excess protein in the urine), or edema between the twentieth week of pregnancy and the end of the first week postpartum. Eclampsia is accompanied by coma and/or convulsive seizures in the same time period.

Physicians consider any pregnant woman who develops a blood pressure of 140/90, edema of the face or hands, or albuminuria of 1+ or greater to have preeclampsia. This condition will not occur if you live healthfully. Only a very toxic individual will experience signs and symptoms of preeclampsia or eclampsia. Both of these disorders are symptoms of toxemia.

13. Some Reasons For Abnormalities During Pregnancy

13.1 Alcohol

The teratogenetic effects of alcohol consumption are well known. It has now been found that drinking during pregnancy can severely damage fetal muscles. Scientists found that the muscle cells from the infants were abnormally small, and that the proteins in the muscles were frayed and entangled rather than uniform and parallel.

Children of some women who averaged only one ounce of pure alcohol daily (two standard drinks) during pregnancy showed significantly decreased birth weights. Even women who reported drinking as little as one ounce of alcohol twice weekly experienced "sizeable and significant increases in spontaneous abortions" when compared with nondrinking women.

Fetal alcohol syndrome, a condition characterized by specific facial abnormalities, growth deficiencies, central nervous system disorders and mental retardation appears to be triggered predominantly by chronic alcoholism in pregnant women, although heavy smoking, stress and poor nutrition also contribute to the syndrome's severity.

13.2 Caffeine

It has been reported that, in rats, a caffeine dose as low as an equivalent four cups per day can enhance the teratogenetic effects of other agents. Dr. Jacobson suggests that if one estimates the safe human dose as 1/100 of the toxic animal dose (a rule of thumb often used), a fraction of a cup of coffee would be considered unsafe. Two human studies have shown evidence of birth defects related to caffeine intake. In one case there was a correlation of toxicity with consumption of more than eight cups of coffee per day by the mother. In another study, heavy caffeine consumption was associated with breech presentations, history of loss in previous pregnancies and decreased activity and muscle tone.

Dr. H. Nishimura and his colleagues at Tokyo University found that injecting 100-200 milligrams of caffeine per kilogram of body weight into pregnant mice induced birth defects in six to twenty percent of the offspring. In three additional studies conducted in Germany, France and England, caffeine was fed to pregnant mice in amounts corresponding to 25 cups of coffee per day for a woman (50 to 75 milligrams per kilogram). Birth defects occurred in one to three percent of the baby mice in two of the studies but were not observed in the third. Higher oral dose of caffeine, 100 to 150 milligrams per kilogram caused malformations in eight to twenty percent of the fetuses, respectively.

13.3 Smoking

In a study of pregnant women, researchers found carboxyhemoglobin levels in the fetus to be 1.8 times as great as those in the simultaneously measured Wood of the mother. Fetal blood was exposed to carbon monoxide in vitro.

Harlap and Davies studied infant admissions to Hadassah Hospital in West Jerusalem and found a relationship between admissions for bronchitis and pneumonia in the first year of life and maternal smoking habits during pregnancy. Data on maternal smoking habits after the birth of the child were not obtained, but it can be assumed that most of the mothers who smoked during pregnancy continued to smoke during the first year of the infant's life. A relationship between infant admission and maternal smoking habits was demonstrable only between the sixth and ninth months of infant life and was more pronounced during the winter months when the effect of cigarette smoke on the indoor environment would be greatest. Mothers who smoke during pregnancy are known to have infants with a lower average birth weight than the infants of nonsmoking mothers. The relationship between maternal smoking and their infants' admission to the hospital found in this study was greater for low birth weight infants, but was, also found for normal birth weight infants. Harlap and Davies demonstrated a dose-response relationship for maternal smoking and infant admission for bronchitis and pneumonia; however, they also found a relationship between maternal smoking and infant admission for poisoning and injuries.

13.4 Diet

Proper diet before and during pregnancy is extremely important for the welfare of the mother and fetus. The common practice of eating large amounts of highly-refined foods, cooked foods, candies, pastries, canned foods, etc., is one major cause of illness during pregnancy and physical degeneration of our youth.

The time to improve your diet is before conception. It is important to have a pure and properly functioning body so that the fetus can grow and develop normally. When you eat foods that are laden with chemicals and other poisons, your health and that of your unborn child will be adversely affected.

The diet that is most conducive to health is such a simple one that everyone can adapt it. Simply eat those foods that nature has provided us with—raw fruits, vegetables, nuts and seeds. Optimum nutrition will be assured on such a diet.

13.5 Exercise

Exercise is essential for total health and well-being. When you engage in a regular exercise routine, your circulation, digestion and assimilation will improve, and all organs will work more efficiently.

With proper exercise, diet, rest and sleep, fresh air, sunshine, pure water and all the other essentials for health, reproductive disorders will not occur and total health will be assured.

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14. Questions & Answers

I understand that specific exercises will cure certain disorders of the reproductive organs. Is this correct?

> Exercise will not cure, but it is one important aspect in the whole realm of healthful living that contributes to your general well-being.

Are there any similarities between the human menstrual cycle and that of other primates?

> By definition, the menstrual cycle begins on the first day of flow and ends the day before the next period of breeding. In the human female, the average menstrual cycle is 28 days in

length. The cycle of the chacma baboon is 32 days and amazingly regular in contrast to the wide individual and monthly variability of the human cycle. Mean menstruations are five weeks apart in the chimpanzee. The average primate cycle occupies about one lunar month. Primates (apes and men) do not have a single breeding season but are fertile throughout the year.

Why does sterility occur in some people?

Sterility in human beings may have several causes. It may result from defects in the structure of the reproductive organs. Certain diseases that have resulted from unhealthful living practices may affect the reproductive organs and cause sterility. Improper balance of the hormones produced by the pituitary gland, the thyroid gland, the adrenal glands and the sex glands may result in failure to produce eggs or sperm.

What are the sex steroids and what effect do they have on male and female characteristics?

The sex steroids, estrogen and progesterone,, are given off by the ovaries (female sex organs). These steroids are responsible for the female's smooth, soft skin; high-pitched voice; rounded hips; and the development of the breasts

Androgens are sex steroids that are produced by the testes (male sex glands). Androgens are responsible for the male's beard, large muscles and deep voice. They may even influence personality traits such as aggressiveness, which is considered a male characteristic.

Every month about five days before I begin to menstruate, I develop edema. My doctor prescribed water pills but I do not like to take medication. What can I do?

Fortunately your problem is not a big one. It can be overcome easily. First, I suggest that you try fasting for a while, about four to five days. Your total intake should be distilled water as thirst requires. Then I suggest that you start eating only fruits, vegetables, nuts and seeds, all raw and properly combined. You must not eat any salt, condiments, cooked foods, soft drinks, canned foods, processed foods, fried foods, or anything other than fresh fruits, vegetables, nuts and seeds

Water retention (edema) is due to toxic materials in the blood and lymph stream—usually inorganic materials from salt, minerals from hard water, minerals from deranged cooked foods and from irritants as found in condiments. The body buffers these toxins with, water so they will offer less harm to the cells and tissues. When you remove the causes, the problems cease.

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Article #1: Sterility In Women by Herbert M. Shelton

The pattern of the case was simple and familiar: A young Italian woman had been married for five years to a virile young man, also Italian. Both wanted children and had avoided all efforts at birth control in the hope that pregnancy would take place. It did not.

She consulted several physicians who assured her that her sterility was permanent. Her father-in-law told her of the fast and of the possibility that it might help her. She consulted a *Hygienist*.

"Will a fast enable me to become pregnant?" she asked. It was explained to her that there are different reasons for sterility and that some of them yield to the fast, others do not. After interrogation, she was told that the probability was that a fast would enable her to become pregnant.

She underwent the fast. A few weeks after the fast was broken, she conceived and later bore a bright, healthy boy. This is one case out of many of similar nature. Fasting has enabled many women to conceive after years of sterility. Many of these women give a history of menstrual irregularities, profuse flow, severe cramps that send them to bed each month, large clots, soreness of the breasts and similar symptoms that indicate endocrine (ductless gland) imbalance, inflammation of the ovaries or womb and nervous difficulties.

Others give a history of metritis (inflammation of the lining of the womb) with a more or less chronic vaginal discharge. In these latter cases, the discharge is often highly acid, sufficiently acid to destroy the sperm.

These are the types of cases that are most readily corrected and that are restored to health by a period of physical, mental and physiological rest. Few cases of female sterility are absolute; most of them are the outgrowth of conditions of disease and are remediable. Great numbers of women have found the ability to conceive restored by a restoration to good health, and a large part of these women have found the fast of inestimable value in the clearing up of conditions that prevented conception.

In passing, it may be well to mention that in those many cases of women who readily conceive, but who abort, being unable to carry their baby to full term, a restoration of good health will enable them to give birth to normal babies. A clearing up of the toxic state followed by greatly improved nutrition enables them to avoid abortions.

The most spectacular case of this kind that has come under the author's observation was that of a woman who had previously had twenty-eight spontaneous abortions. After a fast of ten days and a period on a greatly improved diet, she became pregnant and at full term gave birth to a healthy boy. Delivery was normal.

The length of fast required in cases of female sterility varies with the condition of the woman. I recall the case of a comparatively young Woman who had been married for ten years and had not conceived, although no attempt had been made to avoid it. She suffered agonies with each menstruation, going to bed every month and relieving her pains with drugs.

A fast of ten days was sufficient to permanently end her menstrual difficulties and shortly after the fast, she conceived for the first time, subsequently giving birth to a healthy baby boy. Another woman much less vigorous and sick for a number of years, took several short fasts before she conceived. Her previous period of sterility was also of about ten years duration. The young Italian woman whose story was recounted at the beginning of this chapter had a fast of thirty days.

Absolute sterility is a comparatively rare condition in both men and women and fasting can do nothing in such cases. When sterility is due to conditions of disease, rather than to defects of development, there is reason to think that both men and women can almost always profit by a fast of sufficient duration to enable the body to clear its abnormal states.

Reprinted from Fasting Can Save Your Life

Article #2: Enlargement of The Prostate by Herbert M. Shelton

The prostate gland is a part of the male sexual system. It is a somewhat conical-shaped body about the size of a chestnut, which surrounds the first one and one-half inches of the urethra. Its base is directed upward and lies in contact with the lower part of the bladder. Its upper and posterior part is pierced by the ejaculatory ducts. The gland itself is composed of muscular and glandular tissue. It secretes a thin fluid which is sent into the urethra to join with the semen.

Prostatic "diseases" are rare in early life. It is estimated that approximately 35% of men reaching the age of sixty have enlargement of the prostate gland, while sixty percent of men past middle age have at sometime or other some type of prostatic trouble.

While most cases of prostatic enlargement are said to develop after fifty, the gland actually enlarges gradually over the years. In practically all cases the enlargement sets in years before any symptoms develop.

Though we are frequently reminded that men past forty are especially liable to suffer with prostatic enlargement, it rarely causes pronounced symptoms before the fiftieth year. For this reason, it is said to be a *difficulty of later life*.

Enlargement of the prostate gland may progress over a long period and give rise to practically no warning symptoms. Indeed, prostatic enlargement, or prostatism is said to be symptomless until it produces retention of the urine.

This, however, is because we are in the habit of ignoring all of the warning signs of trouble that precede the development of all so-called diseases.

The gland surrounds the urethra and neck of the bladder and when it enlarges compresses the bladder outlet obstructing the free flow of urine. This strangulating effect on the urinary canal causes urination to be difficult and progressively more frequent, with mild burning and some dribbling.

The need to empty the bladder at night is most noticeable. The intervals at which this has to be done grow shorter and shorter. Nocturnal frequency is usually the "first" symptom, though acute retention of the urine, or sudden inability to urinate, is said, often, to be the "first" symptom and may occur at any time. It is the rule that frequent urination, both day and night, long precedes complete inability to void the urine.

When the flow of urine is fully checked, causing acute retention, a very painful and dangerous condition is the result. The retention of urine, causing it to back up, even into the kidneys, may give rise to many complications.

In the early stages of prostatic enlargement there is incontinence of the urine, distention of the lower abdomen, constipation, loss of weight, loss of appetite and dryness of the mouth. Back-pressure upon the kidneys is produced by the over-distended bladder, gradually reducing their function and producing, eventually, uremia. Enlargement or tumor of the prostate not infrequently becomes malignant-cancerous. From ten to twenty percent of them are said to develop into cancers and it is estimated that cancer of the prostate gland is present in twenty percent of all men over sixty.

Cancer develops out of sites of chronic local irritation and its concomitant hyperemia or chronic low-grade inflammation. Chronic enlargement and irritation of the prostate terms an ideal location for the evolution of cancer.

Recently we saw a case of prostatic enlargement that had been giving the man trouble for a period of six years. He had ignored it and it continued to grow worse. Finally, the discomfort became so great he could tolerate it no longer. He went to the hospital for an operation. Cancer was found. A condition that was not cancer six years ago was permitted to slowly evolve into cancer. This was a needless and preventable development.

The cause of prostatic enlargement is said to be "obscure," which is the equivalent of saying, it is unknown. It is also said to be "apparently a part of the aging process, associated with glandular changes that occur in middle life." If these things were really true, prostatic enlargement would present a truly dark picture.

Removal of the prostate, so freely advised and so often performed, is a dangerous procedure and frequently very "unsatisfactory." It is not necessary, as out experience with prostatic enlargement has amply proven.

While overeating or drinking, alcoholism, exposure to wet and cold, and long continued resistance to the call of nature, often precipitate a crisis and are commonly listed as causes, they are not primary causes. "Chronic gonorrhea" if often listed as a cause but this delusion must sooner or later be given up.

Prostatic enlargement rests primarily upon a basis of chronic toxemia growing out of a mode of living that inhibits elimination. There is reason to believe that sexual abuse may constitute a leading factor in its development.

It has been our experience that when toxemia is eliminated, the enlarged prostate returns to its normal size and all symptoms end. Cases we have cared for include those in which voluntary voiding of urine was no longer possible. The catheter had to be used until a few days of fasting produced sufficient decrease in the size of the prostate that voluntary urination was again possible.

A recent case cared for here at the Health School was forced to void urine every fifteen minutes during the night and very frequently during the day. The man underwent a lengthy fast which brought immediate and progressive subsidence of symptoms, until finally he was able to go for fifteen hours without voiding urine.

Our plan of care is to ignore the prostate and eliminate the toxemia, restore nerve energy and re-order the sufferer's mode of life. Rest in bed and fasting are accompanied by exercise and sunbaths and followed by proper diet with exercise and sunbaths. We do not use and do not recommend (rather we condemn) massage of the prostate, nor any other form of local treatment—drug, electrical, etc.

Exposure or overdoing, react immediately upon the prostate sufferer. Cold, wet feet, etc, that result in congestion in these sufferers, must be avoided. Indeed every enervating influence must be corrected or removed if nerve energy is to be become normal and dependable health be restored. This means that coffee, tobacco, alcohol, soda fountain poisons, overeating, etc., must all be discontinued.

The permanence of recovery depends upon proper care of the body. Any return to enervating habits will reproduce the toxemia and result in a recurrence of the enlargement.

The logical plan to be pursued by intelligent men is to live in a way to maintain good health and thus avoid prostatic enlargement. If the gland has already enlarged, the intelligent man will attend to it promptly and not neglect the condition until acute retention of the urine occurs, or until cancer has evolved.

Reprinted from Dr. Shelton's Hygienic Review, April, 1942

Article #3: Ballerina Syndrome? Or Medical Ignorance?

In July 1981, the prestigious *New England Journal of Medicine* published an extensive study made of ballerinas by the Harvard School of Public Health. The Harvard School is mystified by a phenomenon known as "Terpsichore's Syndrome" or "Dancer's Syndrome."

What is this syndrome?

It is "delayed" menarche, irregular or nonexistent "menstruation" and other "abnormalities" among ballerinas. Many ballerinas do not start "menstruation" until 18 or later and even then a very high proportion "menstruate" only infrequently.

First, let's understand what these researchers of the Harvard School of Public Health mean by menstruation.

They do not mean the "sloughing off of the menses" which is what menstruation is, but "bloody discharge" which is not menstruation even though it accompanies menstruation almost universally in women of childbearing "age" in the modern world.

The article is primarily devoted to "reasons" and hypotheses as to why delayed menarche or menstrual abnormalities are characteristic of ballerinas. If the researchers had been looking on a broader scale they would have researched the subject more and discovered this same syndrome among the following: female tennis players, runners, swimmers, gymnasts, and in fact, all female athletes who exercise regularly and consistently. Further they would have found this syndrome among primitive females in certain areas of the world, most notably among Hunza women and among women who live thoroughly in accord with our biological adaptations per the health system advocated by Life Science!

If the Harvard School researchers had looked even farther, they might have noted that female domesticated dogs and cats often have bloody menstruation whereas their wild relatives do not.

Does not all this evidence begin to paint very plainly that the medical concensus on the subject is off-base?

In trying to explain why ballerinas do not have "normal" menarche and menstruation the following hypotheses were offered:

1. Late maturers choose to be ballet dancers.
2. Ballerinas are undernourished.
3. Hard physical exercise delays puberty.
4. The low fat/high lean ratio of body tissues may delay menarche and cause menstrual disturbances.

We'll comment on these "reasons" and hypotheses after presenting the gist of yet other discussions held at the Harvard School of Public Health. These discussions focused on the physiological agencies that triggered the onset of puberty.

The foremost hypotheses advanced were as follows:

1. Puberty is a physiological change controlled by an independent neurologic clock genetically encoded.
2. Puberty onset is triggered by a biological signal when a specific weight or body composition is reached.

In presenting these hypotheses the health officials made an observation that has a very vital bearing on the study: it was noted that ballerinas who had an injury that prevented further dancing very soon thereafter realized menarche and/or "normal menstruation."

Let's examine these hypotheses one by one in the light of established biological principles and see what truths, if any, have emerged from this study.

Saying "late maturers" choose to be ballet dancers obviously wins the dunce's award! You might as well say that people not inclined to be ballet dancers choose to mature early. Such an asinine observation implies that females have preset menarche times which would start from nine to nineteen years and only mothers whose daughters' menarche are set for the upper teens enroll their daughters in ballet.

But this first suggestion "late maturers choose to be ballet dancers" is flatly contradicted by the observation that ballerinas who sustain debilitating injuries speedily begin menarche. Don't these researchers see their own inconsistencies? Why do "late maturers" become early maturers when they are injured?

Because ballerinas eat frugally does not justify saying they are undernourished, as the article implies. Ballerinas exercise long and hard. As any fan of ballet or other dancing will tell you, ballerinas are wonderful specimens of superb femininity, fitness, beauty and health.

If our researchers wanted to see the effects of undernourishment among young women, they had only to observe certain-parts of India where undernourishment is perpetual. There, young girls consistently menstruate at ages eight to ten! America's average age of puberty onset is now ten to twelve! Does this observation point to undernourishment or something else as a cause of "late onset of puberty"? Obviously this hypothesis is unwarranted conjecture.

"Hard physical exercise delays puberty." is another witless statement though it is closer on target than the first two statements. Yes, exercise does "cause" delay of menarche and it does "cause" abnormal and irregular menstruation. I have put "cause" in quotation marks because these researchers are using the word "cause" in a misleading sense.

The statement "the low fat/high lean ratio of body tissues may delay menarche and cause menstrual disturbances" is as illogical as the attribution of undernourishment. Skinny and malnourished young Indian girls begin menarche and menstruation at eight to ten years with the same dispatch our young girls enter into it at ten to twelve years of age. So it is plain our researchers are wrong here too.

The next two hypotheses about what triggers puberty are without a great deal of relevance although both contain some truth.

Puberty does, indeed, occur in humans and all other animals in clocklike fashion at almost identical ages where environmental and extrinsic body factors are more or less the same. But, where these factors differ the time of menarche also differs. Just what are these factors that cause onset of menarche? Are they inherent factors or environmental factors or an interaction of both? Menarche, the onset of puberty, is genetically encoded— that's why, obviously, some animals reproduce within a year and others cannot reproduce until an age of many years has been attained. But, when we have members of a given species arriving at menarche with such wide variations as 8 to 18 years of age, something strange is involved. Mother Nature doesn't work that way—ask any farmer and he will tell you how close are his hens in age when they begin egg-laying or his heifers in their first heat.

The hypothesis that the onset of puberty is genetically encoded, controlled by a biological clock, does not account for such a wide variation of age on onset.

Another theory is that puberty onset is triggered by a biological signal outside the central nervous system when a specific weight or body composition is reached. Again, this hypothesis is more or less on target. Though an obviously true hypothesis, these researchers do not come close to the real reason why this hypothesis might be correct.

What is the real story?

Those who have perspicaciously examined and studied the phenomenon of menstruation (the sloughing off of the menses periodically in preparation for ovulation) observe that it is abnormal for this to be accompanied by blood-letting. Yet menstruation accompanied by bloody discharge is abnormal, then why is it so universal?

Let's establish one thing right away. Blood discharge is, indeed, abnormal—it is unnatural. We do not observe in nature a scheme for blood-letting, discomforts, disability or disease under natural conditions. Obviously some unnatural conditions exist among creatures who exhibit variances to nature's norm.

The medical establishment and those with a medical orientation in our society regard bloody menstruation as normal and are mystified and perplexed when that periodic bloody discharge fails to put in its regular appearance. What they regard as normal is obviously unnatural by the criteria we have cited. Hence there are obviously some flaws in medical premises or assumptions on this subject.

Those who have studied the subject know that the age of onset of puberty is advancing one month every five years in our society. Can it be that our genetic encoding is evolving to make puberty in humans an ever-earlier occurrence? Why is not the same accelerated appearance of menarche occurring in wild animals too?

To arrive at the answer, all our researchers had to do was to go back to our biological basics. The foremost instinct in animal life, humans included, is preservation of self. In certain circumstances a secondary instinct becomes primary: the survival of kind or species. Nature has built into creatures a multitude of safeguards to insure against extinction.

Hence we witness under a broad spectrum of circumstances or crises this salient factor, survival of kind, (either family, tribe, community, nation, race or species) takes precedence over personal survival. This happens on a biological basis as well as on a psychological basis. Thus the instinct for reproduction of kind often asserts itself with untoward emphasis when a life-endangering situation exists. This is most dramatically expressed by a farmer's adage: "plants that are sickly go to seed quickly."

This sheds some light on the dilemma the researchers at the Harvard School of Public Health got themselves into. They failed to take cognizance of basic principles that appertain within the biological realm.

Thus it becomes apparent that the earlier the onset of menarche and reproductive faculties, the more a life-endangering situation exists for the organism. And, likewise the longer menarche requires to put in an appearance, up to a point, the more normal and salubrious is the condition of the subject organism.

Once this salient fact becomes a part of our thinking, the sooner we will begin to comprehend what the "ballerina syndrome" is all about. Ballerinas' extraordinary fitness is evident to all. Fitness and health are practically synonymous terms. Thus we begin to ascertain that menarche and "menstruation" (the kind accompanied by bloody discharge) has something to do with the woman's state of health.

A mere 150 years ago our female forebears (young women who arrived at menarche) experienced puberty at an average age of fourteen to fifteen years. In some European countries the average age was sixteen to seventeen years. The same held for some Asiatic countries, notably those ultrahealthy Hunzas whose menarche was not reached until sixteen to seventeen years of age.

The principle is thus revealed: the healthier the female the later menarche occurs, which happens when the genetically encoded biological clock decrees it. The less healthy the female, the sooner menarche occurs to offset the possibility that poor health will evolve into infertility.

In the case of the ballerinas as well as women athletes we witness but one thing: the phenomenon of health. This contrasts with a medically established "norm" of a population that is, on average, pathological!

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1. Introduction

All life is subject to laws. Fixed material relationships provide the balance necessary to our survival and sustenance. They also dictate the conditions, primordial requisites and limitations within whereby we are able to flourish abundantly and live healthfully on our planet.

These laws follow an organized structure—a universal order—a perfect pattern beginning with space and time, energy and its activity—co-existing in constant, spontaneous, harmonious vibration and automatic progression as a continuum. The basic primary laws of vibration and bonding give energy its shape and substance in the form which we call matter. All matter is bonded energy. This matter/energy harmony, governed by perfect universal order, is the basis for all laws and constants of physics and chemistry such as the laws of mass and centrifugal force, which act in harmony to create the gravitational balance which is a constant of our existence on Earth. These fundamentals (our basic sciences) harmonize go give us the basic principles of biology, biochemistry, anatomy and physiology, the secondary sciences which determine our identity, composition, characteristics, and behavior as living organisms in symbiotic relationships to our internal and external environment and form which the laws of vital relation governing all plant and animal life, of which we are an integral part, are formulated.

This is the basis for our study of human life. Without these functional relationships, there could be no life as we know it. With them, life is possible. If allowed to follow nature's perfect course of action, life immediately and automatically proceeds in the direction of perfect form. It originated and developed in strict obedience to the laws of nature. Life can be perfect if the laws of life are followed.

Life is a continuum. It is governed by immutable laws. These laws are unvarying. They must meet certain criteria to be termed laws of nature. These criteria are:

First, the principle, relationship or law must be fixed or constant—the same in all places and at all times, universally applicable under all conditions.

Second, it must be governed by universal order, harmonious with all other laws, reliable and predictable.

Third, it must be inherent in the nature of things as an integral factor, necessary to the completion of the sequence of natural process; that is, nature as we know it could not be sustained without it.

Fourth, it must be all-encompassing, excluding nothing. All aspects of nature must be governed by it.

And fifth, it must describe succinctly and accurately the normal sequence of developments and be the guiding principle in fundamental relationships.

All of these criteria are necessary to the formulation of a law of nature. All the laws of nature meet these criteria in every sense. They are as reliable as the motion of the universe. In the same way, we know where a planet in our solar system or our moon will be at any given moment based on laws of planetary motion in astronomy. With charts and records, we can be sure and feel safe and secure about the laws of anatomy and physiology governing human life and health. The laws never change; only environmental conditions change. The same law of gravity that allows a balloon to rise brings it back to Earth; the difference in conditions controls its altitude, but the law remains constant. Likewise, the same laws that cause a ship to float will, under changed conditions, allow it to sink. Again, the conditions change, but the laws remain constant.

In the same way, we can control our quality of health with the help of nature by changing our conditions — removing the causes of disease development and supplying the body intelligently with its needs—the elements of health.

It is impossible to break a law of nature. To say we have "broken" a law of nature is as if to say that the sun "rises" and "sets;" it is only a convenient idiomatic word form description of what has really taken place. If a child touches something hot and burns its finger, it has not violated a law of nature; rather, it has merely illustrated the results of its action. We can choose to ignore nature's laws and suffer the consequences, or observe and follow nature's laws and reap the benefits. When a pilot flies an airplane, he must observe strict rules of aeronautics and aviation which are dictated by natural laws of physics; and if he fails to abide by them, or to operate the plane within these limitations, he will crash.

So it is with our quality of health. If we overeat, or eat of an improper diet, ingest any poisonous substance or substances, or if in any way we fail to supply the body with its needs properly or subject it to inappropriate conditions, the degree of disharmony we subject it to determines the level of impairment of our health. The same sun that nourishes our body through the skin and plant life will enervate and damage us if we overexpose ourselves to it. Exercise is vital to oxidation and utilization of nutrients which are to be appropriated by the body; yet we can overexert ourselves and cause enervation which will impair our ability to assimilate and appropriate food. We must observe nature's laws and live within their limitations or suffer.

Understanding nature's laws and intelligently employing them in our everyday lives is the essence of Natural Hygiene/Life Science. The better we are acquainted with natural laws and how they affect us constantly, and the more harmoniously we observe and follow them, the higher level of health we enjoy, and the more effectively we resist adversity as it confronts us.

Natural Hygiene/Life Science is the study of the primordial requisites of life and the understanding and correct application of the laws of nature in order to most advantageously meet the needs of life and preserve it and its integrity in the most vital and abundant sense on all levels. What we do or don't do now and from now on determines, and will continue to determine, our quality of life and our level of health.

The future of our health is in our own hands to the extent that circumstances of the past and health of our past generations have not had some peculiar overriding influence of influences upon our birth or the state of our present well-being, such as an inherent constitutional weakness passed on through our forebearers. Nature is wonderfully provident and compensating in most cases and protects us up to a point which varies from family to family and birth to birth, depending on complex conditions, again within nature's limitations! The more consistently we live in harmony with the laws of life from generation to generation, as a body of like-minded people, the more we will improve the quality and upgrade the potentials of succeeding generations.

A consistent, concerted effort to live healthfully and harmoniously is urgently needed to reverse the gradually degenerating trend of our human race. Furthermore, we need to examine our role as an integral part of all plant and animal life and realize our necessity to preserve our symbiotic relationship with our natural environment. We must protect and preserve the ecology of our Earth upon which all life, including our lives and the lives of our children and succeeding generations, must depend if we are to survive as a human race and, ultimately if life as a whole is to survive.

How effectively and extensively we reach out and educate those around us to nature's immutable laws and limitations they impose and alert our fellow beings to the changes necessary for reversing the present downward degenerative pattern will directly affect whether we are successful in saving the quality and integrity of our lives and our environment and in preserving our future.

There are those who would say it is already to late—that the time for turning around our ecological destiny has come and gone and that we will inevitably perish because of the constant onslaught of infractions and injustices we have assaulted upon our planet. This has been reflected in many of the thoughts and attitudes exhibited by some of our nation's leaders and appointees overseeing the affairs of our country's natural preserves and resources.

In my opinion, nature is supreme and omnipotent, and it is impossible to destroy nature. Nature's supremacy is demonstrated constantly in our global weather and in the many natural "disasters" which take place in the form of earthquakes, volcanoes, hurricanes and tornadoes. It is further demonstrated in the power of the oceans and rivers, lakes, and streams, in our seasons, even in such instances as the single blade of grass that cracks a cement sidewalk, in the trickle of water that eventually may form a canyon, in the tree that continues to live and bear fruit even after it has been knocked over.

Man will never be able to overpower nature and her laws, no matter how many buildings he constructs which will eventually crumble, no matter how many roads he paves which eventually will be overgrown when left unattended or unmaintained, no matter how many bombs he builds and detonates, nuclear or otherwise, as nature systematically continues on regardless of scars. Of course, it is possible for man to exterminate himself and much of his surroundings for a time, perhaps a very long time after a nuclear accident or holocaust, and even though he may be able to destroy himself or make his environment unfit to support him, nature will eventually recover and repair that which he has destroyed, probably including man himself. Nature is omnipotent and all-encompassing, and nature's laws prove and demonstrate it continually and endlessly.

Here are the laws of vital relationships, the fundamental and secondary principles of Natural Hygiene/Life Science, as formulated in accordance with universal law and comparative studies of biology, biochemistry, anatomy and physiology. These laws determine life as we know it; those laws of nature govern us and provide for us the capacity for natural defense. A disease-free existence with perfect health is possible if we let nature be our guide and live in harmony with her mandates.

All the laws of vital relation are built on two fundamental principles; the Law of Identity, as first set down by Aristotle in the third century B.C., and the Law of Self-Preservation or Law of Homeostasis also known as Life's Great Law. All other principles among the laws of vital relation are built upon these fundamental principles and are known as secondary principles, mostly being built upon Life's Great

Law, which in turn, may be said to be built upon the Law of Identity as a fundamental extension of that primary law.

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2. Nature's Laws For Healthful Living

2.1 Fundamental Principles

2.1.1 The Law of Identity

Every living thing that exists exists as a particular something, with specific qualities, attributes, potentials, and limitations inherent to the organism; a living organism is what it is and cannot act contrary to its nature.

What this basically means, without entering into a lengthy discussion of comparative biology, biochemistry, anatomy and physiology, is that all biological, biochemical, anatomical and physiological features of man definitely place him in the class of frugivores as a primate of the highest order, as indicated by the number, structure and dental formula of the teeth; the length and structure of the digestive system, the position of the eyes, the functions of the skin, the character of the nails, the salivary characteristics, the relative size of the liver, the number and position of the mammary glands, the position and structure of the reproductive organs, the character of the human placenta, the nature of having two hands and two feet, the method of physical transportation and many other factors, all indicating unquestionably our constitutional nature and biological heritage as a frugivore, whose natural diet consists primarily of fruit. By our very nature as a frugivore, we cannot function properly contrary to that nature. Frugivores may partake of some green leaves and other plant parts with advantages. Man may in accordance with his constitutional nature, add green vegetables and nuts to the fruit diet, thereby improving it according to most Hygienists.

There are other important factor elements necessary to human life which contribute to our well-being. They are essential to the functional integrity and systemic harmony of the human organism. They are: Pure air, pure water, cleanliness, rest and sleep, body temperature, exercise, sunshine, relaxation, mental and emotional poise, pleasant surroundings, creative freedom, self-discipline, and other important factors.

2.1.2 The Law of Self-Preservation

(or Homeostasis), which is also known as Life's Great Law states:

Every living cell is endowed with an instinct of self-preservation, sustained by a vital force inherent in the organism, the success of t whose work is directly proportional to the amount of inherent force available and inversely proportional to the degree of its activity.

What this means, in a "nutshell," is that if you provide the proper conditions for living organisms, they will automatically proceed in the direction of perfect health. How Well they will do depends on how much vital energy is in reserve and how little of it is being expended in activity. Instinct is defined by natural law as "an innate propensity to act without conscious direction," and every living organism endowed with certain instincts, drives, sensations, inherent desires, and indications which can also register as discomforts, which impel it to act in its own self-interest.

All secondary principles which are set down as laws of nature with respect to human life are basically elaborations, or secondary principles hinging upon this fundamental principle of self-preservation, serving to guide us in the fulfillment of these fundamental principles.

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3. The Law Of Order

The living organism is completely self-constructing, self-serving, self-maintaining, self-directing, self-repairing, self-defending and self-healing. These are biological processes, extensions of the normal physiological mechanisms that renew and repair the organism on a daily basis, and are achieved by the organism's own forces and processes in a lawful and orderly manner.

This law is basically self-explanatory and needs no further elaboration.

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4. The Law Of Action

In the relations between the living organism and lifeless matter, the former is active and the latter passive, always; (R. Trall) therefore, whenever and wherever action occurs in the living organism as a result of extraneous influences, the action is ascribed to the living organism which alone is empowered with the ability to act, and not to any lifeless material, agent or influence whose leading characteristic is inertia.

This means that if you provide the wrong conditions for living things, such as pollutants or poisonous substances taken into the body from without, you will provoke defensive action and instinctive efforts of the organism to defend itself on the cellular, organic, and systemic levels as a unit. This principle goes hand-in-hand with our next law.

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5. The Law Of Power

The power employed, and consequently expended, in any vital or medicinal action, is vital power, generated from within; it is the living organism that acts, it is vital power that produces the action, and no healing power whatsoever resides in any substances outside the body.

This law further clarifies the source of all activity within the living organism, that being vital power, which is distributed, utilized, and conserved in accordance with other laws which will be elaborated upon as we continue.

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6. The Law Of Compensation

In order to expend vital energy on the one hand, nature must conserve and regenerate on the other.

This law means that there must be a balance maintained between energy expenditure and energy replacement. This balance is automatically observed by the body under ideal conditions. Therefore, it stands to reason that the more we drive the body, the less power it will have for overall efficiency, that is, for basic functional needs.

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7. The Law Of Selective Elimination

All injurious substances which gain admittance by any means into the living organism are counteracted, neutralized, and expelled by such means and through such channels as will produce the least amount of harm to living structure.

Examples of this law are illustrated by the apparent actions of drugs which are introduced into the body and, depending on the composition of the drug, seem to affect certain parts of the body in a particular way. Actually, as we have discussed earlier, the body is acting on the drug according to its chemical character, using the point of least resistance for counteractive and eliminative measures, depending on what part or parts of the body can do so with the least ill effects.

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8. The Law Of Vital Accommodation

The Law of Vital Accommodation is also known as nature's balance wheel. The response of the vital organism to internal and external stimuli, agents and influences is intrinsic and instinctive, based on self-preserving, self-maintaining, and self-defending abilities which enable the organism to "adapt," tolerate, or accommodate those extraneous influences it cannot utilize, escape, destroy, eliminate, or control in whatever way possible in order to maintain cellular, organic, and systemic integrity and to protect the life of the organism, at the expense of enervation, overall impairment of health, and consequent degeneration within the organism in direct proportion to the amount of influences and the toxic, enervating effects produced by the degenerating influences.

This law means that the living organism can tolerate or accommodate the extraneous influences which enter or come into contact with it. It "adapts" itself to whatever it cannot free itself of. The body tries in every way possible to maintain functional poise, having to sacrifice well-being. Functional vigor is lowered for the sake of survival. When we make compromises, we do so invariably at our own expense. We create conditions; the laws remain constant.

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9. The Law Of Dual Effects

All substances and agents either taken into the living organism or coming into contact with it from without, occasion a twofold and contrary action in time, the reactive or secondary action being the opposite of the active or primary one, and the more lasting.

An example of this would be anything creating the effect of stimulation as a primary action, which would result in a secondary reaction of depression, such as taking a hot shower which gives one a sense of warmth and vigor and thereafter a feeling of "relaxation," which in reality is a level of enervation. The same effect takes place very commonly in the "lazy" feeling created after consuming a very large meal, whereby at first one never feels very stimulated and "energized." This is what we call a "stimulant delusion" and is very common in most current enervating lifestyles.

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10. The Law Of Utilization

The normal elements and materials of life are all that the living organism is ever capable of constructively utilizing, whether it is well or sick, and there must always be a normal relation between the living organism, whether in a state of normal or abnormal activity, and the material things that contribute, more or less perfectly, to sustaining biological and physiological phenomena.

This law may seem a very simple one, but it is a very important law to fully understand. What this means is that no substance or process that is not a factor-element in physiology can be of any value in the living structure under any circumstances of life. That which is nonusable in a state of health must be equally nonusable in a state of ill-health. There are two categories of substances that enter or occasion contact with the body: Those that afford nourishment, which is food, and those that have no normal relationship with the body. They may be chemically dangerous or relatively inert but afford no nourishment. These are categorically recognized as poisons. When we are in a condition of disease, only those substances and influences that are not foreign, but usable and necessary factor-elements in a state of health, should be supplied. Only they can be of any advantage to us.

Therefore, when sick or manifesting symptoms, the body is not able to appropriate substances that would contribute to ill-health if taken under normal conditions. Anything which offers no nutritive value or cannot be appropriated into living tissue in the context of a natural food substance suitable to our biological and physiological identity as a frugivore must be correctly recognized as a poison and should be avoided in all instances. A poison has no normal relationship with a healthy body. It is not usable in a state of health nor in a state of sickness. Disease is a biological process—a defensive action instigated by the body in an inherent effort to put right that which has developed into a difficult situation and has become threatening to the life of the organism. As such, it is a normal process of correcting that which has developed into abnormality. The body behaves essentially in the same way in a state of ill-health as it does in a state of health, dealing with adversity as it is confronted with it; therefore, the factors and elements of health are rightly employed for the same purposes in the care of a sick organism as in the care of a healthy one. Keep in mind that we are dealing with changes in conditions and how to intelligently allow the body to effect the proper changes necessary to recover its normal state of health. Only the conditions change; the laws remain constant.

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11. The Law Of Special Economy

The vital organism, under favorable conditions, stores up all excess of vital factors to be employed in a time of special need.

This law is especially valuable to remember in the consideration of the subject of fasting. It is this law which shows us that when we fast, we can be sure that, under normal conditions, we have plenty of reserves which the body has automatically set aside for itself during crises. Exceptions to this usually involve metabolic imbalances of disease pathology which have created serious impairment or atrophy of a particular gland, organ or systemic faculty. The body is incredibly provident and intelligent in its self-preserving capabilities, and this law helps us to appreciate that even more. How wonderful it is that we can abstain from food for an extended period of time allowing our bodies to take over with its reserve fund and redirect its energies toward concentrating on ejecting uneliminated poisons and utilizing its innate healing capabilities with success and benefit as to transform our entire organism from a pathological condition to a vibrant state of disease-free health. It's like a miracle, and yet it is simply nature and her providence once again demonstrating her superiority and self-preservation when given free reign.

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12. The Law Of Conservation

This law is also known as the law of autolysis. Whenever nutritive abstinence is effected, the living organism's reserves are utilized. They are conserved and economized. Living structures are autolyzed in the inverse order of their usefulness while toxic substances are being eliminated in the inverse order of their chronological accumulation.

This law is also known and understood as the fasting principle; and it goes hand-in-hand with the Law of Special Economy to further illustrate the process by which nutritional reserves are utilized and poisons eliminated during a fast. It is important to understand the fasting process as a kind of disease pathology operating in reverse, while fasting the body effects a remission of toxicosis with the least amount of damage to the living organism. At all times the body protects its systemic integrity most advantageously. It is even more important to understand that fasting does not suddenly cause the body to discharge all the toxic and morbid accumulations in one complete action or reaction. Rather, the toxic accumulations are discharged in proportion to the manner and rate at which they were accumulated.

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13. The Law Of Vital Distribution

Vital energy is distributed throughout the living organism according to the particular needs of the cells, organs and systems of the organism, drawn from where it is in greatest reserve and directed to where it is most needed.

This law helps us to further understand the hierarchy that exists within all life forms which is further elucidated in the law of order. The body is systematic and ever aware of its needs. It knows how to fulfill them with the least amount of effort and energy. It always acts to preserve its own integrity, operating according to need and drawing from its most abundant energy reservoirs first.

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14. The Law Of Quality Selection

When the quality of nutriment being received by the living organism is higher than that of the present living tissue, the organism will discard lower-grade cells to make room for appropriating the superior materials into new and healthy tissue.

The body always improves its quality and integrity whenever the opportunity presents itself. Whenever we improve our dietary quality, and, of course, our way of life, corresponding improvements are made by the body. This is our way of improving our overall health, by changing our own specific conditions, and laws like this one guarantee benefits.

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15. The Law Of Peristaltic Action

Whenever peristalsis occurs, it is always accompanied by reciprocal contraction, with a wave of relaxation running right before the contraction to facilitate the peristalsis, and more or less continued relaxation while ingesting and digesting food.

For those who are not familiar with the term peristalsis, it is that function of digestion which facilitates the transportation of food substances and the accompanying bulk through the alimentary canal, the principal route of the digestive system. This law simply explains the mechanics of that transportive action.

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16. The Law Of Limitation

Whenever and wherever the expenditure of, vital power has advanced so far that fatal exhaustion is imminent, a check is put upon any unnecessary expenditure of energy and the organism rebels against any further stimulation, even that which it has been accustomed to, to the point of complete suspension of functions, until prostration and coma may result, with complete loss of reflex reactions, as an instinctive measure in order to preserve the life of the organism.

This is a very important and necessary safety valve which all living organisms will resort to based on a self-preservative instinct which is, as we have said before, inherent in all living things. This is an important law for us to understand and a critical warning signal to all those who would seek to care for us whenever we lose consciousness and our bodies resort to prostration or coma especially as a last-ditch measure the body takes in order to save itself. Much too often people die while in a state of coma because those attending the person do not observe the coma as a critical warning signal to leave the body intelligently alone or, because the body has become so deranged in its functions either iatrogenically (drug or treatment induced) in the hospital or by whatever means, that prostration or coma does not occur until these measures become inadequate in protecting the life of the person. A broad understanding of the laws of life would help to prevent such disastrous consequences wherever crises of this nature occur, and many lives would be saved.

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17. The Law Of The Minimum

The development of living organisms is regulated by the supply of that element or factor which is least abundantly provided or utilized. The element or factor in shortest supply determines the amount of development.

Basically this law is: the least plentiful element or factor of health being in reserve or being supplied to the body will limit how much development will take place. It does not matter how much of a certain element or factor we concentrate on providing ourselves with. All factors and elements are integral and dependent on one another wherever they are necessary to the development of a cellular, organic, or systemic capability. Whenever they must be utilized in conjunction with one another, for instance, if three elements are necessary in a particular natural balance in order to achieve a reparative or developmental goal, the element which is least plentiful becomes the limiting factor for that necessary balance and therefore ultimately determines the amount of development that will result. This is a major argument against the use of dietary supplements, among others which fait to provide us with nutriment in a satisfactory biological form and biochemically correct balance, and it is also a major argument toward the use of natural, whole, unprocessed and unaltered organic foodstuffs which provide us, in accordance with the balance of nature as a symbiotic unity, the correct elemental balance of nutritional essentials necessary for balanced development.

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18. The Law Of Development

The development of all or any parts of the living organism is measured in direct proportion to the amount of vital forces and nutritive materials which are directed to it and brought to bear upon it.

Basically this means that the organs, systems and all body parts develop in proportion as they are constructively exercised. Development is achieved through constructive effort. There are three factors which determine vital capacity: size, flexibility, and force; these three elements are interrelated, and, when employed most intelligently, facilitate development most constructively. Therefore, physical development requiring the qualities of strength, endurance, skill, speed, grace or dexterity in their exercise, are limited by our vital capacity. More intensive employment of any of these qualities in our activities will produce greater development in that aspect of our being.

Moderate employment produces moderate results. No at all in time allows atrophy to take place. Energy and a particular physical quality exists only to the degree that it is used, and if not used, it will be lost only to be regained up trio a certain point whereby atrophy has not developed beyond an irreversible stage.

Irreversibility is always tragic, and yet it is inevitable where the body has been damaged or allowed to atrophy beyond the point of recovery. Fortunately, for most of us, this degree of irreversibility is preceded by many warning signs in the form of crises and dysfunctions all along the way. The tragedy lies in our ignorance of the laws of life and how many of us suffer from our ignorance of these laws, largely brought on by a commercially-oriented society that often deliberately miseducates us or fails to properly educate us, mainly from its own lack of education or pernicious self-interest, in order to exploit and control us.

The more we learn how to take control of our own lives and take that control away from those who seek to control us out of their own fear and ignorance, the more we will be able to take responsibility intelligently for our own actions, improve our self-awareness as individuals and as a body of like-minded people, and change our degenerating conditions into a constructive force capable of controlling our own destinies within the guidelines set forth by nature and her laws. Somewhere there is written a quote which reads: "Don't stand by and watch the future happen to you. Go out and shape it yourself." We are the designers and builders of tomorrow's world, and what we do today and everyday will determine what we will have to bring tomorrow. As Life Scientists we have the tools nature has provided for us to build a better tomorrow day by day. Another principle which is of worthy consideration states: "out with the old and in with the new," and this begins within ourselves.

19. Questions & Answers

What is the role of vital force during health and disease?

> Vital force is that power intrinsic within each of us that maintains a state of health. It is that same force that manifests itself under certain conditions to initiate a healing crisis or "disease" to reestablish health when needed. Dr. Robert Walter says, "The work which this power does is sometimes called health and sometimes disease. Both disease and health are manifestations of vital power, which produce corresponding expenditures of it. Chemical affinity makes dynamite or explodes it according to the conditions supplied; gravitation floats a balloon or dashes it to the earth in response to conditions; so vital force makes health or disease just as we supply the conditions for health or disease."

How can one increase his vital power?

> You can increase your vital power by simply obeying all the laws of life and live according to your biological adaptations. When all of the conditions for health are fulfilled such as proper food, pure water, pure air, sunshine, rest and sleep, exercise, and emotional poise, vital force will be sufficiently abundant to maintain a healthy state.

How does the philosophy of the Hygienic system differ front that of the medical system in regard to caring for the sick individual?

Dr. Robert Walter *(The Nutritive Cure)* accurately compares these two systems. He says, "The true system may be defined in these words:

A system of restoring sick people to health by the same means that keep them well; a plan of curing invalids by building up that organism instead of breaking it down; a system that having cured an invalid has at the same time taught him how to remain well until his constitutional vigor declines into old age."

Dr. Walter describes the medical system:

"Systems which attempt to make sick people well by the same means that make well people sick; plans of curing disease by breaking down the organism instead of building it up; systems that having cured a disease have usually rendered the patient a chronic invalid for life."

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Article #1: Vital Force by Dr. Robert Walter

A Summary of The Facts Established

A. The power that made us is the same as that which preserves, and, in case of injury, heals, repairs, cures, in order that it may preserve. This power is variously known as Nature, Vitality, or Vital Force. We have clearly disproved that disease is a malignant entity, bent on the destruction of the patient, even though no intelligent physician now believes it.

B. The rapidity and certainty of cure correspond to the amount of the power as well as upon the conditions for its operation.

C. Vital force or vitality is a constitutional endowment and not a product; it produced us but cannot be produced by us; it is a cause and not an effect. We expend it doing work, but no work ever manufactured it. It is inherent in the constitution of living things as gravitation and chemical affinity are inherent in matter, and can no more be manufactured than can these.

D. The work which this power does is sometimes called health and sometimes disease. Both disease and health are manifestations of the same vital power, which produces corresponding expenditures of it. Chemical affinity makes dynamite or explodes it according to the conditions supplied; gravitation floats the balloon or dashes it to the earth in answer to conditions; so vital force makes health or disease just as we supply the conditions for health or disease.

E. Both health and disease are processes of expenditure on the one hand, or of recuperation on the other, according to the degree of activity of the working organs. Increased activity always means increased expenditure, which may continue to feebleness, exhaustion, and death, as under excitement, stimulation, and active work, while reduced activity, as during rest and sleep, or in the crisis and feebleness of the disease (fever), means recuperation of power preparatory to restored function, increased vigor, and abounding health. The secondary effect is the opposite of the primary.

F. Recuperation is the process of recovery, the means by which vitality, vigor, and a real increase of power is secured, while development means increased capacity to do work, expend power, and exhaust the vital resources at the very time and by the very means that it appears to give power. Recuperation means closing the valves, preventing escape of the steam and increasing the pressure in the boiler, so getting ready for future vigorous work, while development is the process of enlarging the engine, increasing the expenditure, opening more widely the valves, and so, by increasing the amount of work done, reducing the capacity for further work. When the motive power in a railway train is insufficient to its needs, there are two ways of hurrying the train to its destination—one is to close the valves and wait until sufficient pressure has been built up to work the engine vigorously. The vital organism may be rigorously worked, as by tonics, stimulants, or other violent processes and so become exhausted, or it may be recuperated by soothing, quieting, restful appliances, such as sleep and other relaxing means, by which power is accumulated and vigorous health secured. The locomotive differs from the vital organism in one important respect, however, which must not be overlooked. The power of the one being producible, production may be hurried, while in the other, no means has ever been discovered of increasing its powers except by recuperation through their non-use—that is, through rest and sleep, which involve patient waiting.

G. Rest and sleep produce inaction and weakness in the present in order that activity and vigor may be secured in the reaction; while stimulants, tonics, high feeding, exciting baths, etc., produce activity, excitement, and apparent strength in the present only to be followed by increasing weakness and final exhaustion and death. Under such treatment patients are always getting well, but they never get well. The increased power which the patient exhibits is his own vital power which is being called forth and expended with a rapidity corresponding to the vigor of its manifestations. Power manifested is power expended; the strength it seems to be giving is the strength it is taking away. As Newton's law proved that the sun does not revolve around the earth, but the contrary, so Life's Great Law proves that the real effects of all treatments, whether medical or sanatory, whether drugs or baths, even including food in most cases, are the exact opposite of the apparent effects. By sleep and its corollaries we recuperate power through present weakness, and by stimulants and tonics we exhaust power through increased activity and apparent vigor. Life's Great Law is not simply the analogue but counterpart of Newton's law of gravitation, and answers to vital existence and phenomena just as Newton's law answers to mechanical and astronomical phenomena.

H. Increased development of body and brain does not necessarily mean increased power possessed by the individual, but rather increased capacity to expend the power. The gymnasts increase their capacities for work but do not, therefore, prolong life; they are generally shortlived, the result being due not to licentious habits, for they are generally models of propriety, but to the very exercises which they vainly imagine are promoting health and prolonging life.

I. The supposed or imagined discovery of an elixir vitae is one of the most dangerous discoveries any man can make, for it places his life in jeopardy. A good friend in the prime of life believed that electricity is life, and that with it he could cure any disease and .prolong life indefinitely. He died from exhaustion within two years. Not long since in the great city a vigorous man in the flush of young manhood had discovered what seemed to him a near approach to the "fountain of perpetual youth," and after being before the public for a short time, as a prodigy of physical development, he was carried to an insane asylum and soon died. The man who teaches that "weakness is a crime" is dancing the jig of death on Mt. Pelee. Weakness in man or woman may be the result of bad habits, but is often the God-ordained method of recuperating power for future strength, sleep and rest being the illustrations. Let every man see to it that he first possesses what he would develop, thus making development as easy as it is for water to run down hill; but let him not imagine that he can produce by development any power which does not previously exist in a passive state. Development calls power from the passive into the active condition so expends it; we may develop and use our inheritance but we cannot product it. Development, whether physical or mental, which can be sustained by adequate vital resources, is to be commended, but a physical monstrosity is no more health-promoting than is a cyclopediac mentality.

Reprinted from Life's Great Law

Article #2: The Laws of Life by Dr. Herbert M. Shelton

We are in the habit of saying the Universe is governed by law and while we shall use this convenient expression throughout this work, we desire it understood that we do not use the work law in any legislative or coercive senses, the laws of nature are not legislative enactments. Natural events do not take place in obedience to natural laws. Natural laws, as we call them, govern nothing. They are "uniformities" of nature which are classified in universal formulas describing all possible happenings of nature. Thus the law of gravitation does not govern the motion of falling bodies and the coursing of planets, meteors and suns. The law, so-called, is a descriptive formula which states in the tersest way possible the mode of action which things of a definite quality will take under certain conditions. Natural laws are formulas which describe uniformities or regularities of nature. A law is a "constant mode of action of a force;" that is, it describes how the force works.

The life forces in their operations work, as do all other forces, according to well defined *laws* or *uniformities*. Laws have no validity except as expressions of the forces back of them. The uniformities of nature are not mere haphazard coincidences but intrinsically necessary conditions. They are based on the nature of things and constitute an intrinsic and necessary part of the world order, or, rather, of the universal order. The uniformities of nature are eternal. They are uncreated and uncreatable.

Natural laws are inherent in creation. Man is constituted upon and in perfect harmony with these laws. There is an inseparable and orderly relationship between the laws of nature and the highest welfare of man.

No one who is accustomed to observing the exact order and harmony that prevail in the world about him will question that his own body is constituted upon precise and fixed principles and that the vital machinery is controlled by express law. Physicians of all schools profess to believe in the existence of a law which governs the vital organism, and most of these profess to believe that in a perfect state of the body, this law is fully adequate to the government of all the vital forces and their actions. But in a disordered or impaired state of the body, physicians of all schools hold that the economy of life is incompetent alone, to exercise the entire supervision and direction of all the internal affairs of the organism. It needs and must have counsel and aid from the human mind; backed by agents and forces other than those inherent in the organism.

The law of *animal life* is an inherent principle or tendency in the animal organs, by means of which they perform certain specific functions or acts, and this law, principle or tendency is immutable, always in force, and always acting in one direction with as much positiveness and unerring certainty as that water will run down hill, or heavy bodies tend towards the center of the earth.

The general law of the vital economy is a unit. In all its operations, whether in perfect or impaired health, its tendency is one and indivisible: *the highest and best interest of the whole organism*. Nor can this unity be broken so long as life continues.

For the purpose of showing, more clearly, the nature and tendency of the law of life, and its adaptation to the purposes of life and health, it will be necessary to examine it under a number of separate divisions. These divisions reflect a grand system of order that is ultimately based on the same principles and which give rise to a grand harmony which can but excite the wonder and admiration of every man or woman who studies it.

Biotic force strives always to preserve and maintain the organism in as near perfect condition as possible. The reaction of the living thing to any adverse condition or circumstance is always calculated to defend and preserve its integrity. In fact, so strong and universal is this effort at self-preservation, it has been called the first law of nature. The instinct of self-preservation is inherent (1) in the smallest microscopic unit of organic existence, (2) in cells associated as a community, (3) in cells organized into distinct organs, and (4) as organized into organisms. Every particle of living matter is under the control of the vital forces and is endowed with the instinct of self-preservation.

Self-preservation is the primary or controlling expression of life and, normally, is subordinate to no other law except, at times, to the instinct of race preservation, in which case the individual often sacrifices himself for the protection of the young or the flock. Primarily, life seeks to preserve itself and to maintain vital integrity. All the functions of life have reference to this effort at self-preservation either of the individual or the race. Nature aims at wholeness. This is as much true of the single cell as of the complex organism.

The primary controlling law of all life was formulated by Dr. Robert Walter and denominated: Life's Great Law: "Every particle of living matter in the organized body is endowed with an instinct of self-preservation, sustained by a force inherent in the organism, usually called vital force or life, the success of whose work is directly proportioned to the amount of the force and inversely to the degree of its activity.

If vital power could be manufactured by food, air, water and exercise if it is the product of activity, then increased activity would be the best means of increasing the power and the inactivity of sleep would be a waste of time. "Certainly," says Dr. Walter, "inversely as the degree of activity" is frought with immense consequences to human health and life. It makes all the difference whether we are increasing or reducing vital power by increasing vital activity. That we are doing the one or the other no one can doubt. There can be no neutral ground in medical practice. Vital activity expends power or increases it; if the latter, rest and sleep are a waste of time and opportunity; if the former, the medical practice of our day is engaged in exhausting vital power, especially through the nervous systems, and should produce nervous diseases in great degree."

As will be shown later, activity expends and exhausts, while passivity recuperates and preserves. As the vital energies are the important things in the preservation of life and recovery of health, it follows that the success of the organism in doing either must be calculated "directly as the amount of the power and inversely as the degree of its activity.". The inactivity of sleep, not the excitement of "stimulation," nor the strength of work, is the great representative process of recuperation and health.

Increased vital activity goes with reduced rather than with increased power. Quickened respiration, increased heart action, and abnormally frequent pulse, sensitive nerves, an extremely active and excited brain, restlessness of the general system, all indicate weakness rather than strength.

It follows, therefore, that all care of the chronically ill, no less than with the acutely sick, must operate as sleep does—it must reduce activity and increase power, instead of increasing activity and reducing power. "It is the inactivity of sleep that recuperates power," says Dr. Walter, " and the activity of labor that exhausts it."

In the organic as in the inorganic realm, there exist, also secondary laws or "the observed order" of facts, which grow out of the primary law which produces them. Dalton's laws of chemistry and Kepler's laws of the heavenly bodies form secondary laws to the primary laws of chemical affinity and gravitation respectively. So in life we have certain laws secondary to "life's Great Law" called the Laws of Vital Relation. First among these we have: The Law of Action: "Whenever action occurs in the living organism, as the result of extraneous influences, the action must be ascribed to the living thing, which has the power of action and not to the dead, whose leading characteristic is inertia."

There is a vast difference between living and dead protoplasm. Chemically, they may be the same, physically they may present identical appearances, but they answer to different tests. The living protoplasm or the living organism possesses, the power of action; dead protoplasm, in common with all other lifeless matter, does not. Lifeless matter may be moved, but it cannot move itself. Living matter can move itself and other matter as well. The action of living matter under various conditions and when subjected to various stimuli does not represent the action of these conditions or stimuli upon the living organism, but, rather, the response of the living thing to the conditions or stimuli. The response is from within, the power to respond is inherent. When the power of response is lacking, as in dead protoplasm, there is no response to changed conditions or to the application of various stimuli. In the relations between lifeless and living matter, the living matter is active, the lifeless matter passive. If the power is low, the response is correspondingly low. The work of "vital force" is "directly proportioned to the amount of the force."

We may illustrate the above law by the common practice of taking purgative or laxative drugs to force bowel action. The expression is common that certain drugs "act on the bowels," or on the liver, or on the kidneys, or act on some other organ. Apparently this is the case, but actually the reverse of this is true. The taking of a dose of epsom salts is soon followed by a movement of the bowels. Dr. Trall's question, "which acted and which was acted upon?" is a very pertinent one. The only action of which any drug is capable is chemical action and no one will maintain that the bowel action in this case is chemical. No one will dispute that it is bowel action. From first to last the living organism is the actor, the salts are acted upon.

Why do the bowels act; why the hurry following the ingestion of the salts? The answer is: self-preservation. The chemical union of salts or any other drug with any of the fluids and tissues of the body is destructive to them, impairing their structure and function and even resulting in death. They act as irritants and are irritating in direct proportion to their destructiveness. The bowels act to cast them off, to eliminate them. They but perform their God-ordained function of elimination in order to self-preserve, in hurrying the dose of salts from the body.

This bowel action is vital action, as much vital action as the beating of the heart or the act of hearing, and the power of the action is inherent in the bowels, not in the salts or other drug. Vital actions are accomplished by vital powers.

Medical men speak of drugs which act on the bowels (produce diarrhea), drugs which act on the kidneys (occasion urination), etc. Reasoning, as they always do from the wrong end of the matter they attribute the power of action and of selective action to the lifeless drug, instead of to the living body. Trail combatted this fallacy as follows, and incidentally demonstrated the essential nature of "disease":

"A knowledge of the law of vitality would teach medical men that only living structures have inherent powers to act; that all dead things, in relation to living, are entirely passive; and that the only property they possess is inertia, which is the tendency to remain quiescent until disturbed by something else—the power to do nothing.

"The living system acts on food to appropriate it to the formation and replenishment of its organs and tissues. This is digestion and assimilation—the nutritive process. And the living system acts on drugs, medicines, poisons, impurities, effete matters, miasms, contagions, infections —on everything not useful or usable in the organic domain—to resist them; to expel them; to get rid of them; purify itself pf their presence through the channel or outlet best adapted to the purpose under the circumstances."

Law of Power: "The power employed, and consequently expended, in any vital or medicinal action is vital power, that is, power from within and not from without."

It is the living thing that acts, it is vital power that produces the action. A dose of salts or calomel will produce no movement in the bowels of a dead man. The body of a man who is nearly dead will not respond to medicines. Why? Because the power of response is absent. It is living power, not drug power that is back of the action. Vital force is the cause of the action, the threatened danger to the organism, due to the presence of the drug, is but the occasion for the action.

Dr. Trall well illustrated this law as follows: "It is urged that, as escharotics or caustics applied to the skin occasion rapid decomposition of the structures, the drugs must, in these cases, act on the system; for, it is asked, would the living system destroy itself? Is that remedial action which results in death? I answer: Remedial action is not necessarily successful in always accomplishing its purposes. It is defensive action. It aims to rid itself of the enemy; to remove the abnormal and offending material. It may wear itself out in the struggle. It may die in the attempt. It must oppose and war upon whatever is injurious, whatever is incompatible with its functions, so long as they are present, otherwise it could not be vital. And this is precisely the distinction between living and dead matter; the dead is passive and quiescent everywhere; the living will not tolerate the presence of the dead.

"That caustic does not act on the skin more than ipecac acts on the stomach, or castor oil on the bowels, is demonstrated in this way. Apply a blistering plaster to the skin of a healthy, vigorous young person. It "draws" readily and the skin is soon vesicated. Apply it then to a feeble, pale, anemic, or dropsical invalid. It 'draws' with difficulty or not at all. Before it will vesicate, the skin must be rubbed with some pungent, or irritant, as hot vinegar or red pepper. Then apply the blister to the skin of a dead person. It will produce no effect whatever. What is the explanation of these facts?

"If the blister acted on the skin, the effect would be greater instead of less in the cases of feeble persons, for the reason that there is less vital resistance. But the contrary happens to be the fact. The *effect* of the blister is precisely according to the vigor, integrity, and resisting power of the living and action machinery; and this I regard as proof positive that it is the living system, and not the dead drug, which acts. And the principle herein indicated explains how it is, and why it is that healthy vigorous persons, when equally exposed to the causes of disease, have more acute and violent maladies. Disease being remedial action, and their vital machinery being in vigorous condition, the defensive action, the disturbance, the disease, will manifest proportionally more violent symptoms."(*The Hygienic System.*)

Dr. Walter used Herschel's rules for determining the real cause of an effect, to show that this explanation is correct.

These rules are:

First—Invariable connection between cause and effect.
Second—Invariable absence of effect with absence of cause

Third—Increased or diminished intensity of effect with increased or diminished intensity of cause.

Now let us apply these rules to our law and see how it works. Our law says that vital force is the cause of the action, while the living organism is the actor. Already, we have used a dose of salts to illustrate the *Law of Action*, and we shall use it to illustrate the present. No amount of salts can "move" the bowels of a dead man. The giving of salts to the dead produces no effect. Yet, if salts were the cause of the movement, we should get a movement. Bowels do not move, whatever the occasion or condition, where life is lacking. Dead bowels cannot be made to act. The more vigorous a person is, the more vitality he possesses, the more vigorous will be the response to the salts, on the part of the bowels, while if the person is very low, the response may be hardly perceptible. In the relations between living and lifeless matter, the living matter is active, the dead matter is passive. The action of living matter is in proportion to the need for action and to the amount of *power of action* that is present.

If salts act on the bowels, to move them, they should always do so regardless of the condition of the bowels. But if the bowels act on the salts, to expel them, it is obvious that there will be no bowel action following the ingestion of a dose, if the power of movement is lacking. Where the power of movement is present, the movement must be in proportion to the power possessed and to the need for action. The salts cannot give power to the bowels for they possess no power to give. But they do occasion the expenditure of the power already possessed by the bowels. The same thing is true of other substances and agencies which apparently strengthen us. They occasion the expenditure of the power already possessed but do not add power.

Power is felt only in its expenditure, never when it is passive. One therefore, feels stronger while he is growing weaker, and feels weaker when he is actually growing stronger, through recuperation of power. The man who has had a drink of alcohol is led to believe that he is strengthened by it, while, in reality, the alcohol has only occasioned the expenditure of the power he possesses. In this way strychnine may "strengthen" the heart until it exhausts this wonderful organ. A cold plunge or a short hot bath produces a general feeling of strength and well-being by occasioning the expenditure of power which they do not and cannot give.

The thing which seems to give strength is the thing which is taking it away, the thing which appears to be curing the patient is the thing that is hastening his death, the very agents which seem to be "supporting" and "sustaining" life are the very things that are undermining the foundations of life.

Following the period of apparent increase in vigor (stimulation) there comes a period during which there is a feeling of lessened vigor (depression). There are two effects following the use of every force or agent.

The Law of Selective Elimination: "All injurious substances which, by any means, gain admittance within the domain of vitality, are counteracted, neutralized and eliminated in such a manner and through such channels as will produce the least amount of wear and tear to the organism."

This law accounts for the fact that some drugs apparently "act" on the bowels, some on the liver, some on the kidneys, etc. These are the organs which are "selected" to act on the drug. Discussing this very principle, Dr. Trall says, *True Healing Art*:

"And herein is the explanation of the classes of medicine, the rationale of the action of medicines, which has so puzzled the brains of medical philosophers of all ages.

"Emetics do not act on the stomach, but are ejected by the stomach. Purgatives do not act on the bowels, but are expelled through the bowels. Diaphoretics, instead of acting on the skin, are sent off in that direction. Diuretics do not act on the kidneys, but the poisonous drugs are got rid of through that emunctory, etc."

The Law of Dual Effect: "the secondary effect upon the living organism of any act, habit, indulgence, or agent is the exact opposite and equal of the primary effect."

This law admits of no exceptions, but applies to all departments and actions of life. Work or exercise arouses vital activity, thus giving an appearance of increased vigor as the first effect. The secondary effect is tiredness, decreased vigor, fatigue, and exhaustion. Rest and sleep on the contrary, produce as their first effect, weakness and languor, but no one doubts their recuperative value. Rest and sleep are the only means whereby recuperation and reinvigoration may be secured. But these are their secondary and lasting effects.

Invalids are frequently advised to keep up; because, if they go to bed they will lose strength. The apparent loss of strength is the first and temporary effect. The second and lasting result is a gain in vigor. Travel and excitement make the invalid feel stronger and better as a primary effect; but their secondary effect is languor, weakness, exhaustion. The invalid must be weak that he may grow strong.

Sexual excitement and sexual indulgence arouse vital activity and increase strength. There is increased blood pressure, rapid heart action, accelerated breathing, greater nervous activity, a general increase in muscular activity and a great increase in the feeling of well-being. But as a secondary effect, languor, sleepiness, and weakness follow.

A cold plunge or a short hot bath act as stimulants. There is an increased feeling of well-being, an increase of physiological function. It is always and necessarily followed by an equal amount of mental and physiological depression. Prolonged cold baths act much the same as chloroform or ether. The temporary exhilaration of function is soon followed by a decrease in function. Heart action is reduced, circulation and respiration slowed down and nervous activity decreased. Muscular activity is decreased even to the point of stopping such activity. Prolonged application of cold to the chief trunk of a nerve will greatly diminish or entirely abolish its activity. The feeling of warmth that comes with the reaction from the first shock of the cold gives way to a feeling of chilliness and cold. The apparent increase of strength gives way to a feeling of weakness and lassitude, and if the cold is continued, numbness and abolition of function follow. Anesthesia may be produced by prolonged cold. It is a vital depressant and the feeling of increased strength with the increase of activity which comes primarily upon its application is one of vital resistance. The organism resists the cold as truly as it does alcohol or ether. Cold does not supply functional power but it does occasion its expenditure.

The Law of Special Economy: "The vital organism under favorable conditions, stores up all excess of vital funds, above the current expenditure, as a reserve fund to be employed in a time of special need."

Power in reserve is the surest guarantee against "disease." The body seeks always to maintain a certain reserve of power and we can get this power out only by supplying emergencies such as this reserve is stored up to meet. Thus irritants, miscalled stimulants, produce an emergency that call out the body's reserve power in an effort to overcome these. If no stimulants are employed, the body will always have on hand a reserve of power to meet other emergencies of life.

Life is rhythmic in its varied operations. Rhythm, or periodicity, is regularity or differentiation in time and regularity of structure or segmentation. Alternate activity and repose is the most obvious example of this nature. All motion, all action, is intermittent. All movements in nature are intermittent and not continuous. All advance is an advance and a recession and another advance and another recession, the advances preponderating over the recessions.

During rest and sleep, the body stores up power. During favorable weather, it stores up power. During unfavorable weather, power is expended in defending the body against the excessive cold or heat, etc. During activity, power is expended in doing work; during repose, power is recuperated for future use.

The rising of the tide is an intermittent series of rises and falls, the rises preponderating over the falls. Similarly there is an ebb and flow, an alternate rise and fall, in the ebbing of the tide, but with more fall than rise. Just so, growth is not continuous, but intermittent. Indeed, there is also recession in growth. The child actually loses a little weight after gaining it.

The growth and development of the body takes place by "spurts." Periods of rapid growth alternate with periods of slow growth. The body seems to take a rest and accumulate power for the period of rapid growth. In periods of rapid growth there are new developments to be made, or incomplete ones to be finished and these things cannot be accomplished without an outlay of energy above the ordinary expenditure. In preparation for such work there always precedes a period of comparative rest, as just prior to the onset of and in preparation for puberty at which time the forces of development go forward with a rush.

Some who have been ailing through more or less of the period of childhood are "carried by the force of development, which in a cyclonic fashion sweeps everything before it into health—and that, too, often in spite of wrong life, and a medical treatment that might prove fatal if administered at any other time in life.

We may make use of this same principle when the actions of the body falter due to lack of power. If the action of a mill falters from a decrease of water power, the gates are closed for the purpose of accumulating power. Activities are ceased and no power is expended. In cases of impaired health, the closing of all the waste gates, through which vital power is needlessly expended, permits the accumulation of power.

The Law of Vital Distribution: In proportion to the importance and need of the various organs and tissues of the body is the power of the body, whether much or little, apportioned out among them."

The laws of life are as fixed and uniform as the law of gravitation, or any other uniformity of nature. They are immutable, always tending toward perfection, in every particular of the organism, whether the power which they sway is sufficient for the accomplishment of this end, or is greatly inadequate therefor. The distribution of this power is under control of immutable law which wisely and minutely appropriates it where most needed and supplies organs with as much as it can use so long as there is sufficient power to distribute.

The aggregate power of the organism may be regarded as a reservoir of force, capable of being called in any direction or to any point. So, also, the aggregate nutritive resources (tissues and fluids) of the body may be regarded as a reservoir of food capable of being called in any direction or to any point as need arises. In the distribution of power and nutriment no part is permitted to suffer want so long as they are adequate; but where there is scarcity of either power or nutriment, these are distributed in a manner to assure the preservation of the more vital structures first, and then, the remaining supplies are distributed among the less vital structures.

In emergencies, as in so-called disease, the withdrawal of power from some organs or groups of organs and its concentration in other organs or groups of organs is carried out with strict regard for the highest welfare of the organism.

Art cannot, by any possibility, expedite the recuperation or generation of power or increase its quantity at any given time in good health or impaired health. Art can by no possibility secure a more efficient and advantageous distribution and use of the vital powers than would be made by the vital laws if these are left to the undisturbed administration of organic affairs.

Every organ of the body has its particular and specific functions to perform, and with an adequate supply of power, will do its work promptly and well. But with an inadequate supply of power, it falters in its functions and fails to accomplish its work in a thorough, workmanlike manner, yet it always does the best it can and in proportion to its needs. The *Law of Vital Distribution* will be as vigilant and discriminating in its appropriation of power when all or a number of organs are calling loudly for it, as when all parts are adequately supplied.

The Law of Limitation: "Whenever and wherever the expenditure of vital power has advanced so far that a fatal exhaustion is eminent, a check is put upon the unnecessary expenditure of power and the organism rebels against the further use of even an accustomed 'stimulant'."

This is a very poor formulation of this law which I have made. However, it will serve, together with the following explanation to convey the meaning to you.

It often happens that a physician employs a certain "stimulant" in the treatment of a very depleted patient. This seems to "work like a charm." The patient responds readily. But it becomes necessary to give the "stimulant" in increasingly larger doses, and, finally, the body ceases to respond to it and rebels against its use. In the days when brandy was the medical man's standby, after this had been given for some time in low states of "disease," it would pall upon the senses and be loathed by the patient.

If the patient is not too low after one drug has ceased to produce the "desired" effects, it is usually possible to produce these by changing drugs. But when the patient is very low, near death, no drug will produce such effects. When overstimulation has wasted the energies of life almost to the fatal point, the Law of Limitation interposes a hand and prevents their further use. The desire for tobacco, alcohol, opium, or other irritant ceases. There is a loathing for the accustomed drug. It is this law also that withdraws power from the voluntary muscles and from the digestive organs in acute and frequently in chronic disease.

So long as the power is present to respond to the lash of stimulation, drugs are delighted in by the impaired nerves. But when necessary force is no longer present and none is available to be dragooned to the relief of the unfortunate victim of his habits, until the nerves have had an opportunity of replenishing their storehouses, then the true character of the act of stimulation is revealed in all its naked deformity and is abominated by the thoroughly depressed sensibilities.

Inveterate tobacco users sometimes get so low that the tobacco is rejected until the flagging energies are partially recuperated. Inordinate users of alcohol or tea or coffee are liable to the same changes. People whose very lives seem to be bound up in coffee, and who think they cannot live without it, will sometimes have periods during which they loathe it. At such times they are regarded as "very sick" and they are, but they are sick because of the great depletion of their energies.

The Law of Vital Accommodation: "Nature's Balance Wheel—The response of the vital organism to external stimuli is an instinctive one, based upon a self-preservative instinct which adapts itself to whatever influence it cannot destroy or control."

The living organism is capable of ordering and arranging its structures, functions, and processes in such a manner as to withstand the action of pathoferic agents and influences with the least amount of wear and tear to itself and to stay its inevitable dissolution for the longest possible time, if these agents and influences are too powerful, too prolonged, or too frequently repeated for it to overcome.

When the French revolutionists destroyed the Bastille, they found a man who had been confined for eighteen years in one of the cells, his only bed a hatchel, a plank pierced with nails, the points of which protruded on the side on which he was forced to lie without protection from the points. The man's sufferings had been almost beyond endurance for the first two weeks of his incarceration, yet when he was removed by his friends and supplied with a soft bed, he begged to be restored to his bed of nails for he could rest nowhere else. But the same kind of *Law of Vital Accommodation*, which had made his hatchel endurable would soon have accommodated him to a soft bed. This law cushions the bottoms of the feet of barefoot people, and guards the hands of the manual laborer by a similar cushion.

In the same way there is a hardening and thickening of the delicate membranes lining the mouth, throat, stomach, and intestine of those who habitually employ tobacco, condiments, spices, antiseptic dentrifices, mouth washes and gargles, alcohol, tea, coffee, cathartics, mineral waters, etc., and of the delicate lining of the vagina of those who habitually douche themselves. But this is an expensive business; the business of keeping the system accustomed to the action of irritants so that the sensibilities shall not be kept under torture by these. Such protection does not render them harmless.

The man who habitually indulges in "stimulation" would exhaust and destroy himself with but few indulgences if the organism had no means of curbing its reactions against the "stimulant" and thereby lessening the expenditure of vital power. The first effect of "stimulation" is exaltation of function; if it is long continued, or often repeated, exhaustion with an almost total abolition of function, results. The repeated use of "stimulant" would soon result in death. But its use soon brings a condition in which the organism ceases to respond so readily and violently to the "stimulant." If the former amount of "Stimulation" is to be received from the "stimulant," a larger amount of the "stimulant" must be used.

The first smoke or the first chew of tobacco usually occasions a very powerful reaction against it on the part of the organism. The person is made very sick; there is headache, nausea, vomiting, loss of appetite, weakness, etc. So long as the physiological powers and instincts are undepraved and unimpaired, they instantly perceive the poisonous character of the tobacco and give the alarm to the whole system. A vigorous effort is made to destroy and eliminate it and the user is forced to throw away his tobacco. But if he continues to repeat the performance, the reaction against it grows less and less with each repetition, until, finally, he is able to use many times the original amount without producing such results. His system learns to tolerate it and adapts itself to its use as far as possible. The system soon becomes depraved and its powers impaired by the use of tobacco, its poisonous character is no longer detected and no alarm is given, rather a craving for the substance is developed. However, the habitual use of any substance that is injurious in itself cannot in any way render it harmless or beneficial and the habitual presence of any such substance is injurious to life, even though no energetic effort is made to resist its action.

Habits, gradually built and long established, cannot usually be suddenly broken. There is no immediate danger to life as a result of sudden breaking off a habit long practiced, but it is often followed by one or more crises more or less severe as the organism seeks to accommodate itself to the changed condition. Because a habit does not seem to be immediately destructive is no evidence that it is not destructive or that it is beneficial. Its secondary effects alone can furnish us with the clue to its influence. A cup of coffee produces an immediate feeling of well-being while no such feeling accompanies the taking of a glass of orange juice. But when the secondary effects of these two substances are viewed, no room for doubt is left as to which of these is really beneficial and which is injurious.

Men live in almost every conceivable climate and under almost every conceivable condition, are subject to all kinds of influences and indulge in many and often very opposite habits. If given time, the body is able to adapt itself to these varying conditions. Only sudden and violent changes become immediately destructive to life. We cannot quickly transfer the Esquimaux to the tropics nor the Hottentot to

Greenland. We can suddenly force upon the nonuser the amount of alcohol, arsenic, or opium used by the habitue, only at the expense of life itself.

With a knowledge of the above laws no one need be misled by the claims for the therapeutic virtues contained in some drug, serum, or apparatus. These laws form reliable rules by which to order our life. "The wise will understand."

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1. Introduction

1.1 Defining the Family

For purposes of defining the limits of this lesson, we should perhaps explain what we include in the term "family."

In biological classification, FAMILY refers to a group of genera with related characteristics. In human terms, however, we refer to a closer unit, one that generally includes parents and their children. Sometimes, we also acknowledge the close relationships of grandparents, aunts, uncles and cousins. In the context of this discussion, however, we will refer basically to the more limited family group which includes only parents and their offspring. In the articles of this lesson we have included the true experience of two grandparents in order to briefly illustrate how even occasional contacts between generations can serve to promote Hygienic living.

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2. Influencing Factors

The kind of lifestyle pursued by a family living within a 'particular society depends largely on customary societal practices—the cultural mores of the society itself. They seem to be absorbed, transmitted, rubbed-off from individual to individual living within the larger grouping. Few persons resist aping the herd influence, most follow willingly the traditions and customs of the people with whom they live.

Probably the most important influencing factors within the social grouping are the existing ratio between males and females, with the perfect ratio being largely undetermined; the economic realities of earning a living and maintaining the family; providing food, shelter, education, spiritual training and clothing; and, finally, the customs that prevail; that is, that are accepted without reproach and/or condemnation. These last, of course, largely determine the dating, courtship, marriage, frequency of child-bearing, and relationships among and between sexes outside of the marital context and between different generations.

2.1 Within the Family

Within the family there is generally adherence to a common mold, the mold itself having been established by the training and backgrounds of the husband and wife. When the backgrounds of the mating partners are fairly similar, the family meld is usually more successful than when parties of two widely diverse backgrounds are joined to form a family unit; but not always.

Sometimes one partner or the other extends himself beyond the youth horizons and enlarges in a new direction or in several directions and enters a new dimension of living, leaving the sexual partner behind. A schism is thus created.

The schism can be either intellectual, emotional (spiritual) or physical; and perhaps even in all dimensions at one and the same time. The schism can develop suddenly, as when the full realization of the correctness of Hygienic living dawns on a single member of the family; or it can be an emerging consciousness which takes years to consolidate.

Regardless of the nature of the new thrust, it can become an important factor in continuing family unity. It is a reality which must be intelligently addressed so that some acceptable solution can be found.

Differences in the levels of intelligence between parents frequently prevents family progress in knowledge of Hygienic principles by all members of the family. Differences in backgrounds can have profound effects on acceptance of new ideas, those that are different from those generally practiced within the community at large. A successful melding of concepts and beliefs will produce a happy family, an unsuccessful acceptance and follow-through will lead to family conflict and failures.

To illustrate how relationships within family units of different cultural backgrounds may differ, we can briefly examine two families related by marriage between the oldest son of one and the daughter of another; and the children of this union.

2.1.1 Elizabeth's Family

The father was born in Wales. He was the grandson of a minister, one high up in the hierarchy of British religious circles. His family reflected the closeness, the joy, the love of art and music so characteristic of the Welsh people.

The mother in this new family was the daughter of an English merchant. Her brothers returned to England to public school (the equivalent of our private "prep" schools). She was brought up at home to be a "proper British gentlewoman." She was reserved in manner, precise in dress and always the curious intellectual.

The children of this union were thus exposed to two cultures: one extremely closely knit and fun-loving; the other more formal and stylized, geared to the "correct" societal behavior common earlier in this century in the country of birth.

It is interesting to note that every Sunday was the time set aside for all the siblings of the father's generation (and there were twelve), their wives and/or husbands, and their children (of which there were many) to gather at the Welsh grandparents' home together with most of the expatriated Welsh community. Fun, food, and frolic were the order of the day. Music and singing filled the air. Love end caring togetherness were visibly demonstrated.

The very formal English mother was a wise woman. While this type of "goings-on" was entirely foreign to her, she recognized it for what it was: wholesome. She therefore not only permitted her own family to become a part of this new way of life but she herself participated as a member of the family. Therefore, she was accepted and loved by the family.

The various members of the English family were separated by land and sea. However, they all kept in communication regularly with one another via the mails. Once a year aunts, uncles and cousins gathered at grandma's home. There were excursions into the countryside to pick berries, there was swimming in the river, there were family dinners and Sunday afternoon meetings. However, most of the time was spent in listening to music as the old gramophone played and in reading books chosen by the elders; books by Dickens, Thackeray, and poems by the great English poets: the traditional British "quiet time."

Meetings between aunts, uncles and children were formal for the most part. There were polite inquiries as to the health of each, as to plans for the children's future, and so on. The togetherness of the Welsh family was highly visible while, in the English family, at least on the surface, it was nonexistent. In reality, it was extremely close as subsequent events, which we will not go into here, revealed.

It would be interesting, would it not, to speculate on how this marriage and the children turned out? Well, we can because Dr. Elizabeth was one of those children.

Three children of this union lived to adulthood. All were scientifically inclined. All received scholarships to various universities. Two were musically talented and were provided with excellent teachers so long as they manifested a desire to learn. One became an electrical engineer, another a chemical engineer with the latter child receiving international recognition in his particular Field of expertise after a lifetime of service in the field of education; and then there was Elizabeth.

The marriage remained intact even though the backgrounds were so dissimilar. In other words, the common pattern did not hold with this couple. In fact, all the marriages within both families, Welsh and English, remained intact and all generations remained in contact with older generations influencing the younger, passing on the security of family togetherness, traditional values and a wide diversity of experiences.

Elizabeth says that the reason was obvious and especially so in her immediate family: one member of the family was the motivating head, the recognized guide of the future welfare of the family, that person being the very strict, very proper, British gentlewoman. It was she who set the goals and laid out the rules. She had the vision, a vision of accomplishment and service and so it was she who, with firmness and discipline tempered with love, saw to it that the family went forward. While this was not a Hygienic family, nevertheless it can provide us with a role model to follow.

2.1.2 Jane and Bill's Family

Jane and Bill, on the other hand, provide us with an entirely different situation. They began their family some twenty years ago. Their backgrounds were quite similar. Their parents were both hard-working, relatively uneducated and very religious people. Neither Jane nor Bill ever completed high school. In fact, Jane did not finish elementary school. Bill worked regularly on the railroad, brought home his paycheck every week and went fishing and drinking on weekends. He was a rough-and-tumble kind of fellow, very physical and crude in many ways.

Jane was to be pitied. Her family background was rather sad: a mother who proclaimed her deep religious convictions but neglected her children; a father who abused the children and drank himself to death. Her marriage was unhappy, too, but nevertheless Jane remained with Bill and gave birth to two children. Perhaps because of her background, she wanted so much for her children that she became a "nagger."

After some 18 years of marriage, she found her children grown, almost ready to leave the nest, so Jane began to reach out. She began taking classes here and there, classes on many subjects. One evening she attended a lecture on Natural Hygiene. What she heard made sense to her and, knowing that she was very sick, she sought professional counseling from us.

Jane had been on drugs throughout her entire married life. She had spent some time every winter in the hospital. Natural Hygiene offered her hope. She fasted at a Hygienic retreat on three occasions and it was not long before she began to experience the rewards of correct living and eating.

Her physical condition improved but, something else happened also: her life, her interests, her standards began to change, leading her into foreign territory, to new knowledge and experiences. At Hygienic parties and meetings, she met people who lived in a world very different from her own. This new world intrigued her. She desired to become a part of this new world and, what is more, she wanted her family to know it, too.

However, Jane lacked tact. She was too abrupt. She wanted all members of her family to cross all the bridges together and at one and the same time—in a single leap, as it were. She was demanding and impatient. As a consequence, both children left the family nest to seek their own ways. Her husband became not only physically abusive but mentally as well, threatening divorce or separation as arguments became more and more frequent. What had once been a passable home became a house in which two people lived in loneliness without their children, a house filled with misery and despair.

Was the husband correct in his assessment that his wife's new interest, Natural Hygiene, was the work of the devil? Or was Jane, in her enthusiasm, at fault? Do we, who embrace the principles of Natural Hygiene, have to become more aware of our proper role as we attempt not only to impart the message of Natural Hygiene to society at large but also as we deal with families newly introduced to its precepts? We think we do, if we are to serve our clients well. We cannot just hit the high spots and become menu programmers. We have to penetrate the hidden corners of doubts and conflicts as they may arise from time to time in the family of which the individual client is a part.

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3. The Modern Family

For the most part, families today do not have the togetherness, the common purpose of families in former years. There are exceptions, to be sure. Certain religious groups encourage not only family togetherness but also communal responsibility for other members of their church society.

Today many, if not most, children are often physically separated from grandparents, from aunts and uncles, from cousins by hundreds arid often thousands of miles. Divorce has cast many children upon the winds of conflict and chance.

Even the immediate unit consisting of two parents and their children has changed. Over fifty percent of the mothers of America have deserted what has long been considered the normal biological role of mothers: nurturing, instructing, disciplining, feeding, loving of the children they give birth to, in favor of personal enlargement, economic security, and the tangible assets which give pleasure and comfort; they have exchanged the more traditional role for a nicer house in which to live, a better neighborhood, a more elite school for their children, more expensive clothing, amusements of choice. The considered welfare of their children's physical, mental and moral growth is exchanged, more often than not, for things. Of course, this is not true of all working mothers—many of them are forced into the work force because one income in the family no longer covers the family's basic needs.

One of the major changes we have observed is in the care and concern for the well-being of the children within the family unit. While emotional concern, affection and a certain amount of support are more usual than the lack of such, this being, of course, a variable from family to family, the actual caretaking of the physical bodies of children and their education in all areas of possible development has largely been relegated to outside agencies: the nursery and preschool, the public school, or the church and other specialized schools wherein the child is more or less compelled to fit into the mold of a prescribed educational, moral and physical pattern for development which is geared to an accepted "norm." They become robots within a stylized society.

To a great extent, also, the transmission of traditional values, cultures and customs, the knowledge and experience of the elder members of the family and of society at large has been viewed of lesser importance as children have been turned over to public agencies of one kind or another: Boy Scouts, Little Leagues, the Y.M. and Y.W.C.A.s, to various therapists of one kind or another, to youth camps, to leaders of summer programs, etc. As a result, a rather peripatetic social and educational environment has become an accepted pattern for living.

Children are rarely permitted to be simply children—they must always be *doing*. Shelton points out that this is highly stressful to young bodies in the process of maturing. The traditional or physical value of what they do is not deeply considered. It is the doing of some THING that is of immediate concern. What the final outcome of this stress exposure upon future generations will be will remain for time to reveal.

3.1 Other Influences

Additionally, from the time they can toddle, children are greatly influenced by their peers because they are in such constant contact with them. This was not so in the past when children lived close to the family's private home. They are also greatly impacted by the visible mass media: by television especially.

Children today are constantly pursued by billions of dollars of demographically formulated visual messages and spoken words. For purposes of profit they are literally placed under *planned mind control*.

Early in life they are hampered by food to which their bodies are not adapted, their nervous systems become titillated and stressed by sugar and devastated by an avalanche of chemical additives.

Teenagers are notoriously influenced by their peers and, in the majority of cases, more so than by family attitudes and customs. However, peer pressure is exerted not only upon them but also upon all other members of the family including the parents. Young parents especially tend to behave just as their friends behave. They tend to want the same comforts their friends have, they want to socialize in all particulars much as their friends do. This includes serving broadly the same kinds of foods their neighbors and friends serve. In other words, they opt for the peer pattern because they do not want to seem "weird" to their peers. Like children, the majority of adults also crave peer acceptance and find comfort and a sense of social acceptance in it which is important to them.

Young children learn in nursery and preschool that certain things taste "good." Therefore, these are the foods they expect and want to eat, taste being a learned thing. They also learn how to interact with their peers and to mimic their behavior because they, too, like their elders, want to be a part of the whole. Some 17 million children under the age of six years are now in these facilities.

From the very young, up to and including the younger college crowd, most children are exposed more or less constantly to a wide variety of unHygienic foods and practices as, for example, being kept indoors for many hours, their little bodies bent over desks encapsulating the lungs, heart and other abdominal organs and causing spines to curve and twist. They are compelled to drink contaminated tap water instead of having access to pure distilled water. They have little exercise and learn nothing about their bodies and its needs or of how best to meet those needs. School lunches are in most cases a health hazard.

Most children today, with or without the knowledge and consent of their parents, have free access to drugs and alcohol both in and out of the home. Parents have been known to feed even infants on beer and wine, so lacking are they in intelligent awareness of life's realities.

Almost all children today are required by law to be "immunized" against one or more diseases and by this false practice and by the continued pushing of drugs by "authorities," they become preprogrammed for future disease and premature death. Children revelling in luxuriant metabolism are given medically-prescribed pacifiers by nurses in public schools and even in preschool. Outside of the school drugs are more or less freely disseminated to children of all ages by their peers (even below the junior high grade) or by outside pushers of death who are themselves addicts.

Children of today are not taught that the only possible result of error is pain and suffering, both of the physical body and also of all perceptual faculties.

Because of the frenzied lifestyle of working parents, the fact that mothers and fathers alike subject themselves to the stress of competing in a highly-competitive, self-oriented and confused society for the sole purpose of fulfilling falsely established values of comfort and physical excellence, the relaxed environment established by the gathering of the family around the dinner table at the end of the day is rarely experienced by today's children. Instead, the members of the family eat "on the run," either from the refrigerator or alone at one of the popular fast-food franchise restaurants following which they often wend their separate ways to a diversity of activities. They have relatively few opportunities to meet as a family on common ground for quiet discussion, training, passing on of either values or experiences or for addressing either the individual concerns or matters of common import.

We think our teenagers are in danger. They are impacted on all sides by unHygienic customs and practices. The family is of lesser concern to them than their peer buddies. We will address these areas of interest more in depth in Lesson 82. But, younger children in these days are also threatened. All Hygienists must be keenly aware of the fact that Hygienic parents living in a modern setting must cope with current value systems as to accepted training and behavior. This is no mean task. All Hygienists must be acutely conscious of the fact that changes in the training and care of young children are mandatory if the teenagers of tomorrow are to have any chance of resisting the temptations to error always present in any society.

How to effect the early education which will provide the foundation of knowledge and training in correct Hygienic principles and practices is, we believe, a proper subject to be addressed. Practitioners are often called upon to work with an entire family because they have worked with one member of the family. We will frequently be called upon to guide and direct parents who are striving desperately to provide for their children the best of life and to nurture them well. We will be called upon to influence the young as well as the elderly, to guide young adults striving for a better life for themselves, for their children and for their mates. The family unit can be a vehicle to influence mankind for generations to come. The words of life spoken by one Hygienic practitioner can ring the message of health for centuries to come. When we are many, we can influence the world.

3.1 Maladaptive Behavior Responses

There is one aspect of family togetherness which has not, to our knowledge, received much attention in Hygienic literature but one which, unfortunately, has become a matter of grave concern in today's society. We are talking about maladaptive responses to the multiple stress which bombard people on all sides and in all socioeconomic strata.

Maladaptive responses to stress can be of many kinds but generally involve some form of dangerous behaviors. We have previously said in this lesson that most children, for example, are emotionally well nourished but there is another side of the picture because, in reality, over one-half of America's families are exposed to some abnormal behavior responses which can adversely affect the progress of individual members of a family and of the family as a unit. Many of these harmful behaviors occur repeatedly within the family unit itself and unless the practitioner becomes alert to the possibility that such does exist and that it can and will affect his effectiveness in working with a particular family, he may flounder and become uncertain about his own expertise.

We refer to such matters as abuse of children within the home by one or both parents, to sexual abuse of the wife by the husband and, less frequently, of, the husband by the wife; alcoholism, drug abuse, incest, emotional abuse, verbal abuse, and a wide variety of abuses which we can classify under the term "neglect."

There can be emotional neglect, as in the ignoring of a child who would like to discuss something with his father but the father is "too busy" and concerned about the economic welfare of his family to take time out to listen to the "chatter" of a child who may be greatly distressed by a situation or problem of major concern to him.

There can be physical neglect in that the parents do not provide for comfort or for such necessities of organic existence as the obtaining of sufficient exercise by the child but permit him to watch television for hours on end.

There can be permissive neglect, with the parents failing to oversee the behavior and other habits of the child as, for example, letting the child have access to junk food because he "wants" it; or not knowing what the child does with his free time because the parents are too involved in their own social and business activities.

Obviously the range of problem behavioral responses can be extensive. If s/he is to be effective in working with family situations, the practitioner must be ever alert to the possibility that some such assaults may be present and that if they exist, they can have a profound effect on future progress of the client.

One such assault will be present in just about every case that comes to the attention of a practicing Hygienist. We refer, of course, to the fact that previous treatment can be a major part of the existing problem. Drugs may have and most certainly will have affected the physical wellness of the client. Of that, we are certain. But, we must become more aware of the fact that all drugs (and we are including such drugging treatment as the use of sugar, condiments, supplements, social drugs, etc.) will also influence adversely and to a greater or lesser extent, the nervous system.

Individual members of the family may be so neurotic from and dependent upon drugs that there is a "run-off" which affects the entire family. When this kind of abnormal behavior continues, other members of the family often respond in some form of emotional immaturity and lose self-control. This is often when some form of abuse rears its ugly head.

As practitioners we must learn to get along well with people, to be sure, but we must also learn to face the realities of life. Our effectiveness, our true worth as counselors, will be shown not only in how well we analyze the immediate problems of an individual client and strive to find an appropriate solution, but also in how experienced we become in searching out and definitizing those extraneous causes, happenings and experiences, that may directly or indirectly determine his progress in a negative way. Maladaptive behavioral responses by any other member of the immediate family may be such a hidden cause that must first be uncovered before any meaningful progress can take place.

In dealing with children, especially younger children, the practitioner should be on the alert for physical evidence of abuse, such signs as wounds, unusual skin discolorations, teariness, neurotic or hyper kinetic behavior, and so on. One must be tactful and diplomatic when one suspects child abuse, not hesitating to probe it, but doing so quietly arid in subtle ways. Remember that much can be learned by, listening, listening not only to a parent but also to children either by words or by body movements in response to questions. Darting of the eyes toward or away from a parent may often provide a clue under a given set of circumstances. As the practitioner works at his practice, he will become more in tune with the possible hidden areas of family life.

We suggest that the practitioner begin a study, if he has not already done so, of abnormal psychology. Your local librarian will be happy to recommend some suitable books for you to study. The time you spend in this regard will be of immense value to you in your practice. It will certainly make you increasingly more aware of human frailties, possible perversions as they may be practiced, and also of certain characteristic but abnormal stress responses.

All such observations must, of course, initially be kept private. If the behavior pattern of concern involves the child, it may correctly be brought to the attention of the parent. Children may be reluctant to reveal, for one reason or another, abuse by parents and when you do become aware of such, your knowledge should not necessarily be imparted immediately to the parent; i.e., he should not necessarily be confronted with it. Children often have vivid imaginations. Some merely wish to attract attention or to "get even" with a parent for some imagined hurt. Once the abusive behavior has been determined without any possible doubt still existing, then it should be addressed and, if possible, resolved in a way conducive to the best interests of all members of the family. In other words, be sure of the evidence before you act.

To illustrate just how far hidden family abuse may go, we cite a true story of sexual abuse of children. A number of years ago we served as counselors at a reformatory for young girls. One very pretty young girl, aged about 14, came to us voluntarily, in search of "someone to talk to." She told us of how when she was twelve years of age, her mother compelled her to have sex with her father because "mom was too tired all the time." Within a year, the mother was inviting men into the house, for a fee, for sex parties with this young girl as the victim. She was warned not to tell anyone for fear of actual physical punishment.

On the surface, this family appeared to be just like every other family in the neighborhood. The false facade of respectability was carefully maintained. It was not penetrated until the girl, at the age of fourteen, ran away from home and was picked up by the civil authorities as a "prostitute." Then the whole sordid story came out.

As practitioners, we must, of course, be aware of the surface causes, but let us be equally aware of the fact that there can also be hidden causes of any diseased state. More often than not, it is comparatively easy to determine the more obvious causes, whether they be emotional in kind, poison habits of one kind or another, deficiencies or excesses in lifestyle or diet; but don't forget the very real possibility that there may also be undercurrents such as we have described, and many more, which can hamper future progress.

A final point in our immediate discussion, but one which will arise from time to time, is that of "negativity." Beginning practitioners are often astounded at how many of their clients will be without hope, of how many parents will have negative thoughts about their children, and, even more tragic, how many children think ill of themselves.

We think this negative attitude toward life in general, to problems of immediate concern and to their prospects for recovery, often dates back to childhood. Parents should be schooled in relating positively to their children and to encourage what we like to call the "Positivities" in one's life. As practitioners, we must always be imbued with the magic of what is possible through the application of Natural Hygiene /both in our own lives and in the lives of those who consult with us. When we are able to get across to the troubled ones this sense of the "Possible—Probables Magic," we can often just relax and watch it unfold!

3.2 A Clarification

For purposes of clarification we have decided to divide our discussion into segments, to address problems as they may arise for the practitioner from time to time among certain age groups as the individual members may interact with one another as members of a family. We do so fully realizing that similar problems and concerns can and do arise in all groupings and that the specific examples and solutions put forth can have a far broader implication and application than the immediate ones addressed in this limited discussion.

4. The Newly Married

4.1 Younger Adults

Fewer problems having to do with Natural Hygiene usually arise among the members of this group, probably due to the fact that rarely are health concerns major—as yet. In other words, the abundant supply of vital force possessed, on the average, by younger members of society, as contrasted with a considerably diminished amount customarily present in the more elderly, produces more acute symptoms which are then commonly treated with drugs which suppress them, whereupon the symptoms are forgotten and young married couples who have thus been temporarily troubled continue their customary lifestyle and eating habits without further thought about the matter.

However, sometimes major crises do arise and then the maintenance of a correct attitude on the part of both partners toward the marriage can become an issue. To illustrate what can happen to a young married couple and cause them to seek the counsel of a Hygienic practitioner, let us consider the plight of Ruth Y. Ruth and Jack were married in August. In October of that same year she "came down" with a severe case of bronchitis which just would not go away. As a result, of course, she became listless and anxious about many things but particularly about keeping her marriage intact. Sexual intercourse had become a trying event instead of a joyful union. Jack had become impatient.

Before Christmas, Ruth was admitted to the hospital. Numerous drugs were given and tests performed. X rays apparently showed some kind of lesion or tumor on her right lung so surgery became the treatment of choice. A small tumor was excised. In due course, Ruth recovered and went home armed with an array of drugs which she dutifully swallowed.

Within six months Ruth was back in the hospital with similar symptoms but this time they seemed more severe. By this time, too, the marriage had become somewhat shaky. Ruth was only 24, Jack aged 28. Again her chest was invaded, examined and nothing of major import was found except, of course, a considerable area of scar tissue, the aftermath of the first surgery. However, after a stay of several weeks, she left the hospital with a confirmed diagnosis of systemic lupus erythematosus (an inflammatory connective tissue disease with variable features, frequently including fever, weakness and fatigability, joint pains or arthritis resembling rheumatoid arthritis, erythematous skin lesions on the face, neck, or upper extremities, lymphadenopathy, pleurisy or pericarditis, glomerular lesions, etc.—from *Stedman's Medical Dictionary*). The diagnosis was confirmed by specific blood tests.

This young man certainly suffered from the weakness, the fatigability, the joint pains and, additionally, rather severe muscular pains, but had none of the lesions commonly associated with this condition.

A friend suggested that she consult us. On her first visit to our office, Ruth came with her husband.

That was the last time. On subsequent visits she came accompanied by either her parents or her elder sister. Since she had to travel a considerable distance to get to our office, she always came with another member of the family, all of whom gave her encouragement and support.

Due to lack of support from her husband, however, she felt she could not consider going on a prolonged fast. Therefore, all of us agreed that she should do the next best thing and that was to embark on an extended program designed to cleanse her body fluids of toxic debris but to do it more slowly. We made it perfectly clear to Ruth that this approach would require considerable willpower and conviction on her part because changes would be slow in forthcoming, but we emphasized also the "positivities" with Ruth as we should do with every person who seeks our counsel. She affirmed at this time that she was willing to follow our recommendations.

We wanted Ruth to see Natural Hygiene's many fine points; visual word reinforcement like 'lessons' or articles supply this need. This eager young woman began a planned program which introduced her to a new concept of the nature of disease, one that taught her simple facts about the different kinds of foodstuffs, about nutrients and why they are important, about organ functions, about metabolism. She learned why a restrained protein intake was vital to her condition, also how to select foods at the market and then how to combine foods properly at home for maximum acceptance. As she progressed in her knowledge, she developed a deep sense of personal conviction. She knew, without a doubt, that at long last she was on the right path, that she was doing what had to be done if she were again to know the joys of superior health. She also found that she was enjoying this new way of eating and living.

We instructed Ruth that she might build up some resentment on Jack's part if she tried immediately to change his habits of eating and living; that it would be far better to instruct by example, then by nagging insistence.

Ruth's progress was encouraging; so much so, as a matter of fact, that her parents decided to come to us for private counseling, also. A definite spin-off began to evolve: first Ruth's parents, then the sister and her husband, then the asthmatic child of the sister, then a friend who lived in a far northern city and also had systemic lupus. However, Jack still remained on the sidelines.

Within three months, Ruth was fasting one day every week. Her energy flow had soared to a level she said she hadn't experienced since her teen years. She purchased a log to take along with her on her solitary morning hikes. Amazingly perhaps she has not had a single adverse symptom of any major consequence during this whole time, not even a drippy nose! The old symptoms, the aches and the pains, are slowly lessening.

A year has passed. The marriage is still intact. Her newly-found vitality permits a normal sexual experience with her husband. Jack is happy and Ruth is ecstatic, filled with the "positivities" we talked about earlier. Jack doesn't know it as yet, but he, too, is slowly becoming a Hygienist. How? Because Ruth has made some, important changes without, as a common phrase has it, spelling them out "in spades." For example, all the meals she serves now are combined properly. She has eliminated most of the health destroyers and all of the canned juices, canned fruits, canned vegetables. Instead, she now purchases only the finest kinds of food as each variety comes into its own season.

Instead of going to bed in the wee hours of the morning, after hours of staring at phantom figures flitting by on the television screen, she and Jack now have developed the habit of retiring to their rest at ten P.M. When they entertain, as they both enjoy doing, Ruth caters to the customs of her friends but sees to it that some fresh fruits, vegetables and nuts are available also. She tells us that Jack now looks for these, too. On weekends Jack, Ruth and the little dog make a trio and go hiking. Jack enjoys the mountains so off they go in their car to a favorite spot and hike up and down the trails. Of course, Ruth always packs a Hygienic lunch.

Obviously Jack is not fully "into" Natural Hygiene but he is at least more into it than he is now aware of, all because Ruth approached her immediate problem with intelligence and grace. She avoided making "points," she neither preached nor pushed. She sensibly opted instead to take "baby steps," and she is being rewarded for her patience.

Furthermore, she is now certain of her own progress toward a much higher plateau of health, she is more confident of the stability of her marriage and she is certain that, at some future time, Jack will come to realize the benefits accruing to them through application of sound Hygienic principles both now and in the future when it comes time for them to consider having children.

4.2 Older Newly-Married Adults

As the number of people as a whole increases, in the normal course of events, we see also an increase in the number of elderly adults. Unfortunately, in many cases, the marriages consummated in youth are often severed by the untimely death of one of the partners causing the survivor to go through a period of considerable adjustment: emotionally, socially and often also financially. We shall consider this matter in greater depth in Lesson 83, which is entitled "Senior Citizens Living Hygienically."

The intensity of this period of traumatic readjustment can, and does, of course, vary from individual to individual. It can last for a shorter or longer period of time. A few of the bereaved partners insist on returning over and over, again and again, to the grave of their deceased mate. However, the average period of acute mourning is from two to three years, at which time many begin to search around for a new mate.

In many parts of the country bereavement clubs have been established to counsel individuals and to help them better to cope with their immediate concerns, all within a social home setting and with other similarly bereaved persons of both sexes, many of whom, of course, are faced with very similar problems. In Tucson, we are happy to say that two of our long-time students each sponsors such a bereavement group.

Marry widows and widowers retire to mobile home parks, to retirement centers, or to other communities for the elderly where a wide diversity of programs, clubs, hobby groups and other activities are usually offered. Most communities now offer a varied assortment of activities geared specifically for the elderly. Through these social encounters, marriages between the elderly frequently ensue.

Initially, in most cases, these unions are happy events but we often find that the happiness is short-lived as multiple problems arise, some of which are no doubt triggered by the recently experienced trauma. However, many prove to be no more than conflicts between diverse patterns of living, these having been long established in both partners. Some become especially frustrating when the backgrounds of the partners have been quite different.

For the most part these conflicts do not come to the attention of the practitioner until a problem of another kind arises. We refer, of course, to the illness of one or both of the partners, this illness generally being of a vertical (degenerative) nature, the most common disorders among the elderly proving to be arthritis of one kind or another, an assortment of kidney disorders such as nighttime incontinence, lung and heart diseases, sclerosis of the circulatory channels leading to forgetfulness and early senility; and so on, including cancer.

As practitioners, we must accept the reality that, for the most part, the principles of Natural Hygiene will be entirely foreign to most of the elderly who may come to us and that most will not come to our attention until they have previously explored every other possible avenue. Eventually, after a prolonged period of failures, a few will reluctantly be persuaded to "try" a Hygienist. The prognosis for a successful resolution of whatever condition troubles the elderly can be problematical unless the practitioner is fully cognizant of the mental barricades that must first be overcome.

In most instances, when working with newly-married elderly adults, we recommend a very conservative approach. These individuals are still feeling their way within the new marriage relationship. Many retain some measure of guilt, a sense of having abandoned their lifetime mate.

Sometimes this last complex is not perceptually accepted but it is there, nevertheless, and must be dealt with. Some become very emotionally torn and especially so when the illness makes itself manifest shortly after the wedding ceremony. Also, the elderly often have preconceived and set ideas about what constitutes "proper" therapy and become greatly concerned when exposed to this "strange" new way of approaching health.

For all these reasons and there are undoubtedly others, we require a rather complete bionutritional evaluation and profile. Then there is a gradually-progressive introduction to the principles of Natural Hygiene. In some instances we introduce the possibility of a prolonged fast.

We find an analysis and profile useful, not because it defines symptoms, but rather as a motivational tool. It gives many of these people their first real understanding of their condition. Also, for the first time, they come face to face with a verbal and pictorial reason for taking a new course and entering into a new dimension of living. Sometimes with the elderly we need a powerful motivating force.

May N. and Harry S. provide us with a superb example of how this kind of approach can be highly successful. It also shows us an example of how family interference can be highly traumatic, both for the practitioner and for the patient.

May had been a widow for more than five years. Because of years of exposure at high altitudes to severe extremes of freezing weather when she and her husband were missionaries, often enduring extreme hardships, working long hours, and lacking suitable food, May developed Charcot's Syndrome (intermittent claudication), a condition that is caused by ischemia—a local anemia due to a mechanical obstruction to the blood supply caused mainly by a narrowing of the arteries—of the leg muscles due to sclerosis. It is characterized by attacks of lameness and pain (according to *Stedman's Medical Dictionary*). At this time she was widowed, lonely and suffering severe depression although she tried to smile through her tears. She was able to walk using two canes but only with considerable difficulty. She was living alone among strangers in a rather isolated community of elderly people.

We first met May at a social gathering. We mentioned that we were Hygienic practitioners and urged her to read one of Dr. Shelton's books, *Health for the Millions*.

Some later time we received a call from May and an appointment was made whereupon a new experience began for her. May was an intelligent woman. The usual tests were arranged for and then a program of learning about Natural Hygiene/Life Science, was set forth. May proved to be a wonderful student and made rather rapid progress. We will probably never forget the afternoon when we asked her to stand up on her feet, then took away her canes and removed the chair. Then we re-paired across the room. We held out our arms and, looking May directly in the eyes, we commanded her to "Walk!" And perhaps what followed was a revelation even to us for, indeed, May *did* walk! She fell into Dr. Elizabeth's arms emotionally exhausted. We probably all cried a little that day but we were all very, very happy.

We felt that May's future progress might be more difficult and even slower because of her age and also because of the seriousness of her ailment. We encouraged her to go to a fasting retreat and eventually she did fast at Dr. Shelton's School at San Antonio, Texas.

However, then she made a grievous error. She went to visit a son and daughter-in-law who lived in another state. They were horrified at her appearance. She had not waited a sufficient length of time to recover from the fast. She felt so marvelously well she wanted her loved ones to rejoice with her but, instead, they re-acted.

Unfortunately for May, she had given her son power of attorney not only over her financial affairs but also of her person, prior to going to Shelton's. The children immediately took the necessary steps to place to her in a hospital where she was forcibly fed and drugged. After two weeks of this kind of "treatment," May "escaped" from the hospital and fled to another fasting retreat for a period of five days to recover both her sanity and some measure of the health she had lost by the abuse inflicted upon her.

However, the damage had been done and very effectively, too. Furthermore, the children had not finished their meddling. Within a matter of weeks, she was to be physically transported to a retirement center miles removed from us. We well remember how May cried over the telephone. We did our very best to calm her and to reassure her that all was not lost. We told her she knew what she should do to care for herself and how to do it. We encouraged her to care for herself as best she could under the existing circumstances. She was, of course, restricted in her food intake to the meals prepared and served for the guests at the center. Fortunately, however, May learned that the meals were served buffet-style and that fresh fruits were often available to her. She took heart and gradually adjusted to her new environment.

In due course, May improved, her emotional equilibrium was reestablished and she began to enter into some of the social activities offered at the center. She met a man there of about her own age, a widower, and the two began to visit back and forth. A marriage was finally arranged. May successfully removed herself from the domination and legal control of her children and acquired a husband for her to care for and to be cared by, should the need arise.

The two newly-weds flew off to Hawaii and there took a cruise around the islands. Harry, you see, willingly became May's legs while she became his joy and the center of his life.

After the excitement was over, May again renewed her Hygienic lifestyle. Her new husband willingly entrusted his life to her and the two of them settled down into a happy relationship, not at the center, but in a brand new home. We recently visited these two lovely people. They have successfully made an important transition. May's handling of this delicate situation reminds us of the fact that so often a woman (or man) must necessarily become the guiding force within the family structure and, as always, the guiding must be firm, but also intelligently loving.

Natural Hygiene, by its acceptance and application, gave May hope for the future but, when not understood by interfering members of the family, the possibility always exists that unexpected problems can arise. The successful practitioner knows when he can step in but he also must know when he must back away, let go. May's story provides us with a perfect example of such a situation and how the Hygienic practitioner can often lead the elderly distressed patients to a happier and more meaningful life.

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5. The Infant And The Family

Students taking this course in Life Science are already quite knowledgeable about the necessity for proper prenatal care and well-versed in how to care properly for many of the dietary and other needs of young infants. It is, therefore, the purpose of this lesson to address some other areas of concern that may arise from time to time as the practicing Hygienist serves the needs of his clients who have the care and nurture of infants as their responsibility.

There are endless problems that can arise from time to time and, obviously, it would be impossible to provide counsel in each and all of these. At times we are called upon to advise parents with children suffering from either physical or mental impairment. Family conflicts can arise upon occasion, often provoked by illness of the infant. Sometimes conflicts can also arise when one parent becomes interested in Natural Hygiene while the other parent believes in the more orthodox approach to the care and feeding of infants.

In any event we will present in this lesson a few actual case studies and hopefully, from these we can derive some benefit ourselves which can later be applied in actual practice or in our own home with our own infants.

5.1 Emergency Service Calls

Practitioners are often called upon for emergency service. Several years ago we recall receiving a telephone call from a highly-distraught mother in Texas. Her young son, just three weeks old, had been crying and colicky ever since being released from the hospital where the birthing had taken place. The advice of her pediatrician had proved useless and both she and her husband had been taking turns walking the floor every night. Both, needless to say, were exhausted and ready to panic.

We inquired of the young mother as to the child's feeding program and were told that the child was being fed a formula prescribed by the doctor every two hours and that one feeding consisted of a rice gruel! Since the mother was unable to nurse the child, we advised her to purchase raw goat's milk, this being available were she lived, and to dilute it half and half with distilled water. We suggested she obtain some lactose at a pharmacy or health food store and to add a suitable amount of the sugar to the water-milk mixture. Three feedings of the new formula were to be spaced at six-hour intervals. No rice gruel was to be given the child. We pointed out to the mother that the infant at this age is not physiologically equipped to cope well with starch and that there was little doubt in our minds that part of the child's uneasiness was due to gas arising from the action of ferments on the starch.

There were also to be feedings of four ounces of freshly squeezed fruit juice spaced between the morning and noon feeding and again between the noon and evening feedings. The last feeding was to be at six p.m. whereupon the child was to be put down to sleep for the night.

In three days, the mother called advising us that the child was now sleeping peacefully and so were she and her husband! Hygienists are fully cognizant of the fact that the best food for an infant is mother's own milk but, lacking a goodly supply, the Hygienist should be prepared to counsel parents as to alternative methods of feeding and caring for infants. In this case, both parents were very supportive and no further problems arose.

Another time, a mother telephoned us at two o'clock in the morning, hysterical with fear. It seemed that her baby had swallowed a penny! At least the mother was unable to find the coin and was certain that the baby had picked it up. We advised this new mother that in due course, by the nature of things, the penny would wind its way harmlessly through the gastrointestinal tract and she would find it soon in the fecal discharge. Late the next day we received the report: the penny had been found.

There was a sequel to this report. Later the father confided to us that both he and his wife had been so terrified that they had bundled up the child and driven pell mell to the hospital emergency clinic where they received the same advice. Whereupon they had returned home to settle down for what remained of the night!

Hygienists must rely often on their knowledge of nature's method of isolating or eliminating foreign objects that enter the intestinal canal by accident, and sometimes refrain from taking any action until the evidence overwhelmingly supports intervention of another and more drastic nature.

5.2 Serious Long-Term Problems

Hygienists are sometimes also called upon to advise parents facing much more serious problems than a swallowed penny; such problems as deafness, blindness, deformities of one kind or another. It is well, therefore, for the Hygienic practitioner to familiarize himself with the resources available which are specifically geared to serve these children and their parents and we strongly suggest that highly-skilled personnel work with both parents and children. Generally such personnel are available either in the immediate community of residence or in the closest town of any size.

We refer, of course, to such specialists as speech and language pathologists, one of whom has been a student of ours here in Tucson for some time: to physical therapists who can often do wonders in developing better coordination in one or several limbs where little or none has existed prior to their working with the child. There are schools for the blind and deaf, and even for braindamaged children. Such facilities should be sought out so that the practitioner can become knowledgeable about what is being offered and those in charge should be advised of the services offered by the Hygienist. They should be assured of full cooperation on the part of the Hygienist.

Many of these services for handicapped or disabled children are subsidized either by private grants or by the government, either state or federal or both. The subsidization of services can sometimes prove a minor obstacle in that Hygienic methods may run contrary to that generally approved by orthodoxy. This is especially the case in methods of feeding. However, sometimes, in desperation, parents will turn to a Hygienist because other methods have failed. Hopefully, with care and encouragement, we can perhaps play a constructive role if we actively cooperate.

5.3 Case Study — Jana

One such case comes to mind in which we were unsuccessful. However, we cite it here to make a point, as we shall see.

The case of which we speak involved a 2 1/2-year-old girl referred to us by a child service agency. The mother of this child, which was still considered a "borderline" infant, operated a nursery school.

Actually, the baby had been brought up within the confines of the nursery where she received much the same care and consideration accorded the paying guests; and little more.

Little Jana, as she was called, was given the bottle and fed a formula from birth. Now, her food intake resembled what so many little children, today, are unfortunately fed and, we might say, with similar results. For breakfast, the youngster was given either a single fried egg with toast and jelly or, occasionally, some canned orange juice with a boxed cereal and milk.

At 10 a.m. all the children at the nursery, including Jana, were given a popular chemicalized drink plus a cookie or two, after which they all stretched out on the floor and had a nap. At noon, they gathered together for a lunch which, more often then not, consisted of peanut butter and jelly sandwiches on white bread and a glass of milk. They frequently had "Twinkies" for dessert; occasionally, an apple, but since the children in the nursery preferred the sweets, they usually received them.

At mid-afternoon, the children again received either the drink of the morning, a glass of canned fruit juice of some kind, or milk sparked with a teaspoon or so of a popular prepared chocolate mix. After this, the inevitable sweet cookies were passed.

At dinner time, the father and mother sat down with their little one to the family dinner. Little Jana ate whatever was put on the table. The meal followed the familiar pattern of most American families who eat at home: some kind of meat served with either a packaged rice mix or whipped potatoes made from a packaged mix. Sometimes there were vegetables, usually canned. There was plenty of white bread and margarine available plus jellies or jams. Pepper, salt, mustard and the usual condiments were common. Of course, ice cream was the family's favorite dessert, always served with cookies.

When mother was too tired after her day at the nursery, the family usually went out to McDonald's for a hamburger, french fries and cokes. The mother told us that Jana really liked to go to McDonald's.

This child was brought to us because she was hyper-kinetic, and also because she had behavior problems. She was unable to adjust to children of like age, biting and scratching them. When frustrated, she screamed and had temper tantrums. In fact, she became almost uncontrolable, not stopping her physical and emotional activity until she would fall down in exhaustion.

The mother was at least fifty pounds overweight and the father had been diagnosed as having diabetic tendencies. Both were using prescription drugs.

Jana was definitely a victim of child abuse. In the first place, the responsibility of bringing a child into the world had never become a conscious image in the parents' minds before she was conceived. Both the parents had severe physical disabilities. Next, following birth, the child was not nursed because the mother thought she had other more important responsibilities, namely her work at the nursery.

Obviously the child received another kind of abuse because she remained indoors except for very brief periods when the children all went out-of-doors to play. But, since Jana could not get along with the other children, she frequently remained indoors on these occasions as well. Therefore, she lacked sufficient sunshine and/or exercise. Obviously, too, she was being poorly fed. It was little wonder that she had been brought to the attention of the child care agency by the mother who felt she could no longer put up with her child's behavioral problems.

We suggested to the case worker and to the mother that radical changes both in food intake and lifestyle were of immediate concern. Both agreed to follow our recommendations, whereupon we worked out a suitable feeding schedule with precise instructions as to preparation and types of foods to be served. We also worked up a program for recreation and exercise, for getting out-of-doors at suitable intervals. We set forth a list of "No-No's," and off the little child and adults went with instructions to return in four weeks.

The appointment was never kept. The case worker advised us that the child's mother had said the regiment was too strict and that, busy as she was, she couldn't possibly follow it. So, you see, in this case, to our regret, we were unable to witness a successful conclusion.

But, did we fail? No, to the contrary, the failure here belongs to Jana's family. It is a failure of neglect, one that will determine a future of failures for little Jana. However, we can learn from this case. Perhaps we failed to probe deeply enough on the first encounter, greatly concerned as we were about the child's immediate welfare. Perhaps we went too far and too fast. There is a lesson to be learned here. After the fact, that is, after a case has been resolved, either successfully or unsuccessfully, it is always well to review the suggestions we have made, to see where we may have erred and what we might have done differently which could have brought about a more salubrious conclusion, if such were indeed possible. The point we make, of course, is that all Hygienic practitioners must learn from their failures as well as from their successes. Generally, the successes will occur far more frequently than the failures!

In Jana's case, the child received no support from her family, but in the story of the Albert family we begin to see just how important the cooperation of the family is to the successful application of Hygienic principles when working with any member of the family, but especially when we work with very little children who are completely dependent upon the good works of their parents. This case study is especially interesting because, as the student will see, it should have failed, but it didn't.

5.4 Case Study — Maura and Jerry

At age 18 Maura married Jerry, age 51. Practically no one thought this union would work, but they were all wrong, for it turned out to be a perfect match.

Jerry was a loner of many years standing. He had been married previously, had fathered several children, and had then been divorced. A highly-intellectual man, a holder of advanced degrees in engineering, Jerry had deserted the more traditional ways of living in favor of a "back-to-earth" lifestyle.

Maura could best be described as a "sweet young thing," totally without worldliness. Her education had apparently ended when she finished high school. She was looking for a "father image," and found it in her much older husband.

Jerry did not choose to enter the marketplace to support his wife, who had no special skills of her own. He chose, instead, to do odd jobs for ranchers, to build greenhouses and work in gardens.

When this newly-married couple found that Maura was to give birth to a child, they sought around for a suitable health advisor. Since Jerry was a "naturalist," in the sense that he raised the family's food and avoided processed food of any kind, he was determined to have nothing to do with medical tinkerers. He was referred to us and Maura dutifully came along.

We learned their home was a cabin in the country where they lived and worked as much as possible out-of-doors. They both wanted sound prenatal care for their child. As a consequence, we placed Maura on a well-constructed Hygienic pregnancy diet such as has been outlined in previous lessons and, in due course, she gave birth to a fine son whom she nursed until about the fourteenth month when he was weaned.

After our initial contact with Maura and Jerry we did not hear from them again although we did have a casual meeting one day in a supermarket at which time they happily displayed the baby. They told us the birthing had been uneventful, had taken place at home, and that subsequently there had been few problems with the infant. The young couple looked obviously happy and well. The baby? He was fantastic!

After more than two years had passed, Maura called to make an appointment. She had just given birth to another son whom she was also nursing but she was having some problems which she wished to discuss with us.

Both Jerry and Maura came but how different this occasion was from the first! The marriage had been a remarkable success. Maura had been good for Jerry, not the other way around! Instead of his former unconventional and often wrinkled attire, Jerry appeared at the consultation dressed in a business suit.

We learned that he was now employed as an engineer in an executive capacity. He and Maura had purchased a lovely home on the outskirts of the community where they lived and both appeared to be very happy in their relationship.

Their one concern was their children. The new baby was colicky most of the time, often refusing the nipple and was fretful at night. While the first son had developed well, having a fine bony structure, clear blue eyes, finely-grained complexion, the second child was decidedly overweight, almost chubby; also, he was sometimes cranky which, according to his father, was not his customary behavior.

Upon questioning, we learned that it was the same story which Hygienists hear so often in dealing with infants and young children. Parents become overly solicitous. They listen to their neighbors and begin to believe that perhaps "they" do know best. This is what happened to this couple. They had overfed, over fondled and were guilty of constantly exciting the nervous structures of their children. Someone had told Maura, for example, that her new baby MUST have some cereal and she had succumbed to the friendly urging. Neighboring mothers met for coffee and doughnuts and fed the little ones "Kool-Aid" or some similar drink. She listened to the "Go on, Maura, it's good or him!" So, little Jerry, or "J-J" for short, frequently lad this sugared drink. He also ate bread, whole wheat, of course; with butter, pure and raw, of course; and other nonfoods. Jerry, Maura and especially the little ones were beginning to reap the rewards of their foolishness.

Then began a return to basics, as the saying goes. We reminded the parents once again of the fact that young children cannot process starch and that, if they wanted two healthy children, they would have to supply their biological needs in a manner more appropriate to the digestive equipment of their immature bodies. We set up feeding programs for both children and decided to supply one for he parents, too!

In this case we had full cooperation from two very intelligent and caring parents. The follow-through has been magnificent thus far and we can foresee no future problems under normal circumstances. This should be a successful family. The children, through careful nurturing and all other things being precisely equal, will have a proper foundation laid for a lifetime of happy, joyful and relatively disease-free living.

5.5 Case Study — Ann Marie

We were only observers in this next case study. We were present on occasion from before the baby was born, but we will not be present at the conclusion of the story although we can predict with some degree of certainty what is likely to happen.

Parents can often unknowingly abuse their children. A prime example of this kind of innocent but extremely harmful child abuse is the topic of this part of our discussion. The wife of the owner of a print shop became pregnant and all through the pregnancy, up to a week before the birthing was to take place, Ann Marie—the mother-to-be, worked eight or more hours in the plant. Here she was subjected to the impact of multiple stressors such as keeping of the books, directing a considerable work force; walking, walking, walking, all the time in an atmosphere polluted with many and varied chemicals; she had the responsibility of ordering supplies and keeping an inventory as well as innumerable other duties associated with operating a business of this kind and magnitude. Additionally, she did her best to maintain a functioning household. She told Dr. Elizabeth that she just fell into bed every night with exhaustion.

Two weeks after the birth of her son, Ann returned to work. She brought her new baby along! The infant was fed by formula, either carried around the premises draped over the shoulder of one or the other of his parents or was placed first in an infant carriage and, later, in a playpen set right in the middle of the shop. We rarely saw this infant without either a bottle or a pacifier in his tiny mouth. You see, when he was not so pacified, he cried—and loudly. This disturbed both the help and the customers.

For eight hours a day and six days a week, this child was and still is subjected to the nerve destroying assaults of multiple strong incandescent lights, of radiation emanating from all kinds of quick print machines, the constant whirring of the printing presses, the chatter of the work-force and of the customers, of irregular and incorrect feedings, and the constant picking up and putting down every time a cry is heard, this being frequently.

We have watched this child become a fat butterball with puffy, constantly red and teary eyes and overly-flushed complexion. What the future course and health of this child will be, we can, of course, only conjecture but we do know, beyond a shadow of a doubt, that intense damage is being perpetrated upon this child which will hamper all his future life. The parents in this case are exchanging the future welfare of their only child for economic security and comfort, a poor exchange, indeed.

As Hygienists we must be ever alert to the possibility of past as well as present abuses when we are asked to advise on infant care, in this last case, our advice has not been sought but, as Hygienists, we can learn much by observation.

When infants and young children were brought to us with problems, we must search for the hidden causes, we must ask questions of both parents, if at all possible, not just of the mother. We should delve into past history to the extent possible in order to proffer advice intelligently. Should the infant in this last case become visibly ill, we can readily see that much more could be involved than just the feeding of the child. When changes in the diet do not solve the immediate problem, then perhaps it is time to delve a little deeper for the real cause or multiple causes of the child's discomfort.

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6. Adults Within The Family

6.1 Case Study — Mark, Alice and Their Three Children

Sometimes one or both parents have problems which affect the entire family. Mark and Alice and their children, two girls and a boy, were faced with a problem which involved not only this family unit but Mark's parents, his two brothers, their wives and children. It is interesting to observe to what extent the illness of a single member of a family can affect the members of the immediate family and even the other members of the related extended family.

Mark worked with his father and two brothers in a family-owned business. The business was fairly successful but not brilliantly so. Father and the boys worked long hours and had done so, under considerable pressure, especially Mark, who had the responsibility of providing for his wife and three children.

It was only when Mark developed a duodenal ulcer that we entered the picture. It seemed that Mark had apparently had this ulcer for some time and had been under a physician's care. He had dutifully followed the physician's instructions and swallowed his pills but he had not been "cured." At the time they were referred to us, Mark was in so much pain that he often lay on the floor and writhed with pain. The doctor had suggested surgery but neither Mark nor Alice wanted that.

We suggested a ten-day fast which was faithfully carried out over the screaming protestations of the extended family members. The shouting of the protesting relatives became so belligerent and even threatening that Mark resigned his position in the family business. The fast had worked, Mark's pain had left, he was feeling great. Even though he had lost considerable weight, Mark was "sold" on Natural Hygiene.

The family decided to have a garden. Mark, in his newly-found leisure time and with his feeling of euphoria, brought the whole family into the act. Alice gave full cooperation and so did the children. They planted fruit trees and all kinds of produce. Mark began to put on weight, while Alice lost a few pounds The children bloomed. The last report we had was that they had adopted another child and that the whole family was doing well. Mark had rejoined the family business. The extended family forgave his former strange ways and welcomed him back. They even get together now for family parties but everyone present understands now that his family, the one of which Mark is the head, is a Hygienic family, one that is doing quite well, thank you! Indeed, they are all closer together now than they had ever been. Mark tells me that he thinks his brothers are beginning to understand a little now what Natural Hygiene is all about.

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Article #1: Feeding Diapers by Dr. Herbert M. Shelton

When I was a lad growing up, it was the general custom for mothers to breastfeed their babies, the two-year nursing period being quite common. Babies were fed every two hours during the day, and every time they awoke and cried at night. Mother's breast was used as a pacifier, just as the rubber nipple is so used today. As no infant ever secured, even by the most vigorous sucking motion, any nourishment from a rubber nipple, it may be justly assumed from the baby's evident satisfaction with the pacifier that the baby was not hungry.

No baby, however vigorous, could possibly digest and assimilate as much milk as the foregoing plan of feeding provided. Not only was the baby provided with an excess of fluid, necessitating frequent urinating (polyuria) to free the body of the excess of water, but it was supplied with a redundancy of nutrient material only part of which could be used as growth material. Much of the surplus food was used in the production of fat, thus creating the "butter-ball" so much admired by doting relatives and friends. Much of the unused milk was passed out through the rectum, thus feeding the diaper.

So great was the frequency of urination and bowel action that the mother or nurse was kept busy hanging diapers and cleaning the baby, while somebody had to wash the diapers. The polyuria and frequent defecation continued on through the night, preventing both the baby and the mother from sleeping. As a direct consequence of the around-the-clock stuffing of the infant there was much gas and colic accompanied by much walking-the-floor at night and much dosing with soothing syrups. Constipation alternated with diarrhea, while summer complaint or *cholera infantum* afflicted great numbers of victims of the butterball brigade. The infant death rate was high and carried over well into the period of childhood.

Teething was a painful ordeal for most babies and was frequently held to be responsible for other diseases. Regurgitation (spitting up) of milk was almost universal, so that the bib was everywhere a part of the baby's habit. It was the almost universal practice to feed suffering infants, so that what started as a simple and milk irritation evolved into a formidable disease.

At my father's diary we fed the calves milk twice a day. At long intervals a calf would escape from the pen and gain access to its mother. Almost invariably it would get an excess of milk and this would produce a diarrhea, or what is known in the cattle industry as *scours*. My father knew the cause of *scours* and took care of it by permitting the calf to go without food for a day or two. He never used the same method of care in dealing with diarrhea in his children, nor did he feed his babies only twice or three times a day. This is a striking example of our practice of using more intelligence in the care of our animals than we use in caring for ourselves or our children. It seemed more "scientific" to dose babies with Syrup of Figs or Fletcher's Castoria or Pregoric, or castor oil or laudanum, than to feed them sanely.

The excessive drain on the mother that resulted from the almost continuous nursing, and the loss of sleep occasioned by the night attention demanded by the overfed infant, caused much unnecessary suffering for mothers. Child-bearing received an unmerited condemnation because of the lack-of understanding of the true cause of maternal illness. What a difference in results from a more Hygienic mode of feeding!

In all nature there is not another example among mammalian species where the female permits her young to feed upon demand. All of them exercise control over the nursing of their offspring, whether they give birth to but one young at a time or to a whole litter. The human infant may be satisfied with but three feedings a day and no feeding at night, or it may be trained to raise a rumpus for food 20 times a day. Not even Pampers can keep such an overfed infant dry and comfortable!

In the May 1978 issue of the *Hygienic Review* we carried an article in which Dr. Charles E. Page briefly recounts his experiences with the three-feedings-a-day plan. Describing the results of this plan of feeding, he says:

"The infant's physical condition has been perfect throughout. She has uttered no cry of pain indicative of stomach or bowel disturbance, and has caused me no moment of anxiety or uneasiness since the hour of her birth. For ease and comfort and muscular strength she has been a marvel to all who have observed her from day to day. There has been a complete escape from the fat disease, with the pasty complexion so common to infants. The body and limbs have lengthened by normal growth, while remaining well covered and rounded with muscle and flesh, and the complexion has been and remains brown and ruddy, like that of any human being, perfectly nourished, who spends much of the time, as she has, in the open air, during the winter as well as since the Spring began. There has been entire exemption from hiccough, throwing up, colic, constipation, diarrhea, and in fact from all the endless variety of disturbances commonly supposed to be the natural and unavoidable experience of a pioneer in this world of sin and disease. Her breakfast at 6, dinner at 12, and supper at 6 are taken with a keen relish, fully satisfying her appetite and keeping her throughout the twenty-four hours without any exhibition of hunger or lack of nourishment. Her sleep has been perfect, sound, and continuous from soon after supper to near breakfast time. From the beginning she has been put down wide awake a few minutes after supper, with no occasion for disturbing her or her attendants until her awakening in the morning. This also implies that she sleeps in garments free and un-confining, and with the same security as to cleanliness, as is the case with healthy adults. In short, she has been a delight to herself and to us, fully meeting my most, sanguine expectations, in a scientific point of view, thus far throughout her young life. While other infants have to be kept in arms much of the time to pacify them, or to be quieted by the breast or bottle every hour or two through the day, our "three-mealer" is a joy unto herself, requiring little more attention, except in the matter of locomotion, than a healthy kitten."

Commenting upon Dr. Page's description of his daughter's life on three-meals-a-day, Dr. Robert Walter, a leading Hygienist of the period, says: "These are substantially the views long held, and the practices advocated by the editor of this journal. Our own experience in the care and training of children proves that twice a day is amply sufficient for children after the second year and three times a day previous to that age. Our children are healthy, lively, active and vigorous, and not one of the three has ever had a serious stomach or bowel difficulty since birth. The bowel diseases which carry off thousands, and which Dr. Page declares result from overfeeding, are entirely unknown in our family. We are confident the Doctor is right, and commend his ideas to all of our readers."

This plan of infant-feeding was widely adopted with the most happy results. Outstanding among those who adopted the plan .were Dr. John H. Tilden, George E. Weger, M.D., George Crandall, D.O., and Louis Crandall, D.O. My own experience with this plan of feeding has fully corroborated Dr. Page' s report.

Reprinted from Dr. Shelton's Hygienic Review— January, 1979

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Article #2: Introducing Grandchildren To Hygienic Living

Part I

Our son's work compelled him to move from place to place. For this reason we never got to know our grandchildren. Our visits were infrequent.

First, there was Steven followed by Suzanne, three years later. Their mother is a registered nurse and well acquainted with more orthodox dietary practices.

Our first close contact with the children came when Steven was seven and Suzanne three. They stayed with us a total of three days and then went to stay with their maternal grandparents. All the time spent with us was one of constant bickering, punching, biting and so on. It was difficult to get the children to sleep. Steven, especially, had to have medication at scheduled intervals for his asthmatic condition.

We were aware of the children's situation on our previous visits with them but, since we were always soon gone and really had no time to acquire any real understanding of there being anything wrong with them, we had not realized their true condition. Now, however, with our newly-acquired knowledge about nutrition, it all became obvious.

To start off with, their usual breakfasts were the same that we, too, had been brought up on, with (I now know) the same reaction: cooked cereal or cornflakes with milk or, as they grew older, eggs, milk, toast, etc. Both children, according to their physician, were "allergic" to cow's milk and so were set to drinking a well-known milk substitute.

A visit to their favorite fast food restaurant for a hamburger and "coke" were routine and often mandatory.

My son's circumstances became such that, on their next visit to their grandparents, they were put into our care for an almost unbroken seven days. It amazed us how quickly the children adapted to our "bionomic" living. First of all, they became a part of the family. We did things together. We discussed matters around the table including sex, mind you, with these two "squirts." We had never realized how anxious, these children were to learn and to experience. The meals, for example, were not put together by my wife, but each one made up his own breakfast, or luncheon salad with whatever fruits and vegetables were available and compatible, with the full knowledge that there was more where that came from. The market was just two blocks away and if one or another decided that we could use more of a certain fruit or vegetable, we could walk over to the store and get whatever we desired.

To summarize our seven-day experience: at the end of that time, the children became calm, there was no kicking, biting or scratching. Steven took no medication. They drank only distilled water and fruit juices, some pasteurized or frozen even though we realized they should have been fresh. They were fed no animal protein, meat, fish or eggs.

On leaving, Steven said what a great cook his Grandma was. He didn't realize that most of the food he ate was raw or that only a small part had been slightly steamed, just enough so that it retained its crispness.

Part II

After completing our course in "bionomics Health" and living it for approximately three years and after many years of neglected and incorrect living habits, I found that John and I had come upon a new "Lifestyle"—good health, happiness and an encouraged outlook for the future.

Then, we also had the opportunity of introducing our grandchildren to this "Wonderful Gift of Life." Steven is ten years of age and Suzanne is just seven.

We were taught that children adapt readily but I was a little apprehensive about our experimenting, but it certainly proved itself in our children.

We all worked together planning and making meals and in this way we developed a close relationship. Conversations became centralized on the workings of the body. The children learned some new and exciting things about themselves and how they function.

The outcome of our applied nutrition resulted in the eradication of the children's hyperkinetic behavior, in their adopting good sleeping habits, in a very enjoyable social behavior and in their recognizing the changes that occur in emotional and physical growth.

Importantly, their stay resulted in the elimination of drugs completely for the whole time they were with us. This was especially significant in Steven's case because he has been diagnosed as having "allergies" and has been on medication since he was six months of age. We now know this could be completely corrected, if he would apply himself to our regimen. However, at least we have the children sold on the fresh fruit and vegetable habit.

Upon leaving us, Steven's last remark was, "Grandma, you're the best cook! I just love the way you made our meals." As a matter of fact, we all made our own meals, using food combining charts furnished by Dr. Elizabeth. Of course, I had to remind Steven that we were really not cooking, but just combining the fruits and vegetables properly and enjoying each and everyone of them. Just before they left, the children wanted to know if they could have their own food combining chart. Of course, they could! We were delighted.

We are now looking forward to another visit shortly, at which time we hope to reinforce their previous learning experience knowing full well that, even though they are very young, little bits of information will be retained and put to good use some time in the future as they think back to these fun times spent with grandma and grandpa.

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Article #3: How We Can Stimulate Our Children's Physical Development by Chuck and Mimi Young

At the tender age of six, Ben has been asked to join a highly-skilled boys U.S.G.F. gymnastics team. His coach, currently sought after by Olympic hopefuls, says Ben is one in several hundred thousand. Strength and awareness of his body give Ben the form and control of 10-12-year-old gymnasts who have competed for several years. Ben had only two months of gymnastics instruction prior to being asked to join the team!

After six weeks of lessons, Ben's older sister Hanna, 8 1/2 years old, was asked to join an "Advanced Training" gymnastics team. Every other girl on the team had two to three years' experience.

It was not Hanna or Ben's gymnastic knowledge alone that landed them a berth on their teams. Hanna's coach put it this way: "If they have strength, agility, balance, awareness and control of their body, I can teach them all the tricks they need."

As Ben's Mom and Dad, we are often asked, "What did you do?" Our philosophy for stimulating physical development lies in three areas:

1. People enjoy doing the things they are good at.
2. People tend to imitate what they see.
3. Development of the basic tools needed for any activity.

Prior experience as a Junior High Girls' Physical Education teacher gave Mimi contact with many girls eleven to fourteen years of age, who "hated" physical education classes. Her observations and experiences in a nutshell are:

1. If you're good at it, you'll enjoy doing it.
2. If you're NOT good at it, you will NOT enjoy doing it.

The converse also appears to be true:

1. If you enjoy it, you'll be good at it.
2. If you DON'T enjoy it, you WON'T be good at it. Regardless of its absolute veracity, this is the core of our philosophy. This is the pivot point we use in creating daily activities for our children. Breaking skills down into small pieces increases the chances for success. Success breeds confidence and fun.

The second concept we capitalize on is a child's natural desire and ability to imitate. Irrespective of skill, our attitude about physical activity is quickly copied. Including some sit-ups in along with a friendly romp on the floor conveys the unspoken message that exercise is fun, too. Our activities issue the silent invitation to "follow me!" They create a productive channel for a child's boundless energy; much more productive than letting the children watch television!

Encouraging the development of the skills basic to most sports is our third area of emphasis. These tools can give confidence and promote success in any activity.

Strength comes to mind first. We encouraged pulling, standing, and crawling in our children's first year of life. We allowed and assisted them to walk as often as possible. That meant NOT carrying them to the bathroom, over to the neighbors, or swinging them into their high chair at dinner time. Allowing our year-old toddler to push the stroller on our daily walk until tired was good practice. Muscle tone, balance and sound sleeping are the early benefits of your patience. Knowing how to run straight and swift is developed by practice, not birthdays.

Hand/eye coordination is another important tool we can develop step by step. Nesting, sorting, building block towers, pouring sand, etc., are good starters. Balls of every size, shape and color were part of the furniture in our house. Simple rolling and catching produce familiarity and confidence with a ball. Slowly we added one skill at a time. By the time Ben could walk, Dad's playful dribbling of the ball had produced a silent challenge for imitation. Assistance promotes success as children climb past the frustration level of each new skill.

Balance and timing are two other tools we highly praise and encourage. The sit-down scooter bikes promote leg strength and timing. This in turn leads to hopping, then skipping, galloping, jumping and twirling. Learning how to pump yourself on the swing was applauded as loudly as becoming potty trained!

Scooters, tricycles, bicycles, and roller skates turn restless energy into positive channels. At age five, Ben and his 7 1/2 year old twin sisters bicycled with Mom and Dad seventeen miles round trip one

Saturday. As we rode into the driveway upon our return, Ben asked if he could "Go ride bikes with my friends." We had just covered eight hilly miles in 45 minutes!

Where does all this physical development lead? We see advantages daily in preparing our children for proper physical living. The following are most apparent:

1. The child is a happier child.
   a. S/he tends to be less bored.
   b. Enjoys goal setting and the subsequent accomplishment.
   c. The child's self image improves dramatically when s/he can actually "DO" something.
   d. There is an easier initial interaction with the child's peers. "The kid who can at least hit the ball is picked for the team at camp."
2. Easier Parenting—if there is such a thing!
   a. There are many more ways for parents to channel energy.
   b. Character development; that is, the child has concrete examples of "trying hard," "doing your best," and "not quitting."
   c. There are more areas where the parents and the child can play together.

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Article #4: Avoiding Compulsory Immunization by Dr. Christopher Kent

Many states have enacted laws which appear to make vaccination mandatory. Virtually all, however, have various types of exemptions. Go to the library and ask the reference desk for a copy of the state statutes. Look up the actual law for yourself. Do not rely on the work of so-called "health officials" who frequently have not read the actual law themselves. Generally, there are three types of exemptions:

1. CONSCIENCE EXEMPTIONS. For persons who have moral, ethical or scientific beliefs that oppose vaccinations. Generally, a notarized statement to that effect is all that is needed in those states having a "conscience clause" in their statutes.
2. RELIGIOUS EXEMPTIONS. Members of "recognized" religions with specific tenets and practices opposing immunization are exempt in many states. Generally, a church must have an IRS Tax ID number and a specific church policy that opposes immunization.
3. MEDICAL EXEMPTIONS. These are designed to exempt children who have allergies or other medical conditions that would "contraindicate" the administration of the vaccine. In some states, only M.D.'s and osteopathic doctors can issue such certificates, while in others, Chiropractic, and Naturopathic doctors can do so as well. If your doctor is sympathetic and respectful of your position, you might be able to get the doctor to issue a certificate of medical exemption. If you feel strongly about not having your child immunized, exercise your right to choose!

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Lesson 81 - Socializing And Natural Hygiene

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1. Introduction

Natural Hygienists, for the most part, are well aware of the truism that the mere fact that they are Hygienists causes them to live in foreign territory, captives within an environment that is polluted and mechanized beyond all rational reasoning, an environment that is an affront to unperverted senses and capable of almost unlimited assault on our physical being; and, most of all, captives of a social, economic and medical hierarchy which is capable of showing little or no mercy to those individuals who do not fully subscribe to its tenets.

We know that we are beset on all sides by a barrage of sights, sounds and messages that are contrary to all organic reality and that we reside in the midst of a people apparently gone mad; people who, almost without exception, overeat on foods biologically and physiologically unfit for humans to eat, foods the virtues of which are extolled by powerful economic forces. There are people who are sexually and morally perverted. Unwillingly we find ourselves non-participants within a society which is mentally, morally and spiritually decadent. We stand on the sidelines, so to speak, yet we are part of social and economic order which is not in the best interest of the people who, willingly or unwillingly, participate in it. People have come to seek after things and not ideals. They seem to know nothing of the values of life and lacking this knowledge, they have become manipulated puppets, apparently with little desire to learn or change.

Consequently, we Hygienists have had to choose. We have made a carefully thought out choice to live as more-or-less isolated individuals living in society but nevertheless determined to survive in the very midst of multitudinous carefully controlled and orchestrated assaults of one kind or another on our mental, moral and physical well-being.

If we are to survive under present conditions and circumstances, it is essential for us to have support from others of like mind, else we are likely to be felled prematurely as we attempt to wend our solitary way through life's maze.

Psychologists call this kind of supporting "stroking." Stroking refers to the giving to another person the assurance that he is loved, that he is important to another person who really cares about him as an individual, this in spite of all possible foolishness and/or weakness on his part. All that the stroked one is called upon to do is to give evidence of a willingness to learn, to grow because, in time, he hopes himself to become capable of stroking others.

Hygienists have varying degrees of expertise in the principles put forth by Life Science, some more, others less, hygienists, for the most part, are thinkers, idealists, often in the upper ten percent of the population intellectually. All seek the higher road through knowledge. However, knowledge alone is rarely sufficient. We need the doing and to help us in this phase of our individual development, we often require the assistance of others; stroking, if you will. Socializing can provide such needed support.

Few among us comprehend the powers of the mind. A positive mind steeped in knowledge and fortified by conviction can often help a sick person to be restored to a far higher plateau of health so quickly as to confound the skeptics.

Let us give an example of what we mean. Jerry has a rare muscular disease. For three years he has been a student of Natural Hygiene. In these three years he has seen many of his former incapacitating symptoms either leave entirely or be remarkably reduced. Recently he had occasion to visit his former medical advisor. He had enthusiastically prepared himself to tell him all about his progress and how he had been able to bring about such remarkable improvement. However, his erstwhile respected advisor exclaimed, "Jerry, you are not 'cured.' You are just in remission. Don't be fooled. Your symptoms will all come back. Just wait. You'll see!"

This is an example of stroking in reverse, negativity. A sick mind, lacking both sufficient knowledge and perhaps conviction through lack of support and even because of negative strokes, can tarry overly long in the wall of depression, so burdened by toxic debris that he will fail to make any meaningful progress.

Socializing has a proper role to play in all healing. The right kind of socializing can help to restore and reinforce important mental values. If we have knowledge, conviction and determination and, in addition, the support of caring from like-minded people, our forward progress cannot help but be accelerated. Socializing with other Hygienists can provide this kind of caring support.

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2. On Being Sociable

Alexander the Great accomplished many things in his lifetime and on many occasions he had cause to celebrate. And so he did! Alexander was a master host.

Following his victory over Darius and his Persian army, Alexander the Great hosted a party to end all parties, a mass wedding feast. On this occasion, hundreds of his warriors took wives, even though most of them already had wives and family at home. Alexander did, too!

At this extravaganza there were thousands of gaudily attired dancers. Musicians strolled about serenading the guests. Flowers were everywhere and scores of servers brought in meats, wines, fruits and an endless array of delectibles to charm and delight the senses and tantalize the palate. Laughter, gaiety, happiness and joy prevailed. The partakers gorged until the morning dawn found all having surcease in deep sleep.

We Hygienists, of course, don't condone such indulgence and gourmandizing but we also have cause to celebrate. We also have occasion for rejoicing even though presently we may not be in the best of health and even though we may be but novitiates and have barely made a beginning on the road to better health. We have cause to rejoice, to celebrate because we have found TRUTH. We know that we, at long last, possess knowledge of the only possible way to regain health if it has been lost, provided of course that sufficient vital force is yet resident within the body not only to instigate the healing process but also to energize it until the desired level of health is finally reached.

We rejoice also in the full realization that once we reach our ultimate goal of complete freedom from pain and full enjoyment of that euphoric state that only full health can bring (and we know that we will), that we now either possess knowledge of how to maintain our existing high level of health or we are aware of the essence of truth and are resolved to expand our knowledge of Hygienic principles so that we can attain our own individual goal(s), whatever they may be. We know that we possess great cause for rejoicing and celebrating because we are few among many. We are the lucky ones. The masses remain needlessly enmeshed in the throes of suffering and disease. Only we have escaped!

We fully realize that there are numerous and deep chasms of the unknown when it comes to full knowledge of the human body but we also are aware that the fundamental truths of life have been established by centuries of correct living on the part of a few and that Hygienists of the past have set these forth for our acceptance and practice in the 19 requisites of organic existence, these having been learned in this course: fresh air, pure water, and all the others so important to our well-being.

Socializing, friendships—these are among the psychological plus factors of life. They are important to health. We have already noted that man is, by nature, a gregarious creature. We need to be part of a group, to be recognized, to be made to feel that we as individuals count, that each one of us is important.

A great healer knows that there are many things the average adult wants and yearns for and leading the list, before money and all the things money will buy, is health and the preservation of life. Socializing with other Natural Hygienists will not only expand our knowledge of Hygienic truths but will also underscore our conviction as to the rightness of our present course; or, if we err, it will serve as a medium to correct us.

2.1 Why This Lesson?

Learning how to contact other Hygienists for the purposes of socializing, having fun, expanding knowledge, underscoring our personal convictions and giving mutual support to one another is, we believe, a legitimate part of this course. We have made it a part of our own practice and policy and have observed socializing in action. The rewards are endless.

The information contained in this lesson should help new Hygienists who may now feel set apart to find their own niche in life. It should show them how they can become a "best friend" to another or to many others.

Beginning practitioners should find in this lesson some ideas to correlate in their practice, ideas which will provide an outlet not only for their individual talents but also a release for their private cares and concerns. Socializing in a meaningful way can help to expand one's practice.

We should all remember that it is not wholesome to stay to one's self. We only reach the height of our own powers when we begin to reach out toward others. We have a real inner need to serve other people, to include them in our activities; and to be included in theirs.

We cannot, of course, cover in this lesson all methods of socializing possible or acceptable to Hygienists but, hopefully, we will offer a sufficient number of suggestions to enable practitioners and individual students alike to expand their contacts for the purposes herein set forth.

2.2 Start Where You Are

Common sense should guide us in our choices of where we shall go, what we shall do and with whom we shall socialize. Early in this discussion we pointed out that Hygienists have, by choice, removed themselves from the masses. However, this does not mean that we cannot make casual entrances into society at large. What it does say is that our strolls therein should be carefully chosen and formulated to fulfill a primary need.

For example, we personally go to church regularly. We attend both teaching classes and regular services. Generally speaking, the people we meet are individuals with whom we feel comfortable and from our contacts there we find a certain number with whom we can exchange thoughts and ideas in a social situation to our mutual benefit without feeling that we are being manipulated or reduced in any way.

One of our students enjoys painting in oils. She is a Hygienist. She could have chosen to paint in her own studio or she might have set her lonely easel out on the floor of the desert and endlessly painted the beautiful mountains that surround the city of Tucson. These mountains always intrigue artists—their colors and configurations change as the sun moves across the sky from east to west.

Instead our student chose otherwise, at least for part of the time. She went to the Chamber of Commerce and learned where painting classes were being held and made her choice among the many beings offered: some by the city Parks and Recreation Department, others by churches; there were classes at local schools and colleges. She found many from which to choose.

Do you have a hobby? Undoubtedly similar classes having to do with your very own special interest can be found where you live or within a reasonable distance. Inquire around and find your niche.

2.3 Our Student Hosts a Party

Some time later, after she had become better acquainted with her classmates, our student invited them all to join her for a fruit breakfast, this to be followed by a painting session in the desert overlooking the celebrated Pusch Ridge.

What did the party cost her? Nothing except the effort of extending the invitation. The whole class eagerly responded (everybody likes a party!) and, since this was to be a potluck occasion, they all brought their own food and their own service. And, what is more, a fruit breakfast was a new experience which every single one found most enjoyable—a delightful change from the usual ham and eggs!

This same idea can be incorporated when one's interests lie in other directions. In every town and city these days there are clubs and group meetings, free lectures and seminars, classes to satisfy a wide range of interests. The Hygienist who feels set apart or lonely must learn to reach out toward that area of society in which s/he can feel comfortable.

Once you have become a part of the group, you must learn to reach out toward others. For some this reaching out to include others may be a new experience but, remember our admonition: it is not wholesome to remain to ourselves too much.

Practice will expand our talents in reaching out. Margery Wilson, the charm lady, said it well, "When the mind dwells too deeply and too long on the self, it shrivels those tendrils of the heart that reach out from the warm and inclusive human being." So strive to keep your own hospitality light bright and shining. Don't forget that you will begin to glow with an inner glow as you improve in health, so much so that your newly-found friends will soon begin to ask you questions. How rewarding that time will be. Then you will be given a golden opportunity to give to another human being the gift of life itself.

2.3.1 Parties Do Not Have to be Large

Two stories will serve to illustrate the point that parties do not have to be large to be happy occasions. They also demonstrate how easy it can be to make new friends when we are willing to make the first friendly gesture. We have told these stories elsewhere in other writings, but they deserve repeating here to emphasize the point that even small gatherings, indeed socializing with a single other person, can be rewarding.

One time we were aimlessly strolling around the streets of Rome in search of one of that city's famous fountains, since our knowledge of Italian is very limited, we had difficulty in communicating our needs to the passerby. So, there we were, lost in a foreign city, strangers among a people with whom we could not speak. What a hopeless feeling that can impart!

Suddenly, Dr. Elizabeth spied a tall, well-dressed gentleman standing on a nearby corner. Never bashful, she went up to him and, in her broken Italian asked for directions. The gentleman doffed his hat, bowed gracefully and replied, "Madam, if you will but speak to me the American, so that I may practice the speaking of it, I will be honored to show you my Roma!"

And so he did. We spent a wonderful afternoon with our host. He showed us his Roma as few tourists have been privileged to see it. And, as the dusk was falling, he invited us to share refreshments with him at a little sidewalk cafe. Finally, to his obvious regret and ours, he bowed and, taking his leave, presented us with his card. To our astonishment, we found that we had spent this wonderful afternoon with a Count, a celebrated member of the Italian government.

On another occasion we were in Maxime's in Paris, that world-famous restaurant. We had been seated at a wall table overlooking the entire main room. Our eyes were wide with wonder as we watched "High Fashion" at lunch. A black gentleman was seated next to us at the adjacent table. Suddenly, he leaned over to Dr. Elizabeth and aid, "I beg Madame's pardon, but are you Americans?" Upon learning that indeed we were, we were asked to be his guests. For well over two hours we received attention galore.

Our host proved to be witty, charming and a delightful conversationalist, a graduate of one of America's most elite universities. We had a wonderful time. Finally, our host said that he had to go to Geneva and, regretfully, must take his leave.

He, too, left behind his personal card. Only then did we learn that our friend was an official representative of an African country to the United Nations. He was a very important gentleman, indeed. And yet, he took time out to be kind to two strangers who, like him, were having luncheon alone in a foreign land. Why? Because Elizabeth had smiled at him as she was being seated!

2.4 How to Have a Hygienic Party

Let us first address the problem of the individual Hygienist, male or female, who knows no other Hygienists in the immediate community where s/he resides. However, he usually does have a circle of acquaintances that he has acquired from time to time during the years he has lived in the community or from among the population who live in the general geographical location.

The same format as detailed above for the painting class party can be used. Host a fruit breakfast, or a "brunch," or have a salad luncheon.

The Hygienist host or hostess may either supply the food and service for his guests or stipulate, "Let's have a pot-luck." You may decide on a salad potluck or a fruit potluck; or even make it a "bring your favorite dish" pot-luck; or just get together for an evening of fun.

If no food is to be served, you will, of course, have to provide a means of entertainment. Games of various kinds may be provided, tapes may be played (there are fun tapes to be had for just such occasions. These are tapes designed to make even the grouchiest listener smile once in awhile.) Invitations may be given orally, by telephone or in person, or they may be mailed on bright party-looking fun cards. They can be formal as for a sit-down luncheon or casual for a buffet-type gathering.

Potlucks are especially interesting and they are easy on the person hosting the party. You need not be an Alexander the Great. We, of course, do not condone the gluttony and indulgence displayed by Alexander and his soldiers, but what we do wish to emphasize by that example and through this lesson is the fact that we all have a need to socialize. His party was a skillful way on his part of rewarding his soldiers for their excellent work. In the same way by having an occasional party we can reward ourselves for our good work and also give to other Hygienists an opportunity to share fun and friendship with others and thus in the doing enlarge our own happiness and our own social awareness and participation.

The "bring your favorite dish" potluck is always fun. Guests enjoy seeing and experimenting with the dishes brought by all the other guests.

2.4.1 Words to Ponder

Parties can be as expensive as your wish, or as inexpensive. The main ingredient of a happy party is hospitality, the offering of a friendly smile and the extending of a friendly hand in greeting. All people have a genuine need to be loved, to feel that they are important to someone.

Remember FDR? Franklin Delano Roosevelt, the thirty-second president of the United States, was a master host even upon small occasions having no particular significance either to him personally or to the country at large. One time a new car was presented to him as a gift by one of the large car makers, the car to be used on state occasions.

A chauffeur drove the car to the front of the White House and FDR with his entourage came down the steps for the formal presentation. There were many invited guests there for the occasion. FDR took it upon himself to learn the name of the man who drove the car to the White House and made it a point to thank the man not only personally but publicly. And, he did even more, for a few days later, the chauffeur, who was obviously politically unimportant to the president, received a surprise in the mail: an autographed picture and a personal note of thanks signed by the president of the United States!

One time we were to act as host and hostess at a party for a well-known soprano. She is internationally famous and has sung before presidents and kings, frequently at our own White House. The party was given by an "important" musical group. Was it a formal black tie affair? No, indeed! Just the opposite, as a matter of fact. So informal was it that no utensils were served and there were no chairs on which to sit. Our famous soprano and we sat on some boxes and delved into meringues and *Hors D'Oeuvres* with our fingers. After the party was over, she remarked that she couldn't recall when she had had such fun! We can learn from these two examples. People are important, not the trappings of the party. Make your guests feel welcome and wanted and your party will be a success.

2.4.2 Some Party Ideas

If you are fortunate enough to have a pool at your home, your party plans are half made. Have a swimming party. If not, why not invite your new friends to meet you at a specified day and hour for a picnic at a public pool? Most communities have one.

On these occasions your guests provide their own food. Or, again, the potluck approach can be used. The main thing you will be required to do will be to arrange with the proper authorities ahead of time so that you and your guests will be expected and a table set aside in an appropriate spot for your exclusive use. You should, of course, know just how many people to expect and have seating for all.

Occasionally, we host a "hiking breakfast." Our students or friends gather here at the ranch at an early hour and off we go on a specified route which covers anywhere from two to six miles, depending, of course, on the age and condition of individual guests. Brandy, our collie, particularly enjoys these parties. He's right up in front, tail wagging, leading the group.

Following our hike, we set out the fruit and usually sit quietly enjoying our fruit while we listen to a tape recording by some well-known Hygienist; or we simply enjoy each other's company discussing areas of mutual concern and interest. On these occasions, we ably support one another and that is our purpose, is it not?

2.4.3 You Need Not Be a Master of Ceremonies

Remember that on these occasions you need not be a master of ceremonies. It is better to be a casual host. Succeed with one guest at a time. Take it easy! All people, no matter how important or influential, like every other person who ever lived, need to be recognized. All people have a deep need to be loved, to feel that they are important to others.

2.4.4 Students in Rural Areas

If you live in a rural area and wish to make contact with other Hygienists for the express purpose of sharing thoughts on Life Science and your experiences with it but there are none within a radius of a few miles, you can still socialize in the manner stated with nonHygienists, non-students of Life Science.

One way to do this is to put an advertisement in the local newspaper and on various bulletin boards that may be available in your area to the effect that you are interested in forming a group or club for the purpose of studying natural methods of keeping fit. Be sure to give your name and telephone number.

You may have many calls and perhaps only a few. The number is not important. The idea is to start a group and build numbers because the group is friendly and the subjects discussed both interesting and informative. As the group becomes better acquainted, the other ideas suggested in this course may be introduced and implemented.

Additionally, each student has received a list of names and addresses of fellow students of Life Science. From this list, select a few names of persons who live in your part of the country or even elsewhere, if you choose. Introduce yourself by letter. Tell other students frankly that you would like to correspond with them so you can possibly support them and that you know they can help you. You may be fortunate and find a real friend, one who is eager to share knowledge, personal experiences and concerns.

After contact by letter has been made and you become better acquainted you may even wish to use the telephone for instant give and take of ideas and counsel.

For your mini-groups you can use the information learned in this course to formulate your own basic course of instruction of Life Science for the benefit of your friends. You can purchase tapes by practitioners on various subjects. Each member of the group can be encouraged to participate by purchasing a tape of their own and sharing with the other members of the group.

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3. Health And Fitness Clubs

Health and fitness clubs have sprung up across the nation like mushrooms after the rain. Many of these are quite expensive but they do provide an opportunity to socialize as you exercise, if you can afford it. Some individuals we know pool resources to purchase such a membership and share the membership card from time to time on a regular schedule. At these clubs you can often find a willing ear and an opportunity to share the principles of Life Science.

One of our favorite students called recently to make an appointment for a friend. We were delighted because this particular student has a rare kind of muscular dystrophy which sets her apart from society. Two years ago when we first saw her, her face was covered with black blotches. Her gait was unsteady and she had a tendency to fall from time to time. Additionally, her hands were swollen, puffy-looking, and covered with red blotches. Having no understanding of her condition, people avoided her. She had no friends. On her first visit to the ranch, Dr. Elizabeth went up to her, put her arm around this young woman's shoulders and kissed her right on her blotchy black face. So, it was with pure delight that this young woman acquired a newly-found friend. You see, thanks to the application of the principles you are learning in this course, this young woman no longer has those black clotches, she no longer stumbles and falls. She probably never will be "cured," but she IS presentable. People no longer stare at her or, the opposite, avoid looking at her.

Where did she find her new friend? At a health club! Her friend also needed a friend. She was far from her home in India. She knew not a single soul. She had a need is did our student. Today, they share meals together. Their silence, their resentment, many of their fears have gone. All because each one found a friend and they can socialize together.

The local Y.M.C.A. and the Y.W.C.A. usually have fitness classes which you may attend for a nominal fee. There are aerobic dance classes, jogging groups, hiking clubs. You can use various clubs, churches, hobby groups, and so an to "seed" a like-minded group. Again, advertising your desires is the key to success. Advertise that you will hold a "study session," or whatever, in your home and see what happens. In all likelihood, you will be agreeably surprised.

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4. How To Advertise

Type up an announcement of your meeting (or party, or hike, or class, or whatever you have decided to host). Use old letters. You can acquire a set of transfer letters of many different styles from a local office supply store. Using these or the typewriter draw up an attractive announcement of the first meeting, let us say, of the SMALL TOWN LIFE SCIENCE STUDY GROUP. Be sure to give time and place and include precise instructions as to how to get to your home or to the meeting room you have selected. Be sure also to include your telephone number so that interested parties can telephone for further details or directions. Use some intriguing phrase or information to encourage interest.

You may also be able to place an announcement of your meeting in a local newspaper. These are usually provided free of charge as a public service by newspapers.

Have several hundred flyers run off and place them in strategic spots throughout the community where you live. If the topic for discussion concerns health, you may find a welcome reception in health food stores. Sometimes librarians will post such notices. Ask various merchants to post them also. The idea is to contact as many people as possible over a sufficiently wide area. Exposure of the right kind will produce results.

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5. Getting Prepared

The first meeting is critical, so be well prepared with a topic of interest. Following is a list of suggested topics. The student will note that we have suggested ten, sufficient for a year's study, since most such groups disband for at least two months during the summer.

5.1 Suggested Topics

1. From Measles to What and How to Prevent the What? (The 7 stages.)
2. I Like Fruit!
3. The Zero-Calorie Diet.
4. I Like Being Skinny!

5. How to Lose 15 Years off My Face and Add 20 to My Life.
6. Body Burn-out and How to Prevent It.
7. Why Exercise?
8. Is Meat Good for Us?
9. Food Combining Demonstration
10. How to Plan Meals

You will probably have to carry the load for a while, perhaps for the first two or three meetings. After that, it is time to start assigning topics. Get lists of the available tapes from Life Science or from the American Natural Hygiene Society. These are valuable and can be used at your meetings to fill in gaps and to provide useful information to your guests. The tapes may be used to supplement presentations by yourself or by one of the guests who consents to make a presentation.

Throughout your many lessons there are numerous topics of interest and also discussions by experienced practitioners on specific subjects. These short articles often provide very valuable information. They can be reproduced and a copy given to each guest or they can be read to the guests present. The idea is to choose subjects of general interest or of intrinsic worth, to line up articles and/or discussions which develop the theme, to have tapes that pertain to the topic; in general, to tie the whole meeting together in such a way that there are no awkward gaps. Your guests should leave well rewarded for their time. They should have enjoyed the fellowship and learned something of value.

When they do, they are only too eager to return again and again.

5.2 Sealing Friendships within the Group

Most people are lonely in some way or other. Many Hygienists feel lonely—set apart. Meetings such as we have described provide an ideal setting for everyone to have an opportunity to find a friend or to make many friends. The host or hostess can play a useful role here.

At every meeting guests should be made to feel that, as host or hostess, you are delighted to see them. For this moment the idea is to make each guest the center of attention.

Dr. Elizabeth gives every person who comes to the ranch on these occasions a hug and a kiss. They love it. After one or two meetings, indeed, they expect it and so does she!

Both of us try to impart a sense of mutual love and respect. Not everyone is outgoing at first, but with practice, everyone can become more warm and outgoing.Within the group is one person, or even a whole group of persons, who think you are somebody and do not hesitate to show it.

Rid yourself of surface comparisons. Encourage, yourself and your guests to be interested in life and each other. Learn to live through talking, listening and sharing. Use your own loving talent. Plant the seed of love, of mutual caring and respect for others by your example—and watch your harvest grow.

5.3 Don't Try Too Hard

Strive to put your guests at ease, but don't strive too hard: avoid artificiality. Offer love, friendship and knowledge to your guests. Don't be afraid to go more than half-way, especially at first and perhaps even the second meeting. Express sincere interest in your guests person and well-being.

Don't forget the round-the-room introductions at every gathering. Do this when your guests have settled. At times, or even every time, you can ask your guests to tell something about themselves as for example, how they learned about Life Science or how they became interested in learning about natural methods of health care, or about their hobbies, or special talents, or feelings, or whatever? Be sure to admire and inquire.

When we express interest in others, they become interested in us. The old adage, "If you want a friend, then be one" is very sound advice that is applicable to all of us.

5.4 Establish Certain Rules

We have certain rules at the ranch that hold for all guests without exception. You may like to adopt similar rules especially at the beginning when strangers join your group. Two of these rules are the "No Smoking" rule and the "Vegetarian Food Only" rule.

Any guest who wishes to smoke may do so outside and away from the house. We do not put out ash trays. If we see a guest with a cigarette in hand looking for an ashtray, we suggest to him that there are the other guests to consider but they can go outside on the porch or for a walk around the grounds if they wish.

No meat is ever brought or served. Even our meat-eating friends understand this and respect our wishes. At the beginning they usually bring a very complicated salad complete with a very elaborate and especially prepared dressing. They soon change their ways and most become a cooperating part of the group—and willingly so.

We do not permit coffee, alcohol or soft drinks. We always have distilled water available for our guests.

We do not make of parties and meetings a time for hurry-up, busy-ness and cleaning. We try to keep everything casual and light so that we can enjoy them, too.

5.5 When Your Group Becomes Too Large

Sometimes a few friends can grow into many and your group becomes so large that your home or the home of participants can no longer accommodate them. Then it is wise and timely either to divide into two or more splinter groups or to move to a public meeting place.

Community rooms are usually available in most areas, provided either by the city or town (for example, the town hall), by churches, lodges, by savings and loan companies, by the larger health food stores, and so on. The local chamber of commerce can often provide names and locations of such meeting rooms, as can the city or country recreation departments.

5.6 The Practicing Hygienist

It is true that health care is self care but the practicing Hygienist, worthy of, the name, will realize that s/he has a moral obligation to students and clients to reinforce their understanding and conviction from time to time.

For economic reasons most clients cannot be expected to keep paying in dollars and cents for repeated consultations. Unlike the medical doctor, the Hygienist will have an almost 100% recovery experience among clients. In fact, in many cases, recovery will be so spectacular that clients will be able to depart from guidance within a few months certain, in their minds at least, that they have acquired sufficient knowledge to enable them to continue their forward progress without further guidance from the practitioner.

For this reason, the practitioner must have some method or methods of providing a steady feeding-in of potential clients. Group meetings of clients, their families, and invited friends can provide such a pool.

In the beginning such meetings can take place either in the office setting or be hosted in your own home. These first meetings should be purely professional in intent, to provide reinforcement beyond individual counselling. These meetings are not open to the general public. They do provide a time, albeit brief, for some important socializing, for getting clients to understand that other persons exist who also have problems and, most importantly, that you as a practitioner care enough to give this extra time and without charge.

At times a practitioner who has speaking talents may wish to start a club or group similar to that which we have already discussed. These meetings should, of course, be open to the public. Again, at the discretion of the individual practitioner, they may be held either in his/her home, at the home of a willing client, or at a public community room.

The invitations may be on the personal level (telephone or mail), conveyed by flyers to the public (distributed by cooperative students), and also by notices placed in the public press: Sometimes local radio stations will provide time for a short announcement particularly when the topic to be discussed is of general interest.

Lecture groups of this kind also provide a pool of potential clients but, additionally, they provide an opportunity for socializing. Students and clients are often delighted to be asked to share their experiences with the public. Following the lecture, the practitioner should always provide a time for questions and answers. If you don't know the answer, say so frankly and then try to find the answer and communicate to the questioner. So, be sure to alert one of your students to write down the name and address of such inquirers.

It is always well at public meetings to ask two students or two other interested people who have the gift of being able to greet people warmly, to be at the door to extend a "Welcome!" to everyone who attends. Always have a sign-up sheet on a table at the door which asks for the name of your attendee, address and telephone number and even "How did you learn about this meeting?" This last information may help you to decide on your most effective means of advertising.

We suggest that between the time of the meeting and before your next meeting that you call your new attendees and thank them for coming. Also, when possible, answer any unanswered questions.

5.7 You Don't Always Have to "Wing It" Alone

The practitioner doesn't always have to "wing it" alone. Tapes may be used or guest speakers invited. Don't be bashful about asking worthy speakers to come and address your group. Most of them will be most gracious and willing to come at their own expense. As a general rule we take our guest speakers out for dinner following the meeting.

If a guest speaker is not available and you have been too busy to prepare a topic, do what we have done occasionally: have a "Show and Tell" party. For such occasions we like to meet at a home or at a community room with facilities for serving refreshments.

Many people enjoy telling about their own experiences, about how sick they were, what they did to overcome their particular trouble and "Look at me now!" Potential clients always find such meetings of interest, as do your present clients.

5.8 Groups Have a Tendency to Grow

If those in attendance at your meetings experience warmth and togetherness, your groups will grow. When appropriate, then, a minimal fee may be charged. Just a dollar or two will suffice. Whatever sum is collected will be your reward for services rendered.

Volunteers can be asked to take over time-consuming chores, such as getting out the notices of meeting times, place, topics for discussion, collecting "dues," and similar tasks. There are always willing workers to be found in any group of any size. They only need to be asked. It helps them to feel important, a meaningful adjunct to you and to the group.

Certain people have special talents. If there is a good speaker in your group, request that s/he introduce you. Encourage volunteering among the participants. You will be agreeably surprised at how much help you will receive.

6. Entertaining

6.1 Special Parties

There are many occasions amenable to socializing. We hold parties to celebrate birthdays. We hold parties just to get together with friends. Last year we had a party on Christmas Day for our students. Most years we have our own private plans for the holidays but last year, we knew we would be at home on Christmas, so we decided to have a party!

We knew that some of our local students have no families. We knew also that those persons who do have families rarely extend the hand of hospitality to persons outside of the immediate family group. Personally we feel that we have an *extended* family, one that consists of our students around the globe. So, we sent out the word: "Come to the ranch and spend Christmas day with us!" We made the occasion a pot-luck dinner, of course. We are not ones to seek after additional work!

On the happy day we had the Christmas tree lights glowing, Christmas candles, flowers and tinsel everywhere. And even Brandy was all dressed up for the celebration with a big red bow attached to his collar.

Everybody was asked to bring an inexpensive gift and to mark it as being a gift for a man or a womans if applicable. Additionally, guests were asked to bring a gift suitable for an elderly person. We planned to present them to the elderly members of the Tucson Yaqui Indian tribe. We were overwhelmed!

We had fifteen guests that day but gifts for the Indians poured in from many unexpected sources. The manager of the produce department of a local Gemco store with the cooperation of the store manager brought us several large boxes of oranges, tangerines and grapefruit. Students who could not attend sent or brought gifts of all kinds: food, clothing, nonsense gifts and practical gifts. In fact, the number of gifts was so large that one of the heads of the tribe had to bring a truck to carry it all back to the Yaqui Center.

And what a time we all had. A Christmas to remember. The food was great. We sang Christmas carols. Dr. Robert played his violin, even though he was out of practice. We had all socialized!

Pick your occasion. Dr. Robert's birthday is on New Year's day. Of course, that's an occasion to merit a party when we are in town. Why not a Halloween party? Thanksgiving time is a lonely occasion for many family-less people. Have a Senior Citizen Party. Guests must be 55 or over. There are ideas without end. You can come up with a few of your own. Partying is fun. Your clients are inclined, many of them, to have periods of depression. A party can be very therapeutic for such as these. A party can provide a time to relax, to have fun, to enjoy knowing your students as persons, to make friends out of faces and cases. And parties provide an opportunity for your clients to know you better, too, as a socially-inclined person, as they meet you out of your office and in a friendly, warm setting.

6.2 Entertaining Out of the Home

Sometimes it's nice not to entertain in your home or in a public meeting room. At times it is pleasant to entertain an intimate, very special group of friends outside of your home. There is a trick to knowing just how to accomplish this satisfactorily. We find there are several ways to do this depending upon just how much you wish to spend for the occasion.

For elaborate entertaining, if you are not restricted economically, you may arrange for special dinners at a better restaurant, one of your choosing. For such an occasion, you must decide on a menu and make arrangements with the maitre d'hotel of the restaurant or with the restaurant (or hotel) manager at the place chosen. In making such arrangements, you must spell out the menu you have selected item by item making sure that your contact understands that all food is to be fresh, neither frozen nor canned, if at all possible. The exact time at which dinner is to be served must also be understood by the party with whom you are making arrangements, by you and, of course, by your invited guests.

You may wish to have a little gift of flowers for the ladies. Arrangements for either home delivery or delivery to the table can be made; or simply bulk delivery to the restaurant in your name. If the latter, then the host makes the presentation to the ladies who are present at an appropriate time, preferably at the table just prior to the serving.

But, you need not be so formal nor need you be so lavish in your entertaining. Inviting your friends to meet you at a restaurant of your choosing that normally features a well-stocked salad bar with a variety of salads can be fun, too. If the restaurant serves baked potatoes "on the side," you are doubly fortunate.

Many of the better steak houses boast excellent salad bars and almost all serve baked potatoes. Call ahead of time and choose your restaurant before issuing your invitations. Know precisely what kind of a menu is featured before you all get to the restaurant only to find nothing on the menu suitable for a practicing Hygienist to eat!

Some restaurants and even some cafeterias will set aside a special room or part of the restaurant if your group is large enough, just for you and your party. Many will be happy to make small changes in their menu or even to provide your choices of food if the number present warrants the extra work. They usually make no extra charge for this service and the cost of these meals is generally reasonable.

Some restaurants will be happy to provide your special choices for a small additional charge, too, so keep this in mind. Inquire around and be prepared for those occasions when you don't care to host a party in your own home. Then all that will be required of you is to put on your best smile and meet your friends at the place of choice. Because you have made the arrangements ahead of time, all you have to do at this kind of party is to enjoy yourself!

Of course the food won't be strictly Hygienic. You and your guests are well aware of this fact. But, often the enjoyment of spending a few hours away from our daily responsibilities will more than offset any minor defects in a single meal.

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7. Respecting Private Spacing

Every human likes his own space. Around each one of us is an invisible boundary which must not be rudely violated. We know one Hygienist whom everybody avoids. This person is lovely to look at, bright and eager to please and learn, but she has a major fault. She attempts to enter, without permission, into everybody's private space.

This woman is never content with a "No!" Nor is she rebuffed by other kinds of negative responses. When people turn away from her, she will make a point of loudly asking, "Why?" Why do you do this to me? Don't you want me around?" She will go on and on asking why, how and where and keep on inquiring even though your answers may be evasive.

If she has a personal problem she will contact every single one in the group to ask an opinion as to how to solve her particular problem, which is, more often than not, of a highly-personal nature. In short, this woman lacks finesse and common sense.

We must avoid becoming too inquisitive, hypercritical or arrogant in our Hygienic contacting. We must learn just how far we can enter into another person's private space without becoming offensive.

It is far better to become a good listener than to talk too much, to let other people volunteer their thoughts and ideas rather than to attempt to cross that invisible line of privacy. Even practicing Hygienists should learn the art of listening. If you are a good listener, people will remark to others that you are a marvelous conversationalist! And so learned, too!

Remember that a sharp tongue is an asset to no one. A soft answer not only can turn away wrath, but it can charm the listener. Never be hypercritical of fellow Hygienists who may be but beginners, subject to error. Be gentle in discipline and slow to anger. It is important for Hygienists to pull together, not away from each other.

We should at all times in our social meetings avoid becoming arrogant and perhaps even rude. We have often observed this among certain individuals at large gatherings of Hygienists, by self-serving interests who are self-satisfied in their expertise about everything Hygienic. We have observed young people turned completely away from thoughtful consideration of Hygienic principles because a single person cut them off rudely as they asked a simple question.

This kind of arrogance has no place in Life Science. It can frighten off the more timid ones, the very ones who are perhaps most in need of bur concerned guidance and help. We need to be warm and outgoing, considerate of others and, above all, friendly in our contacts with other people. Who knows? They may know something that we don't know, some bit of knowledge that may prove to be of great value to us at some future time.

Socializing is a time for fun, for finding and making new friends, for stroking, for learning and for helping one another over the bad times. Only by a cooperative give and take in an atmosphere of sharing can e, as individuals, hope to realize the many multiple benefits possible through socializing, with our own kind. Only using socializing for this combined purpose can we hope :o convince others to join with us because we have something so valuable as to merit their attention.

8. Expanding Local Contacts

Quite often the number of students of Life Science who reside in a particular city is too small for gatherings to warrant the necessary expense of publishing and distributing flyer notices or the hours of thought and planning required to host and conduct a public meeting outside of the home.

If confronted by such a situation, it is often possible to enlarge one's horizons by including other health-oriented groups in your plans; such groups as vegetarians, vegans, members of a nearby health club and similar groups.

It is often interesting to learn just how many "hidden" vegetarians there are who do not belong to any well-known organization or club. At any rate, one should invite all interested parties to a general meeting for the purpose of hearing a talk on some subject of interest to all who might care to attend.

Various reasons for calling such a group together can also be put forth as, for example, to form a study club on vegetarianism in general; for the purpose of finding out whether or not there are sufficient numbers so inclined who might care to meet on a regular basis for potluck purposes or for dining at a public facility. One can think up various reasons for health-oriented groups to get together for purposes of socializing with like-minded individuals.

Sometimes these joint meetings can be in the form of a day-long seminar with a number of speakers being featured at two sessions, perhaps two speakers in the morning hours and a single speaker in the afternoon followed by general socializing.

Or if your choice is to make the meeting simple, present a single speaker on a topic of interest, topics such as the following:

1. How to keep your energy level high.
2. How to choose and use foods that burn clean.
3. How to keep fit in today's crazy world! And so on.

In other words, choose a topic of general interest, one hat will attract and intrigue.

It is possible at such meetings to allow a certain amount of time for individuals to relate personal experiences, these being given, of course, on a volunteer basis. Questions may also be permitted if agreeable to these volunteers.

It is often fun to allow time after the lecture or seminar for socializing1 on a more intimate basis, both by groups and, by individuals.

Occasionally, at meetings of this kind, it may be interesting to divide up into circle mini-groups following the lecture presentation for the purpose of discussion of the topic of the day by those within each assigned circle. All such discussions should be preceded by round-the-circle introductions so that all may become better acquainted.

These meetings may become so popular that they can be repeated at frequent intervals. On subsequent meetings, circles should be regrouped so that, in time, everyone will become acquainted with those who choose to become regular participants. The same procedure of becoming better acquainted with each other as detailed earlier in this lesson, that off having individuals volunteer information about themselves, can be followed equally well here.

These circle meetings can prove to be the most interesting and informative way of socializing of all that we have presented. We have seen long-lasting friendships result from these casual meetings. They can prove both creative and supportive. Above all, they offer an opportunity for individuals to participate on an equal footing in groups, small enough to be nonthreatening, even to the most timid.

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9. Good Public Relationship

Public relations is a phrase in common use these days. For the Hygienic practitioner and the individual Hygienist alike, good public relations can best be established through a continuing and on-going effort to promote satisfying social stroking.

While we should not work just for applause, achievement should always be rewarded. Becoming a bona fide working Life Scientist is an achievement of which we can all be proud. Let's advertise our pride in our knowledge of life's universal laws and our having come to appreciate the fact that there can be one penalty for error: premature death. We are few among many because we are so blessed.

Let's encourage getting together for all manner of healthful socializing: for dancing, either aerobic or your style; for calisthenics, eating, hiking or painting; for study and learning; to offer support and to receive it. We all have such a great and wonderful gift to share. There can be no better way to share it than in a spirit of friendly love. The hand of friendship will draw all people closer to life's joy.

We hope you will try some of the ideas we have put forth in this lesson. We would enjoy hearing from you, about your failures, which will be few, and especially about your successes, which will be many!

Article #1: How to Be Socially At Ease

Let us imagine that you are invited to a lovely party where you will meet strangers as well as people you know. I have decided to make this a tea, as the uncharted casual contacts of a tea party most nearly parallel those of everyday experience.

PLACE YOURSELF MENTALLY BEFORE YOU GO. Before you go to the party it will be well to study your attitude on your relation to other people generally. Right here your inferiority complex—everybody has one of sorts—begins to stir like a waking beast, doesn't it? So our first task is to put him to sleep again until we can get rid of him permanently.

You can't have a good time at a party or be charming unless you feel on an equal footing with everyone present. Of course, it would be absurd and stupid to compare yourself with your hostess or host and each guest to see if you are an equal. So we must rid ourselves of these surface comparisons. They are unprofitable and odious.

If a great singer is present, you can't honestly feel that your voice is as good as hers. If the richest woman in the community is there, gorgeously gowned, how could you feel that you are as well-dressed as she? Unless you are a striking beauty, you can't honestly feel that you are as good looking as the prettiest woman there. Unless you have a dynamic personality and are a witty conversationalist you can't even imagine that you are as entertaining as the cleverist woman present. The most popular and beloved woman may be none of these—but she is *charming*. So why bother with such comparisons?

There is another more important and deeper quality that you *can* feel which will enable you to mingle easily and enjoy yourself with people above you and below you on the social ladder. It is impossible to keep your social contacts on an even keel. If you lived in a palace and had six secretaries to protect your exclusiveness, you would still meet a number of undesirable people. So you must reach a point in poise and charm where you remain the same regardless of what or whom you contact!

For this type of poise we must have a little philosophy that supports our conviction of equality. There is a danger here that in striving too hard for a sense of equality with the highest types of people one may be a little belligerent' and say with a chip on the shoulder, "I am as good as anybody in the world." The crudeness and bad taste that would prompt such a statement in that mood are sufficient proof that one is not!

FEEL A BASIC KINSHIP WITH EVERYONE. We are all travelling the same path. The only difference in people is that each has arrived at a different place on that same path—but we all have the same feelings and the same reactions somewhere along the way.

So no matter how shy and small you feel, you may know that everyone present has experienced that same thing. If they have overcome it and seem assured, that should only prove to you that you, also, can conquer your self-consciousness. Try to understand that the other fellow has his problems of inferiority, perhaps not just the same as yours, but, nevertheless, just as real to him.

When you are meeting a new person, try to think of the stranger's problem of instantly adjusting to you—try to help him find familiar ground where he can be at ease. This will accomplish two things. It will take your mind off yourself, eliminating for the moment any possibility of your self-consciousness. (You know you can't be self-conscious unless you are thinking about yourself!) Then, too, your interest in the newcomer will make him think you are charming. Never be afraid to go more than halfway to establish social ease. Don't be afraid to walk up to people at a reception or party or tea to say or do something that will make them happier. A wallflower is usually self-elected. She slips through the door and slides into a side seat on the edge of the room as though she were clinging to the edge of a whirling disk and might be thrown off any minute.

NEVER, TAKE THE FIRST CHAIR IN A ROOM—walk calmly well inside and take the most inviting chair hat is vacant!

Pause before you enter the room, see where people are, locate your hostess or whoever is in charge of the affair. Go to her and shake hands. She will introduce you to those landing in her immediate group.

... "Remember that people put the same interpretation on us that we put on ourselves. They take their cue from is! We cannot control the smoothness of life from without—but we *can* control it from within—we *can* control our reactions to anything that happens to us. This is poise!

... WHEN WE REALIZE THAT THERE IS A STEADFAST, DIVINE PERSONALITY WITHIN US THAT IS BIGGER AND FINER THAN ANYTHING THAT CAN HAPPEN TO IT, WE HAVE JUST BEGUN TO LIVE. This is when we get up on two feet from the all-"ours of animalism and bewildered ignorance and realize hat we have souls. *The experience passes but the experiencer remains* to have other experiences.

When you realize the importance of this "experiencer" within you, then you are in a position to develop unshakeable poise. This is not a religious conception—it is an inalterable fact of life. *The person that you really are is so basically a part of the harmony of the universe—so established in the world of reality—that you can afford to take our importance for granted and put your mind on others*.

When you understand this *basic truth*, you will become socially unselfed and immersed in sociability. Just to refrain from talking about yourself, not to be patting your hair and clothes and not to patch your makeup in public—these do not guarantee charm. These are but the first baby steps toward charm in being socially unselfed. Charm demands that you be *genuinely* interested in your companions—you can't fake it!

YOU MUST SHOW GENUINE INTEREST. You must be so interested in other people that you understand their humanness, stand ready to smile at their arrogance, to fix up their failures, to admire their accomplishments and to ignore their errors. People are fascinating—the most fascinating study in the world! . ... *If you can give humanity a mental handclasp of sympathy and at the same time a wink of tolerance, no king nor queen can throw you off poise!*

... The desire to be capable of the best self-expression ... is a splendid motive that drives one to sharpen one's tools for the making of good conversation—but cold perfection will never warm the hearts of your hearers. You must strike the spark of *animating warmth* born of a pulsing human *urge to share* what you feel.

This spark comes from the fires of a burning desire to draw closer to the mind and heart of your neighbor, to give him solace when it is needed, encouragement and sympathy always, also *laughter* to brighten his spirits and to lighten his load. And when I say "neighbor" I do not merely mean that person whom you would like to cultivate for social or material reasons. I refer to *every life that touches yours*.

From The Woman You Want to Be by Margery Wilson. Published by J. B. Lippincott Co., Philadelphia and New York. Copyright 1938.

Article #2: Real Houses Are Like Real People by Charles M. Simmons

Houses, REAL houses, that is, are very much like people. If you take a look at the houses in your community, you find quite an assortment, don't you? You see some old ones, some new ones, some shabby ones, and some "smart-looking" ones. There are some you wouldn't want to live in just because of their appearance on the outside. Others come closer to your choice, except that if they were YOURS, you would make a few changes. Some seem to have charm, while others lack it completely.

It is remarkable what a varied combination of houses make up a community, yet they are all made of the same basic materials. However, keeping that observation in mind, take a second look at those houses, and you will realize that there is another factor that is causing your varied reactions.

It is the amount of love and caring found in the homes, or not found in them, that is evident the moment you step inside. It doesn't matter if the house is impeccably clean or has that "lived-in" look. These are only outward appearances, and provide no real measure of the family that resides there. We can *feel* at once whether the house vibrates and radiates love or emptiness.

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Article #3: An Excerpt from In Tune With the Infinite by Ralph Waldo Trine

... Many times the struggles are greater than we can ever know. We need more gentleness and sympathy and compassion in our common human life, when we will neither blame nor condemn. Instead of blaming or condemning we will sympathize, and all the more we will:

Comfort one another,
For the way is often dreary,
And the feet are often weary,
And the heart is very sad.
There is a heavy burden bearing.
When it seems that none are caring,
And we half forget that ever we were glad.

Comfort one another
With the handclasp close and tender,
With the sweetness love can render,
And the looks of friendly eyes.
Do not wait with grace unspoken,
While life's daily bread is broken—
Gentle speech is oft like manna from the skies.

When we come to fully realize the great fact that all evil and error and sin with all their consequent sufferings come through ignorance, then wherever we see a manifestation of these in whatever form, if our hearts are right, we will have compassion and sympathy for the one in whom we see them.

Compassion will then change itself into love, and love will manifest itself in kindly service. Such is the divine method. And so instead of aiding in trampling and keeping a weaker one down, we will hold him up until he can stand alone and become the master. But all life growth is from within out, and one becomes a true master in the degree that the knowledge of the divinity of one's own nature dawns upon one's inner consciousness and so brings one to a knowledge of the higher laws; and in no way can we so effectually hasten this dawning in the inner consciousness of another, as by showing forth the divinity within ourselves simply by the way we live.

By example and not by precept. By living, not by preaching. By doing, not by professing. By living the life, not by dogmatizing as to how it should be lived. There is no contagion equal to the contagion of life. Whatever we sow, that shall we also reap, and each thing sown produces of its kind. We can kill not only by doing another bodily injury directly, but we can and we do kill by every antagonistic thought. Not only do we thus kill, but while we kill we commit suicide. Many a man has been made sick by having the ill thoughts of a number of people centered on him; some have been actually killed. Put hatred into the world and we make it a literal hell. Put love into the world and heaven with all its beauties and glories becomes a reality.

Not to live is not to live, or it is to live a living death. The life that goes out in love to all is the life that is full and rich, and continually expanding in beauty and in power. Such is the life that becomes ever more inclusive, and hence larger in its scope and influence. The larger the man and the woman, the more inclusive they are in their love and their friendships. The smaller the man and the woman, the more dwarfed and dwindling their natures, the more they pride themselves on their "exclusiveness." Anyone—a fool or an idiot—can be exclusive. It comes easy. It takes and it signifies a large nature to be universal, to be inclusive. Only the man or the woman of a small, personal, self-centered, self-seeking nature is exclusive. The man or the woman of a large, royal, unself-centered nature never is. The small nature is the one that continually strives for effect. The larger nature never does. The one goes here and there in order to gain recognition, in order to attach himself to the world. The other stays at home and draws the world to *him*. The one loves merely himself. The other loves all the world; but in his larger love for all the world he finds himself included.

Verily, then, the more one loves, the nearer he approaches to God, for God is the spirit of infinite love. And when we come into the realization of our oneness with this Infinite Spirit, then divine love so fills us that, enriching and enrapturing our own lives, from them it flows out to enrich the life of all the world.

In coming, into the realization of our oneness with the Infinite Life, we are brought at once into right relations with our fellow men. We are brought into harmony with the great law, that we find our own lives in losing them in the services of others. We are brought to a knowledge of the fact that all life is one, and so that we are all parts of the one great whole. We then realize that we can't do for another without at the same time doing for ourselves. We also realize that we cannot do harm to another without by that very act doing harm to ourselves. We realize that the man who lives to himself alone lives a little, dwarfed and stunted life, because he has no part in this larger life of humanity. But the man who in service loses his own life in this larger life, has his own life increased and enriched a thousand or a millionfold, and every joy, every happiness, everything of value coming to each member of this greater whole comes as such to him, for he has a part in the life of each and all.

And here let a word be said in regard to true service. Peter and John were going up to the temple one day, and as they were entering the gate they were met by a poor cripple who asked them for alms. Instead of giving him something to supply the day's needs and then leaving him in the same dependent condition for the morrow and the morrow, Peter did him a real service, and a real service for all mankind by saying, "Silver and gold have I none, but such as I have I give unto thee." *And then he made him whole*. He thus brought him into the condition where he could help himself. In other words, the greatest service we can do for another is to help him to help himself. To help him directly might be weakening, though not necessarily. It depends entirely on circumstances. But to help a person to help himself is never weakening, but always encouraging and strengthening, because it leads him to a larger and stronger life.

There is no better way to help another to help himself than to bring him to a knowledge of himself. There is no better way to bring him to a knowledge of himself than to lead him to a knowledge of the powers that are lying dormant within his own soul. There is nothing that will enable him to come more readily or more completely into an awakened knowledge of the powers that are lying dormant within his own soul, than to bring him into the conscious, vital realization of his oneness with the Infinite Life and Power, so that he may open himself to it in order that it may work and manifest through him.

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Article #4: Preparing A Dinner Party For Non-Hygienic Guests by Elizabeth D. McCarter, D.Sc.

So! You've decided to take that big step: to host a gala dinner party for some of your nonHygienic friends. It can be done, you know, and without compromising your principles, too! And certainly without all the hours and days of preparation required when hosting a more conventional dinner featuring the usual gourmet type of heterogeneous combinations.

Plan first of all to set a gala dinner table. Get out all your best silverware and fine china. Polish up the candlesticks and plan to dine by candle light. Check your linens and, if need be, see that they are all freshly laundered, ready for the big day. All this routine work can be done days ahead of time.

Plan a centerpiece, of course. This can consist of flowers from your own yard or from the florist. In the fall or wintertime, lovely centerpieces can be made from a wide variety of gourds, pine cones, apples, or whatever. Women's magazines are filled with all kinds of ideas so go to the library and check a few of them to find an idea most appropriate to your circumstances.

Next, plan your menu. You will be a guest at this party, too, so plan your party with that in mind. Market a day or two before the big event and stock the refrigerator and ripening bowls with various kinds of fruit in season.

Purchase baking potatoes of good quality, several varieties of low starch and green vegetables, two or three kinds of lettuce, some sprouts (or better yet, grow your own) and two or three different kinds of nuts. Pecans are popular as are almonds and cashews, all unsalted and un-toasted. You might plan to have a casserole dish of some kind or even some lightly steamed ears of corn. Be sure to allow plenty of time for bananas and other fruits to ripen as well as the tomatoes and avocados.

The night before your party set your table. If you need some ideas on how properly to set a table, your local librarian can refer you to suitable books to obtain this information. Make it pretty and inviting. Set out the serving trays, dishes and appropriate ladles, tongs and so on.

The morning of your party make your food preparation. Wash and dry the lettuces. Carefully wrap the washed pieces in towels and put in the refrigerator. Scrub your fruits and rinse with pure water. I use a liquid soap that make using Ivory flakes for this purpose. Proceed the same with all the vegetables except, of course, the ears of corn. These should remain intact until dinnertime. All the vegetables can then be returned to the refrigerator.

I usually set up a buffet table, the longer the better, especially if you are hosting a fairly large party of fifteen or more guests. For smaller groups, a smaller buffet, perhaps comprising two cardtables set side by side and covered with a single table cloth would be sufficient.

You will want to have plenty of food available so that your guests will have a variety from which to choose.

Make several attractive fruit arrangements, each plate featuring compatible combinations of fruits. For example, you might place on one large round serving tray: an attractive assortment of strawberries, pineapple slices, kiwi fruit and oranges, all placed on a well arranged bed of Bibb (limestone) lettuce.

On another dish arrange pieces of Romaine in a circle configuration and place a huge mound of assorted grapes on it, perhaps surrounded by schoolboy size red Delicious-brand apples or, in season, ripe apricots and nectarines or slices of papaya. On a third dish use dark leafy green lettuce and use it as a background for delectable dried fruits: varieties of dates, dried figs, little paper cups of raisins with, perhaps, a star arrangement of bananas to separate the different kinds of dried fruits.

Always try to use the fruits which are readily available in your area. Persimmons in October and

November often provide a wonderful treat as do the Bing cherries and apricots which are plentiful in the latter part of June. Some of your guests may have never eaten mangos or New Zealand kiwi fruit. And, believe it or not, many may never have enjoyed the rich succulence of a Medjool date! All exotic fruits provide interesting conversation pieces. Place all the fruit dishes at one end of the table.

Next come the salad vegetables. Get the largest bowl you can find or dig out one of those huge long-unused (we hope), but gleaming, pots that you may have used at one time for cooking. Fill it with a variety of lettuces which you have broken up into pieces. Add tiny slivers of carrots, red and green cabbage, chunks of green and red peppers, broccoli flowers, and strips of cucumber. (I always use the unwaxed pickling cucumbers). Place stalks of celery in a pitcher of your choice and place it near the salad bowl (or pot).

Or, let your guests make their own salads. This is always a good opportunity for questions and answers, too, although now we find more and more people are becoming salad-oriented. If individual salad-making is your "thing," then place the salad vegetables in individual dishes and arrange them colorfully around a large lettuce bowl. Let your guests help themselves.

Make a salad dressing of lemon juice and olive oil sparked with a dash of walnut oil for flavor interest. Or, make one of cucumbers, celery plus a little avocado—all of which are blended together with a little green onion. Put each dressing in an attractive decanter or in a small serving bowl with a ladle or large dipping spoon. Be sure to put out a salt-free seasoning mixture. Vegebase is an acceptable mixture.

Some guests may request salt and pepper. If so, you may purchase individual salt and pepper shakers at some gourmet or health food stores. The salad part of the meal often provides a time for friendly education in the making of healthful salads.

It is nice always to have quartered or sliced tomatoes and avocado strips on a side dish with either of the salad buffets so that guests who enjoy these fruit-vegetables may add them to their other choices.

If your choice or choices of main dish (dishes) has been baked potatoes or a casserole, or both, these should be timed for the proper cooking time and the oven lighted about 15 minutes before. The potatoes and casserole should be timed as exactly as possible so that they will be ready for your guests when needed. While neither the potatoes nor casserole will be strictly Hygienic, nevertheless some cooked dishes can often provide for your guests a most enjoyable finale to a very enjoyable repast.

There are numerous vegetarian casseroles that will delight the taste. Baked potatoes served with an avocado blend made from avocado, a little distilled water and some vegebase often prove to be a delightful treat. Why not bake your potatoes early in the day, scoop out the contents, mix with the avocado mixture, stuff, wrap in foil and keep in the refrigerator until your guests are ready to go to the table. At that time place the unwrapped stuffed potatoes in the preheated oven. They'll be heated and ready for your guests at the appropriate time.

If an eggplant tomato casserole is your choice, put it out on the serving table, surround it with an assortment of natural, undyed soft and hard cheeses plus a dish of sliced tomatos and an assortment of nuts. Separate the nuts from the cheeses by using the tomato dish. (The nuts could also be placed with the salad but we find it usually better to place them with an appropriate casserole.)

If fresh steamed corn or other steamed vegetables are to be served, they should, of course, be put out on the buffet along with other suggested main dishes. Steamed corn is always welcome. Most of your guests will want butter with their corn. Buy a quarter pound or so of raw unsalted butter if you can find it in your area. Place it by the steamed corn.

We serve baked corn gems in place of bread. I can make these several days before the party and keep them in the refrigerator. To make these, I purchase freshly ground corn and wheat at a local health food store plus some ground unsweetened dried coconut (or I grind my own). To four cups of corn meal I add 1 cup of coconut and 1 cup of ground wheat. After a thorough mixing I add boiling water to make a dough-like consistency. I roll out the dough in a 4 inch wide strip and cut into two-inch "gems." I put the gems on baking sheets which have been left to heat in an oven at 400°F. I bake these for about 15 minutes, then turn them over. I then turn off the oven and let the gems cook until the right consistency, about 10 more minutes.

Since the gems are cold when I take them out .of the refrigerator, I sprinkle them with a few drops of distilled water and remove them to the oven for 10 minutes or so before placing them on the buffet table. They are great when eaten with a salad of greens!

For dessert, I usually prepare a frozen fruit delight which I make by pureeing a dried fruit (dates, apricots and apples are a good choice) with a little distilled water and then mixing it with banana "ice cream." This mixture can, then be placed in champagne glasses or in any kind of fancy glassy covered with plastic wrap, and then put in the freezer until dinner time. When your guests are seated at the table enjoying your stuffed potatoes or steamed corn or your tasty casserole, you can quietly set this wonderful desert out on the buffet.

Good friends, fine food, soothing music, fun, laughter and lively! conversation are boon to the soul. While many errors in eating will no doubt be made by your guests from time to time, nevertheless, they will welcome this kind of friendly introduction to natural foods for good eating. We need this kind of friendly rapport from time to time. There are many serving suggestions, ideas galore, to be found in various books written by hygienists and by almost-hygienists. Hannah Allen's *Homemaker's Guide* is a good one. Of course, we like our own, *The Exciting World of Healthful Cookery*! and *Healthful Living* always has some great ideas by Marti Fry. So, don't think you have to live to yourself. You really don't! Try some of our ideas and put a little fun into your life. Learn how to socialize Hygienically and even almost-hygienically once in a while. Watch your spirits soar!

Lesson 82 - The Adolescent And Hygienic Living

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1. Teenagers—An Endangered Species

1.1 The Question—To Leave Home or Commit Suicide?

Several million teenagers will leave home during the year 1984, either because their parents constantly "bug them" to be something other than what they are or want to be; or because they disagree with what they consider their parents' completely out-dated ideas of morality and behavior. And, for a myriad of other reasons. If the present pattern continues, over 5,000 teenagers will commit suicide, either at home or away from home in some strange hotel room or other alien place.

Experts working in this field of social awareness tell us that adolescent suicide is underreported by a factor of from 25 to 100% and that, for each teen who is successful in taking his own life, there are 50 to 100 unsuccessful attempts. In other words, the potential exists "out there" for double 5,000 successful attempts and that 10,000 or possibly as many as one million teenagers are so emotionally torn that, at some time, they either seriously contemplate suicide or actually attempt to end their own lives.

1.2 Teenagers and Alcoholism

The problem of teenage alcoholism is widespread and serious, according to the National Institute of Alcohol abuse and Alcoholism, as the following statistics attest:

Almost 1 1/2 million young people between the ages of 12 and 17 years have a serious drinking problem.

One of every three high school students gets drunk at least once a month, sometimes more often.

One of every three high school students gets drunk at least once a week and some authorities claim that these figures are underreported and that more realistic studies show that as many as 30 to 50 out of every 100 teenagers get drunk every week.

Many 13- and 14-year-olds sit half-stoned in school classrooms with the full knowledge of teachers and administrators, most of whom find themselves totally at a loss as to how to cope with a worsening situation.

Three times the number of teenagers are being arrested for drunken driving now than were arrested only 15 years ago.

Shockingly, too, drunkenness is now being observed in schools as early as eight and nine years of age.

Consumption of alcohol has increased in the U.S. by 40% since 1960, much of it among the college crowd, but also among adults. In fact, a statistical survey taken in 1950 of 17,000 college students who totally abstained from all liquor found that in 1976, 70% were now users with less than 4% now being abstainers.

Peggy Papp, a family therapist associated with The Center for Family Learning in New Rochelle, New York, is quoted by columnist Lew Koch as saying that alcoholism tends to relay itself from generation to generation. Youngsters see their parents drink and, as Dr. Morris E. Chafetz, M.D., Director of the National Institute of Alcohol Abuse and Alcoholism, says, "Youth drink to achieve a demonstrable measure of adulthood."

In other words, teenagers tend to emulate their parents, Ms. Papp contends that parents are largely responsible for teenage alcoholism and they may have to admit "that the three-martini lunches and regular afternoon bar sojourns constitute drug abuse, just as surely as their teenager's tippling during baby-sitting jobs and stashing liquor in school lockers constitutes drug abuse."

Koch maintains that "teenage alcoholism is going to require honesty and vigilance on both sides of the generation gap." Dr. William Rader, well-known psychiatrist, says that alcoholic parent(s) give disturbing memories, anxieties, worries to a child that can haunt him for the rest of his life. "They just can't walk away from homes like that without scars."

It is scary to realize that some 250,000 infants will be born this year in the U.S. with congenital abnormalities and probably 6,000 of these will be due directly to fetal alcohol syndrome; that is, their mother's drinking problem is directly linked to the deformity. Many of these mothers will be teenage alcoholics.

The problem is not America's alone. According to Michael West, in an A.P. release dated April 2, 1979, in Russia, some children become bottle addicts before they reach the age of ten. It seems that 90% of Russia's alcoholics had their first drink before the age of 15 and fully one-third before the age of ten. It is noted that the greatest increase in alcohol addiction is seen in youngsters at schools and technical colleges.

In Britain there are almost twice as many teenage drunks as only 12 years ago. In 1982, in London alone, there were 4,805 convictions of drunkenness among teenagers and teachers say that alcohol is replacing hard drugs as a school problem.

In West Germany teenagers just ignore laws which ban the sale of liquor to minors and there are willing adults to be found everywhere who will sell alcoholic beverages to children for a profit, regardless of the cost to society at large.

It is said that Australia is becoming a nation of alcoholics with "the number of children with drinking problems increasing at an alarming rate," according to a press release. Fifty-eight percent of all young women at Sydney University admitted to "a dangerous drinking level."

The Church of Scotland said 98% of boys and 96% of the girls in Glasgow regularly drink at age 17.

In all of Great Britain $132 million is spent each year on publicizing alcoholic beverages on television screens and elsewhere.

In Czechoslovakia alcohol advertising has been severely restricted in order to combat youth alcoholism which, according to authorities, was fast getting out of hand.

In wine-drinking France the problem among young people became so fierce that a government committee addressing the problem has banned serving alcohol at school lunches to those under 15. This is a radical departure for Frenchmen to take. We well recall taking a trip about eight years ago with a number of French children, ages perhaps four to eight years of age, and watching them all served a glass of sweet wine at lunchtime.

Ireland has taken a forward step to combat juvenile drunkenness by banning all advertising of alcoholic drinks on its state-run radio and television stations.

Here, in the general area of Tucson, there are an estimated 38,000 residents with serious drinking problems.

1.2.1 Alcohol Addiction

Alcohol addiction can create serious problems in the future for young people. Canadian findings indicate that chronic alcoholics who drink for ten years or more show significant signs of cerebral atrophy, according to Dr. Peter L. Carlen, investigator at the University of Toronto in Canada. X-ray scans of drinkers show loss of cerebral tissue and large cavities in the brain.

It was pointed out in the Toronto study that addiction becomes so ingrained that alcoholics will seek strange and bizarre ways to satisfy their cravings, going so far, for example, as John Barrymore, the famous actor, who is said to have in his early years "once sipped ethyl alcohol from his yacht's cooling system while the painter Maurice Utrillo reportedly imbibed lamp spirits, benzine, ether and cologne."

When Dr. Elizabeth was counseling at a reform school for juvenile criminals some years ago, she said that all flavorings, such as vanilla and almond, had to be kept under lock and key because the alcoholic inmates would drink a bottle at a sitting! Many became terribly sick after such indulgence but this did not prevent their trying again the next time!

1.3 Other Drugs

We have spent considerable time presenting statistics on alcohol abuse because this is the single most widely-used drug among teenagers and alcoholism will, no doubt, become a matter of concern at times to practicing Hygienists.

However, teenagers are "into" other drugs, too. Marijuana is the most frequently-used drug, after alcohol, among teenagers. A survey conducted at the Institute of Social Research showed that 51% of all teenagers surveyed used marijuana either at some time in their lives or consistently.

The active poison in this plant is cannabinol, a phenolaldehyde. The user "may have dreamlike experiences, with a free flow of ideas and distortions of time and space; a minute may seem like an hour. He may become talkative or pensive and quiet, or unsteady or drowsy." We observed this drowsiness in one teenage user who had confessed to "bombing out" the night before. He just dropped off into a sound sleep while we were talking to him.

Physical reactions may include rapid heartbeat, lowered body temperature, reddening of the eyes, and dehydration. In some cases, gastrointestinal reactions or increased frequency of urination may be experienced.

Prolonged use of marijuana may cause psychological (not physical) dependence. Investigators at the National Institute of Mental Health found that strong doses of marijuana brought on "strong reactions in every subject." Some experiments said the active ingredient in marijuana may destroy or deform the offspring of laboratory animals. Habitual users sometimes showed loss of memory and some difficulty in concentrating. A report issued by the U.S. Department of Health, Education and Welfare in 1974 seemed to suggest that:

1. Habitual male users of marijuana had been found to have depressed sex hormone levels.
2. Female users of the drug who smoked regularly during pregnancy might adversely affect the development of the fetus by decreased oxygen flow resulting from smoking.
3. Drivers of motor vehicles, when under the influence of marijuana, had slower than normal reactions and a reduced ability to concentrate.
4. Marijuana could interfere with the fundamental chemistry of the living cells of the human body.

Note: Researchers have often disagreed on the results of marijuana studies, and sometimes have come to conflicting conclusions. Not all of the side effects that are possible from a drug will necessarily occur in every individual—however, we still harm our bodies by abusing any substance, and certainly by smoking.

1.3.1 Cocaine

Jet Magazine for March 1981 states that in the two years from 1979 to 1981 cocaine use bad doubled. This is a truly remarkable statistic. Since that time, it has become the, "in" drug and its use among teenagers who can afford it is on the rise.

The drug is believed to produce psychological dependence but not physical dependence. However, it can have certain alarming after-effects, such as the following: it can produce paralysis of the sensory nerve endings and nerve trunks, resulting in anesthesia (inability to feel pain); it stimulates the sympathetic nervous system, resulting in constriction of the blood vessels and dilatation of the pupils; it also stimulates the central nervous system, resulting in exhilaration and possibly in convulsions, followed by mental and physical depression, especially of respiration.

1.3.2 Heroin and Nicotine

Other drugs, such as heroin and nicotine, are not quite as common when it comes to working with teenagers. The Indiana Department of Health found (June, 1982) that some 14% of the teens studied smoked cigarettes. Users of heroin are more rare. In fact, among most teens, heroin is known as a "bad trip," while drugs such as cocaine and marijuana are regarded as "fun" things.

However, nicotine addiction is established more rapidly than addiction to heroin and experiments by Dr. Michael A. H. Russell, psychiatrist at the Addiction Research Unit of Maudsley Hospital's Institute of Psychiatry in London has concluded that the smoking of just one pack of cigarettes provides some 200 successive nicotine "fixes," which is many times that received by a person first experimenting with heroin.

The frightening thing about teenagers and cigarettes is that their use is increasing and, apparently, no method of advertising about potential for harm appears to have had any impact either on teenagers or upon adults. The total number of cigarettes smoked per year rose 16% during the period from 1965 to 1978, this among all age groups including teenagers.

While some researchers in this field claim that smoking is not an addicting habit, that there are no withdrawal symptoms, no tolerance developed, and no antisocial behavior elicited upon stopping, others claim just the opposite. The Royal College of Physicians in London in a report entitled "Smoking or Health," said that there is evidence of a "nicotine-withdrawal syndrome" composed of "intense craving, tension, irritability, restlessness, depression, and difficulty with concentration" plus objective physical effects such as a fall in pulse rate and blood pressure, gastrointestinal changes such as constipation, disturbance of sleep, impaired performance at simulated driving and other tasks, and changes in the electrical impulses in the brain.

Any person who ever took his first draft of a cigarette and persists in smoking can attest to the fact that tolerance to this drug is developed and that rather quickly, too. And any person who has given up cigarette smoking after smoking for any length of time knows that the experience, to say the least, can be trying. Other nervous reactions are possible, including pronounced irritability, nausea, depression, and so on.

Most researchers agree that nicotine produces widespread effects on both the central nervous system and the cardiovascular and peripheral systems. We have observed that when several packs of cigarettes are smoked every day, that the complexion assumes a strange yellowish tinge which seems to underlie the overall effect. This is especially striking with teenagers.

It is interesting that in recent years researchers have become more concerned about "sidestream" smoke rather than the smoke inhaled by the smoker. Two Danish investigators were the first to call the public's attention in 1974 to the fact that it is the carbon monoxide, and not the nicotine, which is the major toxin for the increased risk of smokers to develop atherosclerosis and heart disease. And, of even more interest, perhaps, is the study which shows that some low-nicotine, low-tar cigarettes actually yield more carbon monoxide than some of the more conventional cigarettes.

"Uppers" and "downers" are also in rather common use among teenagers but to a minor extent when compared to marijuana. These are the mood-altering drugs. They are capable of producing both psychological and physical dependence with prolonged use. These types of drugs were introduced by the medical profession to the public and thence to teenagers as early as the 1930s as a "treatment" for colds and hay fever. They were later found to be "useful" for nervous disorders of one kind or another.

Teenagers in the 1950s found that they could use amphetamine pills to supply an artificially high level of pep." Hence they became known as "pep pills." Some youngsters and adults found they could get a real "high" injecting a solution of a pill directly into the veins. Amphetamines depress the appetite, cause digestive disorders of various kinds and eventually, with continued use, malnutrition with possible respiratory and circulatory problems to follow.

The tranquilizers which were introduced in the 1950s became a favorite with physicians who were called to "treat" cases of hyperkinetic behavior. Young children and teenagers alike are daily given these poisons by school nurses and sit half-aware of reality in the classrooms of America, just so the teachers and parents do not have to come to grips with the realities of incorrect living and eating practices.

However, those teenagers whose bodies have been thus violated *must* come to grips with the fact that these kinds of drugs *do* create physical dependence and that withdrawal can be difficult, indeed.

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2. Teen Challenge—Enlightening Statistics

The following statistics have been obtained through the kind cooperation of the Teen Challenge Program for drug and alcohol abuse, a service which was first initiated in 1958 in New York City. The statistics are in a "Services Research Report-An Evaluation of the Teen Challenge Treatment Program" as issued by the U.S. Department of Health, Education, and Welfare; Public Health Service; Alcohol, Drug Abuse, and Mental Health Administration; and the National Institute on Drug Abuse.

We thank Greg Brewer, Tucson Director of Teen Challenge for his kind cooperation.

TABLE 1

Characteristics of Entrants into Teen Challenge Program

Characteristic	**% or x (N=186)**
Age	24
Ethnicity:	

% Hispanic	64.0
% Black	20.4
% White	15.6
Education:	
% 9th grade	23.5
% 9-11 grades	60.9
% 12 or more grades	15.6
% Married	29.6
% Admitted under legal pressure	22.5
% Ever arrested	79.0
%Arrested for drugs	47.9
Religion:	
% Catholic	43.6
% Protestant	29.5
% Jewish	1.6
% Muslim	2.7
% Other	0.5
% None	23.1
Heroin Use:	
% Heroin use at admission	87
% Using heroin at least daily	83

Age of first heroin use	17
% Reporting hospitalization for overdose	31
Other drug use at admission:	
% Tobacco	88
% Alcohol	39
% Marijuana	37
% Other drugs	44

TABLE 2

Characteristics of Entrants into Challenge Program at Age 12

Characteristic	**% (N=186)**
Type of residential community:	
City of 250,000 or more	59.1
City of 50,000-200,000	10.2
City of less than 50,000	15.6
Suburb	10.2
Farm or country	4.3
Don't know	0.5
Living with:	
Both father and mother	69.4
Mother	21.0
Father	3.X

Other person	5.4
In school	97.3
Attending religious services regularly	64.0

TABLE 3

Client Outcome - 1975	Induction Center Dropouts (N=70)		Training Center Dropouts (N=52)		Training Center Graduates (N=64)	
Outcome Data	Pre-Teen Challenge %	Post-Teen Challenge %	Pre-Teen Challenge %	Post-Teen Challenge %	Pre-Teen Challenge %	Post-Teen Challenge %
Heroin Use *1	90.0	18.6	78.9	1.9	89.1	4.7
Alcohol Use	32.9	51.4	36.5	30.8	51.6	17.2
Tobacco Use	91.4	82.9	90.4	63.5	82.8	21.9
Marijuana Use	44.3	48.6	26.9	15.4	37.5	12.5
Obtaining money through illegal means	-	20.0	-	3.9	-	16
Employed/in school	-	57.1	-	61.5	-	75.0
Arrests	80.0	78.6	73.1	55.8	82.8	29.7
Any schooling post-teen challenge	-	28.6	-	21.2	-	40.6
Married/Living with	41.4	57.1	30.8	61.5	23.4	70.3
Health since Teen Challenge reported as good-excellent	-	58.6	-	75.0	-	92.2

Current nervous/emotional problems	-	18.6	-	13.5	-	12.5
Any treatment other than Teen Challenge	40.0	80.0	38.5	63.5	54.7	26.5
Reporting self as:						
Very/Somewhat religious	58.6	88.6	30.8	75.0	26.6	87.5
Not religious	41.4	11.4	69.2	25.0	73.4	12.5
Attending religious services *2	62.9	37.1		48.0	32.8	67.2

*1 An additional 18.6% of Induction Center dropouts, 15.4% of Training Center dropouts and 7.8% of Training Center graduates were using methadone, but it is unclear whether or not this was illicitly obtained.
*2 For Pre-Teen Challenge recorded as "church member."

* Not all the statistics are given here. Those persons wishing the complete report may request same from a local Teen Challenge office or from the National Institute for Drug and Alcohol Abuse, 5600 Fishers Lane, Rockville, Maryland 20857.

The entrants into the Teen Challenge Program considered in the report were largely from the Brooklyn-New York City area (about 90%) and may not be characteristic of all areas. However, they are interesting in that they show that drug usage is found among all races, all education levels, among both married and single. Our personal research shows that drug usage is common also in persons from all economic levels, affluent, economically depressed, in city dwellers and among those who live in rural settings. It is a problem which will come to the attention of the Hygienic practitioner sooner or later in his practice and one that must be appropriately addressed by him/her.

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3. Working With Teenagers

3.1 A Health Class

Not too long ago we were asked by a high school health teacher to address his senior class on some topic we deemed appropriate. He had become mildly interested in Natural Hygiene after attending a lecture of ours some months before and thought the concept should be introduced to his students.

We decided to present the seven steps in the evolution of pathology, a concept we have found usually well accepted by young minds.

We had considerable difficulty in locating the lecture room but, after numerous inquiries, we finally found it hidden deep in the hollow of the earth! The "health" room was actually built underground. It had no windows and all classes were conducted under incandescent lighting. A ventilation system apparently recycled the stale air throughout the building. We learned, on inquiry, that the heating and air-conditioning units were "self-contained," the introduction of outside air being deemed unnecessary except as directed through minimal vents.

It was in this underground dungeon that lectures on health were held. The various rooms in the facility were devoted to activities as diverse as lectures and discussions on hygiene, sex, biology and so on. We silently asked of ourselves, "How can health be taught where health cannot be found?"

Since we had arrived at the lecture hall some five minutes or so before the class was to convene, we had ample opportunity to observe the about-to-be-adults as they strolled into the room. And stroll and shuffle in they did! They seemed totally oblivious to the fact that guest instructors were present and kept up their loud chatter, their calling from one end of the room to the other as friends sauntered in.

As the students took their seats, some immediately laid their heads down on their folded arms, while others just kept desk hopping or from one part of the room to another. It was as if we were invisible.

Suddenly, a rather attractive girl entered the room. Loudly, and completely without hesitation, a male voice rang out and we heard, "Hi, June! Have you made out today, yet?" No one in the class seemed to pay much attention to the question, although a few did giggle. "No," came back the girl's reply. Then the young man said, "That's OK. Meet me after class and I'll take care of that!

No one in the whole class that we could see either looked up or stopped his chatter. Apparently this open exchange was too common to cause excitement or comment. We had to assume that this kind of public sexual encounter was the "in-thing" among this particular age group.

When the teacher arrived, the chatter, the giggling and the squirming, continued. We observed two or three students who were actually attempting to read. They sat hunched over their books and reclined well back in their seats, not on their buttocks but apparently on some portion of their spinal column. As far as we could see, there wasn't a single straight spine among either the boys or the girls in the entire room, rather a frightening thing when one considers that these young people represent the future fathers and mothers of the coming generation. The teacher was a tall, rather well-developed, young man, but neither his presence nor ours seemed to make any impact on the students. In fact, he had to call them to attention several times before the noise began to subside and some measure of attention was gained.

Since there were some matters of immediate concern to individual members of the class, the teacher took these up first and, while he was thus engaged, we had occasion to take a good look at the seated fifty or so young people, most of whom were between seventeen and eighteen years of age and, since this particular school was in one of the more affluent neighborhoods, we assumed that all the students probably came from upper middle-class homes and that most would probably go on to colleges of their choice throughout the country to continue their education.

As we took a critical look at these teenagers, we saw no health among them. Instead, we saw curved spines housing encapsulated lungs; pimply skins, some overly flushed, some pasty in color; lack-luster hair, overly crimped in the girls and many already thinning in the boys. A lack of vitality was evident in most, so much so that they slouched in their chairs or sat with head drooped to their chests; the hyperkinetic, of which there were many, twisted and squirmed in their seats. We saw not a single person sitting erect at his desk with feet firmly planted on the floor, with head held tall, resting on a well-formed neck. And, not a single person appeared intellectually curious about the topic of the day which had been previously well advertised. They seemed just to be *there* because this class was part of a curriculum required for graduation.

Later that day, we both commented, "Can't they SEE"! Are their teachers, administrators, their parents and physicians, their coaches and health teachers all *blind*? Can they not see that this is all wrong? That this is not health? These are bodies saturated with poison. This is disease, rampant with foreboding terror for the future not only of these young people but of our nation. How can we, as a nation, hope to survive when these, the children of the most affluent of our people, have so little vitality, such a void of intellectual curiosity, when they look and act as these young people look and act? We asked of ourselves, "If this is the level of wellness displayed by the children of the affluent members of society, what can be said about the children of families less economically secure?"

3.2 The Drugging of Children

Another time Dr. Elizabeth was to speak before a group of sophomore students, tenth-graders. We were requested to meet the teacher in the nurse's office. There we found a group of about ten teenagers lined up sitting in chairs along one wall. When the nurse saw us at the door, she left the group, made her apologies to us and said that she would be with us in a few moments. "I have to give these kids their shots," she said, and off she went. We watched in horror as she went from youngster to youngster and either gave each one a pill or an injection.

After the children had all received their poisons for the day from her reluctant hands, the nurse came back to us and commented, "I really don't like to give these kids these drugs, but their doctors have prescribed them, so I have to!" Of course, we knew why they had been prescribed, but we asked anyway. The answer came back, "Oh! They're all so hyper. The medicine settles them down."

A few weeks ago a mother consulted us about her daughter, age 15. She said she couldn't quite put her finger on what was wrong with the girl, but something was definitely out of character. She had always been a "healthy" child, never a problem but now the girl was too quiet some times and yet hyper at others. Also, she appeared to "leave the planet" on occasion, and was just not "with it." Sometimes, too, she was just plain "moody" and often difficult to live with, crying for no particular reason.

We suggested to the worried mother that it would be advisable to have a comprehensive blood test made. We also requested and received a diet diary for one week and a rather complete medical history which revealed the customary childhood diseases and the usual complement of drugs which had been prescribed on numerous occasions.

Dr. Robert completed the Bursuk-McCarter Bionutritional Blood Test *Analysis and Profile* within the week. We were both astounded and dismayed by what this report revealed. This fifteen-year-old child's body was obviously revving in high gear. Out of the 33 required test readings, at least half were above the optimal level and eight were ready to jump off the chart. We recognized the signs of luxuriant metabolism that had gotten out of hand. Everything confirmed a body well saturated with poisons of one kind or another, poisons that were rapidly wasting this girl's substance.

We immediately notified the mother that we would like to meet with her daughter alone and inquired if the girl had a boyfriend. We learned that she did indeed have a boyfriend and that they were extremely close, almost inseparable. We suggested that he come with the girl and this was satisfactorily arranged. You see, by this time, we were convinced that there might be more here than one would normally expect, and such proved to be the case.

We met with these two teenagers with their parents consent, but without their, parents" presence. We told the youngsters that whatever they told us would be held in the strictest confidence. What we heard on that day was a tale of unbelievable destruction of both body and mind. We have no reason to doubt the authenticity of that confidence. In fact, everything we have heard since confirms it.

When shown the blood test *Analysis and Profile* and, after comparing her revealing *Profile* with that of another reasonably healthy young person, the girl confessed that she had been on drugs since she had been about twelve years of age. She had been introduced to them by her school teacher father, first to marijuana, and then later to cocaine.

The girl's boyfriend who was seventeen years of age, was a heroin addict and it was he who had introduced her to that drug, although they both said they preferred cocaine. They smoked marijuana several times a week; drank alcoholic beverages including wine, beer, and whatever they could get their hands on. They admitted to being sexually active, having intercourse almost every day in cars, in the school basement, at either his or her home, or at the home of friends when the "gang" had their "sex" parties.

We inquired how they financed their habits and were bid that the young man was a pusher, that he sold drugs to all the other kids at school When we inquired how much he made, he simply replied, "Enough! Almost all the kids are on the stuff. It's easy money!"

By this time the young people were both talkative and so we let them talk while we sat back and listened. The girl told us that her mother was divorced, had legal custody of her for 6 months a year, and worked. The nature of her employment necessitated her being out of town quite frequently. On such occasions, a friend who lived nearby would look after the girl but the looking after amounted to telephoning every evening at about 10 p.m. to ascertain if the girl was at home. If she answered the phone, it was assumed that she was "safe," even though there was no responsible adult present in the house. On such occasions, with the mother safely out of town and the neighbor several streets removed, the girl and her boyfriend made a night of it, often having their friends in for sex exchange and drugs.

When the mother was in town, the daughter simply told her trusting mother that she was going to a girlfriend's house to study and spend the night. Apparently afraid of her daughter's possible wrath, the mother never checked on her whereabouts. In truth, on many of these occasions, the daughter would be at the boyfriend's house, drinking, and taking drugs. It seemed that the young man had been an unwanted child and his parents apparently didn't care what he did, just so long as he didn't bother them and didn't get into trouble with the "law!"

This was the picture of youth that we received that day: troubled in mind, filled with junk foods, chemicalized soft drinks and drugs; victims of irregular eating, of parents who either did, not care or were too occupied with their own concerns to worry about their children's well-being; children thrown into an adult world without any conscious awareness of the consequences of their own acts; children with immature bodies engaging in sex beyond the full understanding that they might bring children into the world.

3.3 We Consult Our Attorney

We felt obliged to consult our attorney on this case. In this day and age when practitioners of non-orthodox schools, are often under close scrutiny, we keep in pretty close touch with him. We were, of course, righteously angry at the bold neglect and actual emotional abuse inflicted/on these young people by neglectful parents and by society at large. We had, of course, been aware of the fact that teenagers were "into" drugs, but this was right in our own backyard, among "our" kind of people, not in Detroit or New York or London, but right *here*. We had been dismayed at learning that almost every single teenager in their peer group was using drugs, some for years. Alcohol was commonplace. No one thought any more about drinking than about going to class. Almost all smoked, either marijuana or regular cigarettes. We felt like shouting to the world, to the parents, the school authorities and to the law about the means and methods being used to push drugs on the school premises, inside and outside of the classrooms. But we listened instead to the voice of caution which, as practitioners, we felt obliged to heed.

We were told that we should and could do absolutely nothing since we had received all this information in confidence. We could not even advise the parents as to their children's health-destroying behavior and practices. Our attorney pointed out to us that the children, if they so decided, could change their testimony and leave us vulnerable. We could prove absolutely nothing.

3.4 We Do the Possible

Subsequently, we met with the parents of the girl in the presence of both young people, the parents expressing a wish for the boy to be at the consultation, something we do not ordinarily consider. We presented the parents with the results of the blood test and suggested that certain remedial steps should be given immediate consideration. We divulged no confidences. Nevertheless, we did strongly suggest that the proper course of action in this case would be for both teenagers to fast and to do so immediately; that, in the girl's case at least, the need was urgent. The fasting period over, then they should begin a well-planned Hygienic program which was to include the whole spectrum of organic requisites, especially exercise. The two young people thought the idea was "neat," and agreed to follow our instructions, whereupon everybody left quite pleased with themselves.

However, there was no follow-through. We had suggested that the girl should be sent to a Hygienic retreat and, indeed, inquiries were made by the parents as to prices, possible dates, and so on. However, as so often happens with this age group, these teenagers decided to take matters into their own hands because they didn't want to be separated and the boy could not go along with her to the fasting institution. So, without consulting with us, they decided to detoxify themselves! Foolishly, their parents agreed to let them try it.

Probably our students are way ahead of us in our story. Their fasting lasted one day! In that short a time, they began to experience so much pain, diarrhea and vomiting that they had to break the fast. They even began to hallucinate! The mother of the girl became so alarmed at the course of events that she refused all further advice.

We must assume, therefore, that both of these young people are still claiming that their parents, their teachers and all of us adults don't "dig it." Since we have not heard to the contrary, we must also assume that both teenagers are still confirmed drug users and that their bodies are becoming ever more saturated with poisons with every passing day. We know that the day of reckoning will come and that it will be a sad day, indeed, for all concerned, but especially for them.

3.5 The Younger Set

We bring you still a third example because it presents a situation which is somewhat similar, but also different, both in family involvement and in its legal ramifications.

A Hygienic mother brought her 13-year-old son to us. The boy lacked coordination. He could see a ball or other object clearly enough when it was coming toward him, but he could not control his muscles well enough to catch it. He was unable to maintain a proper balance when riding a bicycle, often bumping into his mother when he accompanied her on her morning rides.

The young lad's face was pimply, many of the sores oozing pus. We learned on questioning him that he was hooked on sugared foods—ice creams, chocolate candies, cakes, cokes, and other drugged foods. He had an almost insatiable craving for peanut butter and jelly sandwiches.

Stu was a very pleasant child, extremely good looking if one looked behind the acne and, strangely, did not appear to be hyperkinetic. In fact, he was a rather quiet lad. The pimples, of course, betrayed a highly toxic inner state and it had been these and his lack of muscle coordination that had prompted his mother to bring him to us.

The father in this family was a very physical person. He liked football and other contact sports. The boy, however, seemed to take more after his mother than the father, being rather slight for his age and, as we have said, a quiet sort. However, Stu did want to please his father and had ambitions of becoming a professional soccer player. He said that he knew he was too small to play either football or basketball but thought he could qualify as a soccer player if he could just get his muscles under control. It seems the father was always after his son to "shape up" and be a "man."

Since the boy was well motivated, we set up a program which included a diet more Hygienic than his customary fare but one not so strict as to turn him completely off. The family physician cooperated with us and arranged an appointment for the boy with a physical therapist who designed an exercise program geared to his specific needs. The mother happily endorsed both programs as did the boy.

Apparently Stu cooperated quite well for a time and showed considerable improvement but, some four years later, we were again contacted by the mother who said she had a "problem." Her son was now a young man, some 17 years of age, and was about ready to be graduated from high school. It seems that he had informed his mother that, at that time, he would be "taking off!"

We decided to meet the mother by herself before tackling the problem, to see if, indeed, it was soluble at this late stage. A very revealing story was hesitatingly imparted to us by the mother. It seems that, in the intervening years since we had last met, the husband and wife had slowly grown apart and were now totally estranged, coming and going in the same house, but as strangers.

The young man, Stu, with the cooperation of his father was busy growing marijuana in the back yard! Stu harvested the weed and then sold it to his peers "at school." We later learned that Stu was actively selling the stuff at the local junior high school and that business was quite brisk, the demand steady. Again, we heard the story, "It's such easy money!"

We learned that both father and son were smoking marijuana and that, over the weekends, Stu, with is father's consent, had "parties" for his school "buddies," both male and female, in the family home.

All we could do in this case was to point out to the mother that both she and her husband were not only contributing to the delinquency of a minor child by consenting to illicit activities but also helping to destroy other parents children.

It seems that the mother had become extremely weak-willed due to the fact that her husband, in order to protect his easy money, had actually used physical violence on her as a means of compelling her silence. We pointed out to her that because she did not actively protest and even go so far as to destroy the plantings or to forbid the drug parties in her house, that she could not be excused of culpability if the matter were brought to the attention of the authorities. We advised the woman to seek the advice of an attorney and to consult with a marriage counselor.

Again, we went back to our attorney and, as before, he pointed out that we were boxed into a corner. We could not divulge the confidence of consultation. He went on to make a further point. In this case, whatever knowledge we had was based solely on hearsay and, again lacking proof, we could make ourselves vulnerable to a legal suit for considerable damages if a false arrest followed our giving information to the police.

3.7 Methadone and Heroin

This last case was somewhat more successful. The client, a young man aged 19, was referred to us by a counselor at a local hospital who had heard about our work from a staff member at the hospital who had himself been a former client.

Jim had turned himself into the hospital admitting to heroin addiction. He was currently on methadone, a supposedly nonaddictive drug which is used as a "substitute" for heroin by physicians. Jim was a farmer who lived on a ranch near the Mexican border. It was easy for him to get all the heroin he wanted but he wanted desperately to get "clean" of all drugs and so willingly came to our office.

We learned that Jim's main interest was growing fruit trees and vegetables and said his farm was beautiful to behold. He was fully aware of the dangers involved in his continued use of heroin. We further briefed him on the systemic damage possible when any drug, even methadone, is used. Jim listened intently and, being a highly-intelligent person, he agreed that, no matter the cost, he would make valiant attempt to avoid all drugs but would do so on a "step-down" program since he had the responsibility for e care of an invalid mother and the farm and felt that he could not, at this time at least, enter a fasting institution.

We devised a program for Jim which included the Extended Detoxification Plan as given in Lesson 63 on "Hair" but the time intervals were expanded. At the same time, with the hospital's approval, Jim began to reduce the methadone intake—very gradually. He willingly cooperated with an 80% raw food diet since he could use all his own home-grown produce of which he was very proud. This approach was successful to the extent that the methadone dosage was cut in half within a relatively short time.

Jim is still fighting to win and we think he will soon approach his goal of once again being "clean!"

3.8 The Hygienist and the Addict

Addiction to any drug is amenable to fasting. The body saturated with poisons of any kind, including nicotine, heroin, marijuana, cocaine and all the mood-altering drugs, will give up its drugs while on a fast. The so-called "Withdrawal" symptoms of the drug addict are often very severe and include cramps, nausea, "spacing out," chills, violent sweatings, and others of lesser importance. The first few days are the most difficult from all accounts we have read, with symptoms continuing but lessening in intensity and usually concluding within a two-week period.

In drug addiction it is important to fast until the return hunger, the classic signal that the body fluids are clean." However, if the addiction has covered a period of some years, it may prove necessary for the once-addict to repeat the fast periodically, at least for from 10 days to two weeks simply because the "weakness," the tendency to yearn for the addicting poison, often remains.

Many will express willingness and a desire to become cleansed of drugs but only relatively few will be successful in following through. This is largely due to lack of willpower and/or sufficient motivation. One can preach all one wants to about the evils of drug usage. These are all well known to the addict. There has to be a higher motivation to keep him on his cleansing program and that is often difficult to find.

The *National Courier* of July 9, 1976, in an article by Bill Pennewill, claims that Teen Challenge (see previous reference) is the best drug rehabilitation program around. It apparently has a 70 percent "cure" rate. Its emphasis is on the spiritual and they encourage those who seek their help to become "born-again" Christians. No changes are made in their dietary practices except perhaps to avoid obvious "junk" foods.

Teen Challenge, like Natural Hygiene, requires a "tough, cold-turkey approach." Subjects just stop using drugs from the moment they seek the help of Teen Challenge.

The fasting approach recommended by Natural Hygienists has not as yet been properly promoted by those of us in Natural Hygiene. If it were more widely used, its success rate would approximate 100% and fewer former addicts would revert. Additionally, cleansing of the body fluids of drugs would occur much more completely and to rapidly than by any other method. Forty-three percent of those who get off drugs through Teen Challenge become addicted again. After a prolonged total fast, the use of any drug makes the taker on first use so violently sick that more often than not, he never tries a second time!

Obviously, those persons who "get into" drugs do so for a variety of reasons: peer pressure, emotional problems of one kind or another, undiagnosed illness, and so on. Following cleansing of the system by whatever means, the former addict requires help to solve the problems or situations which first caused him to use drugs. We suggest that professional counseling can be very useful. Teenagers need support even more than adult addicts. They should be encouraged to join groups of other like-minded teens. Probably this is a major reason for the proven success record of Teen Challenge and it might be helpful to refer prospective clients to such an organization.

In our discussion we have, from time to time, put forth some signs that may indicate addiction of one kind of another, such signs as nervousness, hysteria, hyperkinetic behavior, drowsiness, inattention, looking away with reluctance to look directly at the practitioner, and other typical symptoms. When these are observed, it may be useful to suggest a private meeting with the young person. On ascertaining the true situation, then the practitioner must present the facts of Hygiene to his young client, telling him something about the realities of organic existence. He must point out that there are three avenues open and only three: 1. Continuing his present practice with the certainty that his life will either come to an abrupt end through overdosing or will be extended for an indefinite time with increasingly high dosages required and an uncertain future which will include an unknown number of afflictions of one kind or another, including but not limited to, brain and neural damage, atherosclerosis, malnutrition, kidney and liver disorders, many extremely painful, plus cancer; 2. An Extended Detoxification Program which is admittedly seldom successful in its entirety due mainly to lack of will power; and 3. Total Fasting, always at a fasting institution under the guidance of a practitioner experienced in fasting addicts, this to be followed by a carefully worked out regimen including a diet of raw fruits plus a few vegetables and nuts.

3.9 Teen-Clean Retreats

The problem of teenage drug abuse is admittedly out of hand. As we have already commented, Hygienists can play a constructive role in remedying this situation, not only through individual counseling, by means of lectures and by fostering public awareness programs but, in an even more meaningful way, by opening what we like to call Hygienic Teen-Clean Retreats where teenage addicts, regardless of the type of addiction, can come either to fast and/or to learn about how the full application of Hygienic principles in their lives which could produce dramatic results, positive results which could change their present empty lives into a future filled with promise.

We envisage the formation of nonprofit organizations complete with certain tax advantages at strategic places throughout the country, these expressly designed for the rehabilitation of America's youth so that the America of tomorrow can survive. Teen-Clean Retreats, located in strategic areas and having the financial support of able adults, can prove to be competent performers in this field simply because it has been well demonstrated that the full application of the principles of Natural Hygiene can be 100% successful, even in difficult cases!

3.10 Other Characteristic Disorders

In our next Lesson, Number 83, we take a journey through an average lifespan, that of a person unfamiliar with the basic principles of Life Science. The journey is divided into nine stages, one of which covers the period from age 10 to age 20—the years during which the child becomes the adult—or almost an adult!

Since we will be reviewing the disorders so frequently observed at this stage in life at that time, we will simply comment there that the characteristic acute diseases of childhood become less frequently experienced generally after puberty, due (as Hygienists well know) to the fact that wrong habits have so dissipated the life force in this short a time that not sufficient vitality exists among many to power the exodus of a rapidly soaring toxicosis.

Thus it is that we begin to see more serious conditions develop, some of these becoming chronic even at this early period in the life course. Inevitably in such cases, the life span is doomed to be seriously curtailed and, more often than not, the life span that remains, brief as it well may be, will be one filled with pain and suffering.

The acute conditions which do continue into the teen years are readily amenable to Hygienic care. We refer to diseases of the respiratory tract, the various catarrhal involvements; also, to those that afflict the gastrointestinal tract, such as colitis, ulcers, and so on; to the rheumatic pains wrongly associated with growth; to the bane of teens, troubling acne and other disfiguring and annoying skin eruptions. Usually, a few days, a week at most, of fasting followed by a carefully controlled diet will be sufficient to alleviate the conditions that trouble the young person, provided, of course, that the Hygienic regime is always coupled with constructive pursuits, including exercise.

Conditions associated with the emerging sexual awareness may prove more obstinate but not necessarily so. Several shorter fasts, for example, may be required to correct the female PMS Syndrome, the discomforts experienced by so many young girls prior to the menstrual period, discomforts which, if allowed to continue and worsen, may lead to emotional problems with the married scene.

3.11 Emotions and the Teenager

The teenage years are the years of maturing, of puberty and adolescence, and it is during these years that two general problems are usually presented: 1. Problems associated with sexual maturity, and 2. the many difficulties experienced relating to the approach to adulthood, independence, and self-assertiveness.

In order to successfully make the transition from childhood to full adulthood, teens need education, guidance and suitable role models to look up to and, possibly, even emulate. Without these factors and influences being available, many teenagers will flounder in their confusion, often becoming overwhelmed by fears, anxieties, worries and concerns. These are the teens who are easily swayed and led into anti-social practices of minor and major dimensions.

Were it possible to measure all the impairment and inhibitions of systemic function caused by long-sustained deep emotions such as we have enumerated, we adults might be appalled at the amount of harm done to growing youth by our lack of awareness. It has long been known to Hygienists, especially since the pronouncements of J.H. Tilden, M.D., on the subject, that the maintenance of poise is one of the greatest conservators of nerve energy known and that fear is the greatest nerve energy annihilator of which we have any knowledge.

Many teenagers are afraid, afraid of the unknown world out there, afraid because they lack parental understanding, afraid because they lack a suitable male role model in a family split by divorce or in a family where the parents both work and there is no one immediately available to listen to and explain away frightening situations.

Young people become overly anxious when parents and/or others expect more from them than they are or ever will be capable of producing: the football-lover father who insists that his rather frail son participate actively in contact sports; the mother who failed herself to become the greatest dancer of her generation who pushes her young daughter into dance classes when the child has the secret ambition to become a classic pianist or to paint, or perhaps even to become a fine writer.

Intense feelings produce physiological changes which stimulate certain reactions such as either an accelerated or a retarded pulse rate, an increased or diminished endocrine hormonal secretive action which directly influences all cellular metabolism and/or changes in body temperature.

It is well for us to understand that there are three primary emotions that are especially evident in the teen years: love, fear and anger. Because of their youth and vitality, teen responses are usually more or less immediate—they often seem to come in a flash, almost for no reason. This is why so many adults have difficulty "understanding" the members of this age group. But, we should comprehend that these fierce responses are in proportion to the individual's maturity. Handling our emotions is a learned experience.

Of importance to the Hygienist is the proven fact that when the fluids of the body have been cleansed, emotional control tends to improve. The energy forces of the body are thus directed toward intelligently coping with problem situations rather than buckling under to them either by expressing rage or by simply giving up.

Young people need to be given the opportunity to be successful in small projects, to be allowed to grow into more difficult challenges. Throwing an impossible at a teenager and then expecting perfection can so confuse a young person as to drive him to "show you!" with running away, rebellion, visible disease symptoms and possibly even suicide. Small successes, on the other hand, encourage greater performance because being successful provides pleasurable emotional responses, a more correct type of systemic stimulation.

All disorders which relate to the sexual maturation of the body become of paramount importance during the teen time-frame: anything which influences the appearance of the body or any single part of the body, such as the genitals in the male and the formation of the breasts in the female. If the sexual organs and the body as a whole mature and develop in size normally, the teen is generally happy provided, of course, that all other influencing factors are likewise normal. But, everything else in the teen's environment can be of the highest and most constructive order with some deficiency sex-wise and the teenager will be thrust into deep despair.

When plagued by emotional troubles, the health of the teenager, indeed, that of all humans, will diminish. The digestive system gives immediate response to emotional unrest and the stomach is generally the first organ to register protest. Digestion is inhibited; glandular secretion by all secreting glands can be either impaired or completely stopped. Even the muscular motions of the gastrointestinal tract can be suspended, sometimes for hours during severe emotional travail. This last is especially prevalent among badly enervated individuals with the result that ingested food simply lies *in situ* within the confines of the alimentary canal and is there subject to fermentation and putrefaction. Next to overeating and incorrect eating, mental influences cause most of the digestive upsets from which so many teenagers suffer.

The functional impairments caused by overeating, incorrect eating, and a wide variety of emotional disturbances eventually result in toxemic crises of one kind or another, some of which we have listed. If the causes are allowed to continue, organic changes will follow in due course, these according to inherited weaknesses and the intensity and nature of the toxic debris.

In working with teenagers the practitioner must recognize that whatever the present condition may be that brings the youth to your office, it has been *caused* and that you, working with the parents or other responsible person and he teenager himself, must all do your best, first to ascertain that single cause or multiple causes and then either to remove it (them) completely or to reduce the impact.

Once cause has been ascertained and appropriately dealt with, then a workable plan of action should be presented to all concerned. This plan should provide for successful achievements to follow. For example, suppose the young man or woman is 50 pounds overweight and is greatly troubled by this. The practitioner must explain just how the obesity will be addressed and present reasonable goals to be achieved.

Young women can be driven to the point of hysteria by a bad complexion or drab-looking hair. Young men who are acne-prone can be withdrawn and difficult to deal with. The Hygienist can point with pride to the fact that no one has better looking and finer-grained complexions and/or more luxuriant shiny hair than Hygienists. The fact that you have a plan of action to bring miraculous changes in a young person's appearance can often prove highly motivating.

Suppose the immediate problem is a lack of a suitable role model, either male or female. Then, group participation under the able direction of a well-motivated and suitable adult should be recommended. Group activity should always be directed toward an area of interest to the teenager himself, not to one of interest to someone else as, for example, an overly-zealous parent.

Sometimes parents don't listen to their growing children, being overly concerned about economic and other problems affecting the family. Behavior modification needs to be encouraged in such cases. A first step is actually setting out both a time and a place for parent(s) to sit down and meet with the teenager for the purposes of listening, discussing and advising, all without condemnation, shock or criticism. In the absence of a willing parent, it may be necessary for the *practitioner* to become the confidant.

We remember well one 16-year-old girl who was brought to our attention because of severe digestive cramps, diarrhea, and so on. Her diet appeared to be above average. She was an excellent student in school and appeared to get along well with everybody. A previous physical examination had revealed nothing apparent to cause such a condition.

We decided to have a confidential talk with the girl. We knew, of course, that her father was a minister representing a very strict fundamentalist group. The girl apparently had no quarrel whatsoever with the precepts expounded by her religious faith. However, we learned that recently a conflict had arisen between her and her parents with regard to the showing of a very fine movie which her whole biology class along with their teacher had been invited to attend.

The girls' parents had forbidden her to attend. This fact had proved a terrible blow to her pride. She was to be the only one in the whole lass who would not be present at the theater party. The particular movie was a fine clean presentation. Several teachers were to accompany the group and they would all be taken to and from the theater in the school bus. Neither we nor the girl could find a single valid reason for her not to attend the showing.

However, we presented her with some reasons we felt she shouldn't *have* to go to the movie. 1. Her parents felt obliged to set standards for their parishioners. 2. They obviously loved her and wanted only the best for her, 3. That so long as she was living with her parents she was in no position to force her will upon them, 4. She was presently unable to fend for herself, 5. In the future, when she was ready for college, it would be her loving parents who would continue to provide for her, and, 6. In return for all the financial support and loving care, she actually was being called upon to do a very simple thing, that being not to watch a few hours of flickering images pass across a screen, images that would be gone from memory within a few days or weeks at most.

We talked on and on that afternoon. We listened, we conversed. That was all that was necessary. Shortly thereafter, all the digestive troubles vanished like magic. Emotional poise had been restored.

All concerned within the family should be encouraged to develop family feelings of togetherness, of mutual understanding of concerns of both parents and child; feelings of joy, pleasantness, satisfaction and, most of all, of a shared love. In other words, they should be encouraged to explore the life adventure together, not separated by miles of misunderstandings.

We encourage new practitioners to study behavior modification techniques. We all need to learn how better to encourage our clients to take "baby steps," to accomplish those small successes which can lead to meaningful emotional development and stability, a state highly conducive to total well-being.

We should at all times remember that teenagers must have their vital needs appropriately met, such as suitable food, clothing and a friendly environment but, for them to reach their full health potential, we must be aware of the fact that they must also have their non-vital needs met as completely as existing circumstances warrant. Furthermore, if the present circumstances are unfavorable, then intelligent steps should be considered in the light of the possible to change them to the extent that they, will more favorably meet the needs of the maturing young man or woman.

3.12 Peer Pressure

In our discussion we have not directly addressed the subject of peer pressure. Since it is more often than not more powerful in the daily life of the youth of today than all the family's needs, desires and aspirations combined, it is important that this subject be considered, if only briefly.

Accordingly, when a youth has been brought to your office with any kind of physical or emotional problem which is adversely affecting his health, and peer pressure has been instrumental in causing the problem (as was true in the case of the minister's daughter), then the interview must be carried out in planned sequence.

First, the youth must be able to admit that he has a problem which needs to be solved. *Second*, that he should not be swayed by his peers when he knows he has the right solution to his problem; *third*, that the problem, if allowed to continue, will prove detrimental to him both now and probably also in the future; *fourth*, the problem must be identified and this as precisely as possible *fifth*, he must be convinced by the evidence that the problem is solvable and that you, his friend and practitioner, have the knowledge of how to solve the problem and that you will show him the ways and means whereby he can overcome the problem.

When the above steps have been taken, then the young person should be shown, by means of a diagram, that he is now HERE, of course, being in his present unfortunate and unhappy state, a condition of mind and/or body which restricts his forward progress, especially his social and interpersonal relationships with his peers of the opposite sex. A list of negatives should be set forth for due consideration.

Once the negatives have been addressed, then the positive potential should be presented, the going from HERE to THERE, there representing a time and place in which the troubling condition will have been entirely removed and the way laid open before the youth for whatever personal ambition or desires that s/he may have deep within the innermost self to be capable of fulfillment. This is the time to express and set forth the "Positivities" which will challenge your young client.

The next step follows logically in sequence. The young client should then be asked, "What will you GIVE, what will you be willing to *do*, to reach the THERE in your life? To open up the doors that are now closed to you? Will you do THIS, and THIS, and perhaps even THAT?

In proper motivation lies the key to success. This kind of role-playing on paper can often overcome adverse and contrary peer pressure, provided the young person receives kindly and understanding support not only from the practitioner but also from the family. We must convince the teenager that he must do his own thing, not what the crowd wants!

3.13 School Support

While we have many quarrels with the public school system, sometimes support in certain difficult areas can be obtained through working with school counselors as, for example, when the teenager's interests lie in a definite direction, say in the arts, or in music, or in some particular kind of physical activity.

As a part of their extracurricular offerings, schools quite often provide a wide range of club activities: art clubs, bands and orchestras, singing groups, newspapers, theatre groups and others. The counselor can often direct the student to activities with plenty of opportunities so that the student can enjoy success and the activities themselves.

When alerted to specific needs or desires of a student as for example, the yearning of a now spindly lad to develop his muscles, a physical education coach can often provide splendid advice. Teenage barbell sets are now available suitable for young people, girls and boys, with less than average frames. They cost less than $20 and often are accompanied by an excellent instruction booklet. Sometimes this is all that is required to change tears into radiant smiles of determination.

We suggest that you explore what the schools in your area have to offer. They may provide just what you may need at some future time when you may be called upon to counsel a difficult emotional problem which adversely affects the health of a young client.

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4. Questions & Answers

My 15-year-old son is sullen and depressed. His mother and I have just about reached the end of our patience. We are thinking of handing him over to the authorities. We have always tried to give him the best of everything but now we are losing our minds over this boy. His behavior is affecting his mother's health, too. Do you have any suggestions for us?

Do you think your wife's health would be any better if she were worried about where her son was and who was taking care of him or wondering if he were in trouble somewhere without any loving member of his family present to whom he might turn for advice or comfort? Again, let me reiterate. A healthy person is a happy person. Your son is sick, and this condition doesn't help his mind. Your son is emotionally troubled by inner hurts, by his toxic condition. You need to set up channels of communication with him, not shunt him off to some strange environment with strangers as companions. Don't ask "Why?" of him, but rather ask "What?" What can we do for you? And, "How?" How can we help you to obtain your goals? Not ours, but yours? Then, begin to improve your family's eating habits, slowly if you must; immediately, if that is possible. Get interested in what he's doing or wants to do. Communicate! But, let HIM do most of the talking. Listen! Most teenagers complain that their parents don't listen to them. Let him open up his thoughts, his ideas, his heart to someone he knows really cares about him. That could be the beginning of a beautiful relationship between you and your son. But, most important of all, see to his nutrition. Get his body cleaned out and he should be just fine!

My daughter is 16. She has had asthma ever since she was 12 years of age. She has been to many doctors. They all just give her drugs and they haven't helped at all. She just seems to be getting worse all the time. She is so unhappy. Can Life Science help her?

Indeed it can! The full application of the principles and practices embodied in the science of life can. Your daughter's body is filled with poisons and these are what is causing your daughter's unfortunate condition. I imagine your daughter had many colds as a youngster and probably experienced many healing crises in the form of some of the familiar "childhood diseases." She was probably vaccinated, too, perhaps several times. I see you are nodding your head. Let me tell you about a 17-year-old girl who was brought to our office by her parents. She also had been kept on various medications. In fact, longer than your daughter, because she had received her first dosing when she was a year-and-a-half old and, up to the day she first came to us, she had continued faithfully taking her pills every single day! During all this time, this girl had never been able to play with a puppy or cuddle a kitten. She had never been able to play ball or run with the other "children on the playground. Now, here she was, in her first year at college. She was still unable to be "one of the gang." Instead, she had to watch what she did and with whom she did it. She had to be careful where she went, too, because of her numerous "allergies." And, above all, she had to be careful to take her pills

We presented to this girl and her parents the solution to her unfortunate condition: a complete Hygienic program which included a 100% raw diet of fruits, a few vegetables with occasional small amounts of nuts and seeds plus, of course, sunbathing, more rest and sleep, walking, etc. We asked the girl if she would be willing to give up her present haphazard way of eating for this new adventure in good eating so that she would have complete freedom from asthmatic "attacks" and her "allergies." We told her to take her time making up her mind, that this was an important decision and that the changes we were suggesting, this new way of living, would be for the rest of her life, from now on, not just for the next few weeks. The parents listened carefully to us and wisely kept silent, knowing full well that this had to be their daughter's decision. The girl thought it over—the time seemed long to us as we waited anxiously but quietly for her decision. Finally, she nodded her head. She was willing! Three years have come and gone. Today this young woman has just about forgotten all about her asthma. She is no longer chained to her medications. Not too long ago, she brought her fiance here to the ranch for us to meet. They are both into jogging, and the young man is learning all about Natural Hygiene. They have great plans for the future, including a family of nonasthmatic babies! Yes! Your daughter can be helped, but it will take three things: 1. Knowledge of what to do, 2. Knowledge of how to do it, and 3. The DOING! We can impart to you all the knowledge you will need but it will be up to your daughter to complete the job. And you, her parents, can support her in the doing!

My son is 16. I know he is intelligent, but he is difficult to understand. His grades are terrible, his face is pimply and he has very few friends. If he doesn't shape up soon, I don't know what will become of him. I want him to go on to the college where his mother and I went, but he'll never make the grade at this rate. Can you help us reach him?

I think so. The chances are that your son's moodiness, his poor grades, his lack of friends and his pimples are all caused by the same thing: a toxic condition of the body. The ideal thing would be to start out with a fast but, in his present state of mind, this might not be possible. I doubt if you'd get much cooperation from him. So, clean out the refrigerator and cupboards of all the junk foods—and I do mean ALL. Your wife can easily learn how to make delectable treats for him and his friends from natural fruits. She can easily learn, too, how to serve well-combined and more wholesome foods and perhaps you can, too! Make this a family project. Keep lots of fruit on hand. And nuts and sunflower seeds. If there's no junk food lying around, children will eat whatever is handy and they'll really learn to like fruit and vegetables, even if they won't admit it—out loud. Keep a plate of raw vegetables in the refrigerator, bits of carrots, celery, broccoli, etc. Teenagers will grab these, too, when they are hungry and teenagers always seem to be hungry! I can almost guarantee that if you follow my advice, in about three months, or even less, he'll stop objecting to such "far-out" foods because, he secretly will have learned to like them! You'll find that his whole body, including his mind, will improve and his lethargy will disappear, as will the pimples

You can help to motivate him in other ways, too. Find out what he wants out of life, if he knows. If he won't cooperate, then it would seem you and your wife will have no other alternative than to take some "baby steps" but make these a family affair. Everybody in the family should participate. Make little changes at first, major changes as you and he adjust to them. Some suggestions. Perhaps you and your son can take up weight-lifting. Compete with your son to see how fast you progress. Take him jogging with you and invite his pals to join you on the trip and for a watermelon feast afterwards. Get your wife into the act, too. The first thing you know, you'll all have stars in your eyes! Don't expect this all to be an easy trip, either for him, or for you and your wife. Just remember that the world can be terribly confusing place for teenagers. Their bodies are in a state of flux. One moment they are little children wanting to be held and comforted by their mother or father; the next, they are grown-ups struggling to make decisions about matters of vital importance to them. When young people have problems, but don't have a sufficient amount of knowledge to enable them to make judgmental decisions, then you, their parents, must become their mentor as well as their example. And, if they lack willpower and the ability to discipline themselves, then you must supply both the willpower and the discipline. They may not like it at the moment, but they'll respect you now and thank you for your efforts in their behalf as they grow older. But, all this must be done without censure and in a kindly, loving manner. Communicate and explain the why's. It will help them immensely with their doing!

I am 19. I have stomach problems all the time it seems, no matter what I eat. I've been to one doctor after another and to several specialists. They tell me I don't have an ulcer, just a sensitive stomach. I take their pills and a lot of vitamins on my own, but I still have problems. I have a lot of diarrhea and cramps, too. I'm in my first year at college now and this condition is affecting my grades and my social life. Do you have any suggestions?

I sure do! Learn what foods you are physiologically designed to eat and then eat them! Learn about the kinds of food to which your body is best adapted and then learn how to combine those foods, when to eat them and how much and you'll soon find that your stomach will respond in perfect peace! There are many fine books on the subject. Stay after the class and we'll recommend a few but start with Dr. Shelton's Food Combining Made Easy. Applying the principles you will learn in that little book should end your troubles

Note: Shortly after the above exchange, this young man informed us that he felt "Just fine!" He enrolled in a course of study which taught Hygienic principles of eating and living. He says that getting into "people food" and taking this course changed his whole life around. All this happened just four years ago. We still hear from this young man quite regularly, even though his work calls for him to travel throughout the world. This "remembering" on the part of our students and clients is one of the more, important rewards of being a Hygienic practitioner!

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Article #1: 57% of Teens Flunk Fitness Tests by Mike Feinsilber, A.P.

Fewer than half the youngsters in America are able to meet physical-fitness standards that should be attainable by the average healthy youngster, a study of test results showed yesterday.

Moreover, in some categories, the average older American teenager can't perform as well as he or she could at an earlier age, the analysis said.

For example, the average 15-year-old boy takes 13.3 seconds to sprint 100 yards while his 14-year-old counterpart can do it in 12.6 seconds. The typical 17-year-old girl can do only 38 modified pushups in two minutes, compared with 43 performed by an average 12-year-old girl.

Dr. Wynn F. Updyke, associate dean for graduate studies at Indiana University's School of Health, Physical Education and Recreation, attributed the fallout or leveling off after age 14 to the fact that many schools drop compulsory gym and physical education after the eighth grade.

The findings were based on a random sampling of 7,600 youngsters, taken from tests given tour million children during the last two school years.

The physical-fitness testing program is sponsored by the Amateur Athletic Union with underwriting from Nabisco Brands, Inc. Updyke said in future years the results would show whether American youngsters are becoming more or less physically fit.

"Although the basic standards are designed to be attainable by the average healthy youngster in each age and sex group, only 43 percent of participants were able to achieve them during the 1979-80 and 1980-81 academic years," according to a summary of the study.

Updyke said there were no significant differences in test results by geographic region and the scores in 1980-81 were no better or worse than those the previous year.

Updyke said the standards for what the average healthy youngster should be able to do in tests were based on AAU testing that goes back 39 years.

The results show that at age 14, the average boy does 43 bent-knee situps in a minute, 38 pushups in two minutes, makes a 6-foot-3-inch standing long jump and a 3-foot-10-inch high jump, runs a mile in 9 minutes, 37 seconds and sprints 100 yards in 14.7 seconds.

Article #2: Beauty by Dr. Herbert M. Shelton

Hygiene Of Beauty

If there is any truth in the *recapitulation* hypothesis of the evolutionists, certainly the predominance of beauty in the young indicates that, primitively, the race was beautiful. Only as the child merges into adolescence and the adolescent merges into maturity do the evidences of his primitive beauty give way to the ugliness (deformity) that has overtaken the race. We watch a feature or several features gradually become faulty and become more and more exaggerated until positive ugliness is produced. A nose remains flat or becomes too prominent; the cheek bones are sunken or too prominent; the chin either fails to develop or develops too much; the mouth becomes awry, the nose develops lopsidedly; the breasts either fail to develop normally or they become too large; spinal curvature shows up, one leg is longer than the other; defective vision or defective hearing develops.

Not all of these defects are due to heredity. Some are positively the outgrowths of faulty nutrition; others are the result of faulty use of the body, or a lack of exercise, sunshine and other causes of disease. Failure of breast development is an evidence of endocrine deficiency and this is probably most often due to nutritional inadequacies. Large, pendulous breasts represent the accumulation of fat in the breasts and this grows out of food excesses. Heavy hips, heavy breasts and bulging abdomen are three of the most common figure faults of women and these represent physical indolence and nutritive redundancy. The woman who develops a moustache or a beard may, in most cases, perhaps rightly blame this development, not upon her ancestors, but. upon her own endocrine deficiencies growing out of her own wrong ways of life. Ugliness grows as much out of our unHygienic way of life as out of our dysgenic mating.

These deformities and defects cannot be corrected by any external applications. Paints and powders, nylons and silks, jewels and showy objects of various sorts, are all vain and useless so far as the real beautification of the person is concerned. This object can be accomplished only by what Trail called the "cosmetics of the heart and daily life." He advised: "purify and elevate, and harmonize the affections, live nobly, justly, and generously, and observe all the physiological laws that govern the health of the body, and you will need no other cosmetics." So long as we attempt to substitute make-up and grooming for observance of the laws that govern life, we cannot hope to make any real progress towards genuine beauty. Drugs and operations do not remove the causes of ugliness, hence they can be of no value.

There are various reasons for associating ugliness with biological "inferiority;" the term "ugly" can also be understood, in its relations to plants, animals and man as meaning biologically abnormal and unfit. Lack of beauty can result from a lack of good health in the part and in the whole organism. Deformity of the lower limbs can indicate lack of health in the locomotive system; a bad complexion indicates no less a lack in the vital system. The highest degree of physiological excellence requires symmetry and coordination in every part, mirroring a wholesome balance of capacities. Deformities, deficiencies and superfluities are not only incompatible with beauty, but with high efficiency in function.

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Article #3: Living A Happy Life by F. Alexander Magoun

Not every gifted adolescent grows into an emotionally-mature adult with a valid sense of who he is, or of his ability to live a happy productive life. Some wilt under an emotional blight which has nothing to do with economic status, Social position, or education.

The wise youngster, with an eye on the long future, thoughtfully examines his aptitudes and his potentialities. He neither overestimates nor underestimates them. The one will lead to bitter disillusionment, the other to tragic; waste. As Frederick Karl says, each of us is born with a package, and we must discover with insight and clarity what the package contains before we can use its contents effectively.

Most young people expect either too much or too little in this world. To make it worse, they expect it too soon. We need time and patience to find ourselves and to reach our expectations achievement can be less at thirty-five than was hoped for and more at sixty than was anticipated.

In the rootless conditions of our industrial civilization it is often difficult for a young person to determine where he is headed. He looks forward to success in business and love, but with no real criteria save the questionable ones of money, romance, authority (approached from the point of view of power instead of responsibility), prestige, and security. He has little realization of how life gets interfered with by the flux of fortune, unexpected death, economic upset, competition, loss of job, or the sudden duty to assume the obligations of a formidable task. The young people of today, seek what Harold Lasswell describes as "security, income, and deference." Fewer of them are looking for what my generation called opportunity. Nevertheless, like us, what they want more than anything else is happiness.

Youth has such obvious assets as vigor, curiosity, enthusiasm, anticipation, light heartedness, romance. There are also grave disadvantages, such as having to decide what to do for a living or whom to marry, without possessing the background wisdom of long experience.

The future is by no means entirely in our own hands. What we do about it is. To be able to stand up under adversity is largely to be able to keep our perspective, our courage, our faith in the future as worth living.

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Article #4: Wit, Wisdom And Willpower by Edwin Flatto, N.D., D.O.

Once upon a time there was a wise man sitting on top of a mountain meditating over a jug of water. A villager, observing him, inquired of the Sage: "Tell me, what is the secret of your wisdom?" The learned man replied, "I fast, meditate and sip this water when I am thirsty." The villager implored him: "Please, I must have some of that water... name your price!"

Relunctantly the pundit agreed to sell him a pitcherful of water for a piece of gold

After paying the price the villager eagerly gulped down the water. A few moments later, upon reflecting over the transaction, the naive one complained to the sage, "Why did I have to pay for this water when I could have gone directly to the spring and obtained it for nothing?"

"See!" exclaimed the wise one triumphantly, "you're getting smarter already!"

Wisdom has been a quality most sought after throughout the ages, and fasting has long been one of the tools used to help acquire it. However, the principle underlying purpose of fasting is the development of self-discipline.

Nevertheless, few of us are willing to recognize the importance of developing this quality. Since time immemorial, wise men have constantly advocated employing this power as the only honest solution to many of our most serious problems. And the fools have never paid heed.

C.J. Van Fleet, in his provocative book, *Conquest of the Serpent*, shows that, throughout legend and folklore, the serpent or dragon has always symbolized lust. The famous allegory, St. George and the Dragon, for example, portrays the seemingly invincible fire-breathing dragon as the destroyer of humanity. St. George, however, possesses a miraculous shining sword which alone can slay the dragon. The sword represents willpower and as soon as St. George learns to use it, the dragon of lust is doomed.

Self-discipline is like physical strength. In order to strengthen our muscles, they must be exercised. Every experienced weight-lifter knows he must start with light weights and by constant practice progress to heavier and harder tasks. Likewise, self-restraint must be diligently practiced by commencing with comparatively easy conquests and gradually progressing to the more difficult feats.

There are those who will not deny themselves the gratification of a single impulse regardless of the consequences. They will throw up their hands and say, "But learning self-discipline is impossible!"

Impossible, no. Difficult, yes!

Sending a man to the moon is difficult also. Nevertheless we do not hesitate to make the effort. Yet learning self-discipline could well be more of an accomplishment.

Some of humanity's most perplexing problems could be speedily resolved by learning and applying methods to Strengthen this wondrous quality of self-control. For instance, an honest approach to the solution of the so-called "population explosion" would be teaching people the means of developing this attribute (self-control) instead of resorting to abortions, contraceptive drugs and other dangerous devices. Another readily-apparent example is given by the millions of overweight individuals who could become slender in short order by its development and application.

Narcotic and tobacco addiction, as well as alcoholism, could be conquered if this characteristic were generally practiced. Even a truly crimeless society might become a reality. This, of course, would mean a major step in evolution to a higher form of humanity. It entails higher ethical standards. It rules out gluttony and self-indulgence. It frees us from the coils of the serpent.

Unfortunately, the so-called "old-fashioned" virtues of self-control and self-restraint are no longer respected. Today we are living in an era of materialism and conspicuous consumption. Buy now—pay later! Enjoy now— suffer later! Gratify all your appetites instantly! Why bother to practice self-restraint or self-denial? This attitude shows up in our current moral codes and the growing crime rate. "Credit" may play an important part in keeping the wheels of our economy turning; however, for millions it has become symbolic of a self-indulgent way of life. We are never taught the most important quality in life —the art of mastering one's self.

As mentioned previously, fasting has long been recognized as a potent tool for the development of self-control, and for releasing the full potential of the human mind. Fasting, however, like exercise, is a *means* to an objective, not an objective in itself. One important purpose of fasting is to instill and reinforce self-discipline. Consequently, if this objective is not diligently followed after the fast, much of the benefit of the fast may be sadly wasted.

The pendulum has surely swung to the extreme in our hedonistic existence. Isn't it about time to re-examine our thinking, our attitudes and practices? Or shall we continue the same approach as the fool in our parable who thought he could acquire wisdom by merely buying water with gold?

Article #5: Kids On The Run

Who Runs?

Estimates of the current number of runaways range from 600,000 to two million. Many runaways are back home within a week. Of those who don't return, only a handful ever reach one of the 700 shelters set up for them across the country.

Technically, not all of them are runaways. Some are what youth workers call "throwaways"—youngsters forced out of their homes by abusive parents or made to feel unwelcome for economic reasons.

Officials of the Health and Human Services Administration says that more than half of all runaways have been physically abused, and that most are not reported missing by their parents.

An extensive survey of 14,000 households conducted by the Opinion Research Council of Princeton, N.J., revealed these facts about runaways aged 10 to 17:

1. About three percent of the households with children in that age bracket had a runaway child.
2. Most runaways are between the ages of 15 and 17.
3. Almost half (47 percent) of the runaways are girls.
4. The children of white-collar workers are as prone to leave home as those of blue-collar workers.

Why Do They Run?

The reasons for leaving home are as varied as the youngsters themselves. Sometimes there's no apparent reason.

For some running away is an act of self-preservation, even though it is fraught with danger. On a Christopher Closeup television program, William Treaner, founder of the National Youth Work Alliance and a former runaway himself, observed:

"In a number of cases, family life has deteriorated to such an extent that making a decision to leave can, in fact, be a fairly healthy decision."

Says William L. Pierce, president of the National Committee for Adoption: "Sexual activity is one of the major reasons why young people run. In a few cases there is sexual abuse in the home. Or it may be a young man who has fathered a child out of wedlock and is concerned about his situation. Mostly, it's a pregnant young woman caught in a situation where she feels she can't stay at home, can't talk to anyone."

A study undertaken in Boston uncovered these reasons for leaving home:

"I have no one to talk to at night." "My family did not want me." "It's better to get beat up by a stranger on the street than by someone you care about at home." Still others cite reasons such as these: "My teachers picked on me." "I got in with a bad crowd." "I was always getting in trouble."

After Running, What?

Sometimes the experience of running away brings a change of heart. Wendell Marthers ran away from his Pennsylvania home to find "movie stars, glamour and beach boys." Instead, he recalls being "scared just about every day I was gone, worrying about being arrested, about being killed or beaten up."

And he was beaten up—six times. He returned home five years after leaving.

However, one large shelter reports that only 10 to 12 percent of the youngsters it serves are successfully reunited with their families. The others?

Some of them "develop families on the street," according to Lois Lee, director of Children of the Night, a Los Angeles program to help youngsters break away from prostitution. "They'll form groups and look out for each other."

To survive, some youngsters turn to prostitution and crime. As Treaner observed on Christopher Closeup: "It's a very tiny minority—less than one-half of one percent, if that—who are able to run away from home, to find a place to live, to find a job, and to establish themselves independently.

A few reach a runaway house. Dr. James Gordon of the National Institute of Mental Health says such temporary refuges offer young people "a time and a place for themselves, a chance to take a critical and often compassionate look at the families with which they have been hopelessly struggling." The family discovers that impasses may be broken, that choices are possible and that differences do not necessarily spell disaster.

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Lesson 83 - Senior Citizens Living Hygienically

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1. Introduction

Most people who write about the elderly, their problems and concerns, have never themselves been elderly. Nevertheless, they write profusely and give advice about what is, to them, an unknown dimension of life.

That certainly cannot be said about your authors! We have travelled life's road and experienced its turmoil and travail. We have known sickness and disease, suffered bereavement and sorrow, sustained life's defeats and also tasted the sweetness of success.

We have worked in the slums of large cities and counseled the children of migrant workers. We have travelled the highways of much of the world, and have conversed and supped with both the great and the small. Throughout it all, life has been exciting and wondrously good to us. We count ourselves fortunate among humans because, when we had need, we learned about Natural Hygiene.

Life has taught us that living is itself a challenge. It represents, at birth, an unknown potential with goals to be won, an opportunity 10 change small dreams into large realities. In the end, life represents a parade of failures and successes. We are favored, indeed, when the successes of life outweight our defeats.

We ask you to remember that every senior citizen who seeks your advice will represent a person who has succeeded. Dr. Robert H. Schuller says that "Tough times don't last, but tough people do!" These are the tough ones! They have met life head on, they have successfully met the challenges and problems of life which felled many, if not most, of their peers. These older clients have survived while literally millions around them disappeared. They obviously entered life with a strong inheritance and, unlike their felled peers, they took better care of themselves as they lived their years.

Each older person will represent a challenge to you, a personal challenge to become his friend, perhaps the only person he can truly call a friend. Melville H. Nahin in an article, "The Problem Solver" in *New Age* magazine, March 1983, compares life to a train ride. As we grow older and come to the end of our ride, the friends of yesteryear, the weaker ones who boarded the train with us at the same station, seem suddenly to have all disappeared. They got off the train here and there as the ride progressed. Suddenly, the older person looks around and sees that all the seats are empty: his friends are no more! Then it is that older people become consciously aware that they are devastatingly *alone*. The knowledgeable practitioner, the one with a social empathy, can often have the privilege of stepping in and filling this often unplanned-for void.

2. Older People Need Support

When health is our companion, the latter years of our living can be joyful years, indeed. The major challenges of life have been met. These should be the years of new adventure. However, if we are old and sick and filled with doubts about tomorrow, as so many of our elderly friends are, then we have a tendency to accept defeat before we should, largely because we are without family or friends to provide encouraging loving support.

Every living person has the marvelous gift of vital force, some more, some less. But, whatever the amount, it gives opportunity, an opportunity to create, to accomplish, to give a part of one's self back to the world in exchange for the gift. This is true of the elderly ones as well as of the younger members of society. While life remains, there is also potential. When older people are taught how to live according to Hygienic principles, they often become enthusiastic, moreso than they were for years, and begin to share their rich experiences with us and with others, to the enrichment of all.

As a rule, younger members of society have more vitality than most of the older people. They also have that idyllic vision of the future which inspires them to be problem solvers and doers. However, far too many of our senior citizens have lost their vision of the future. They are defeated at the beginning of each new day instead of being challenged by the rising sun. It is the purpose of this lesson to make the elderly ones who may seek your counsel as a Hygienic practitioner more real to you as individuals who have successfully coped with life's problems; they have overcome the stresses but now find the way weary. They ask of you some measure of support along the way.

With meaningful support, the elderly can often survive crisis periods which might otherwise serve to defeat them. Some four years or so ago, we were consulted about the condition of a 93-year-old gentleman who had recently suffered a mild stroke. He had difficulty in getting around, was somewhat senile, and had just about lost all interest in people, life and living. The prognosis was dim, indeed, considering his great age.

However, this man had a brother, not actually a brother by reason of birth but, nevertheless, a brother in spirit. The brother had been introduced to Natural Hygiene at one of our infrequent lectures. He studied and began to incorporate Hygienic practices into his own daily living. When his brother became ill, he introduced him to Natural Hygiene, too. At first, the way was rather unsteady. Habit patterns are deeply etched on the nerve pathways of the old. But, the brother persisted and it wasn't too long before this 93-year-old was busy every single day. He watered the many trees and shrubs which made his yard a veritable paradise of greenery. He set out seeds and seedlings and watched them grow as he administered his loving care.

We talked with him and he told us how he had been a merchant seaman and about all the many countries of the world he had visited; about how he had jumped ship in San Francisco after the Russian revolution and had become an American navy man. What stories he told! It was exciting to watch his mind open up.

About a year ago, he presented Dr. Elizabeth with a young fan palm tree, just a little over a foot or so tall. He had grown the little tree from a seed. Unaided, the old man lifted the little tree in its container and placed it in the back of our station wagon, receiving a hug and a kiss in return!

Today that little palm tree grows just outside the entrance to our home. Every time we look out the window of our consulting room, we see that little tree. It is now more than four feet tall. Some day it will be a giant among giants. To us, that tree represents a love which will endure for generations to come, not just a tree to view and admire. That tree also represents hope. We point it out to the despairing ones and tell them its story. We often see their spines straighten and their eyes light up. They know that if this 93-year-old can do it, they can, too!

This wonderful friend recently celebrated his 97th birthday. To celebrate he went for a medical examination. The examining physician shook his head in wonder and told our friend, "The only thing we can find wrong with you is a little edema in your ankles. Other than that, you are fine!"

Was the old man content? After all, what's a little edema? We see that sort of thing all around us, don't we? No! He was not content. Our friend, you see, is a very determined man. He announced in a firm voice, "I will now give up bread!" We all sat back in astonishment. His brother had been trying to get him to give up bread from the very beginning, but to no avail. You see, he wasn't ready yet. But now he had made up his own mind: "No more bread!"

There is a lesson for all Hygienists to learn here, perhaps several. Sometimes the greatest gift we can give is the gift of hope and especially when it is given to the elderly ones in love. This is the gift that both directs and inspires. It is easy, of course, to present a plan of action; it takes love to inspire performance. Our 93-year-old friend also gives us another lesson: in working with our older clients, in addition to having the knowledge of what to do and the ability to offer love and support, we are also required to have patience.

Love is conveyed, of course, in many ways: in the way we look, in our manner of speaking, in our attitude toward the client. It shows in the patience we display when our client expresses ideas which may appear somewhat "peculiar" to us but which are, nevertheless, important to the person before us—even if only for a passing moment. Our love shows in the way we greet and say goodbye, and in our acceptance of the fact that most of our elderly clients will require time, time to tell their story as they wish to tell it, and time to adjust rather slowly to a new and strange way of eating and living. Through the love you give to them, the older person comes to know and gratefully accept the fact that you have their best interests at heart. In other words, they have your much-needed support as they try to regain some better measure of health.

In order to prepare you to become more capable of giving this kind of support to your senior citizen clients, we ask you to retravel in your mind's eye the long road of life with us, to take the train ride, as it were, just as the average person living today in America is doing. Much of what we have to say will, of course, pertain to persons living in all countries of the world, but we are all individuals. However, in this discussion we will be looking at gross details for the purpose of following a single common thread, the rising tide of toxicosis, and the wasting effect of the physiological and biological errors on the potential of the newly-born as each person takes the train ride through life.

In presenting this overview of life we wish to emphasize that what we present is life as it is presently lived, not what it should or could be, if Hygienic principles and practices were universally adopted.

When we have completed our imaginary ride through life, we will then present some case studies which will provide our students with some capsule glimpses of Natural Hygiene at work in the lives of some of our senior citizen clients.

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3. The Path We Travel

With very few exceptions all of us are born capable of achieving a far greater potential in all areas of life than most persons presently achieve. Certainly most of us desire to be happy in our old age and yet we are surrounded by a host of unhappy people, people who are filled with disease and despair. Most of us have a deep inner yearning to achieve something of real worth before we depart from this life but, obviously, few ever come close to a full realization of their earlier dreams.

We know that most people would prefer to be healthy and yet few among us can be held up as models of superior health—at any age. Indeed, most of us are gravely ill when we are compared to many more ideal specimens available for comparison. It would appear normal for us, as we grow older, to have our lives increasingly enriched by a growing number of friends and by enlarged familial relationship, but the exact opposite seems more often than not to occur as friends diminish in number, felled by accumulated poisons which were the fruits of incorrect habits of living and eating. Additionally, a more mobile population and a less-caring attitude of a commercially-oriented society seems to gnaw away at family togetherness, the members of families refusing to accept responsibility one for the other and particularly between generations of the same family. There are exceptions, of course, and these families are to be commended for fulfilling a kinship trust.

From our position at the far end of the spectrum of life it seems that life tends to follow a pattern; that there appears to be a more or less regular sequence of events which may be characteristic of the times in which we live. Within certain very broad limits we can observe some definite patterns emerging, significant in various areas vital to self, to interpersonal relationships, to health, to family ties and obligations; and, of course, in the wider arena of life that is concerned with community and world spheres of influence.

At no time in life do we or can we live in a vacuum. We leave our imprints on trees and shrubs and on the flowers we touch, but we also leave them on people, either directly or indirectly. Few among us fully understand our purpose for few know just what they want or can expect from and far too many among us search frantically for an unknown that we cannot and will not find. Because of this many among us tend to fret and hence we do not accomplish. We wish for happiness, for monetary substance and even for health at times but we fall far short of the mark in almost every instance.

We are equally sure that most people would not have it thus if they were aware of the possibility of change. We live in a time of conflict and unrest, but that has probably been true in all ages and at all times. There is a "whisper in the minds of men" that all is not well. More than at any other time in history perhaps men and women, and even our young people, are wondering wherein they have been cheated and are beginning to ask important questions. Is this all there is to life? Are we born to enjoy but a few brief years of respite from care and trouble, disease and suffering, experiencing but a tiny moment of a reasonable degree of health?

Must we undergo 30, 40 or more years of declining health wherein we are called upon necessarily to watch our ambitions fade away into a nothingness which yields only a deepening sense of emptiness, frustration and loss of purpose in being? Must we experience a gradual erosion of our vitality, the stealthy degeneration of bodily and mental structure and function, an ever-deepening pathology of diminishing health which reaches out and destroys all vestiges of happiness and self-worth?

Rightfully, the questioning mind asks, must it necessarily then be the ultimate fulfillment of the life's course to descend from the heights of joy and the great vitality of the newly born into the whining depths of the frustrated, unhappy sick souls we observe in the harvest time of life, these being largely at the mercy of and dependent upon the whims of an uncaring society?

There is no doubt that man's most inner urge is, above all things, to be happy, to be wanted, to be recognized as a *person*, and, of course, to be healthy, but when we become elderly, we rarely are privileged to experience such emotional and spiritual nourishment even though it is as essential to life as physical nourishment. Indeed, the full acceptance of nutrients is impossible when we remain emotionally and spiritually vacant.

3.1 The Nine Stages of Life

We first began researching the aging process years ago. Interestingly enough, we began to distinguish nine fairly distinct stages in the average life course. We observed also that these stages had similarities as well as readily distinguishable differences. For example, certain stresses are more or less peculiar to adolescents, as was seen in Lesson 82, and yet these same stresses are perhaps of little concern in other stages.

There are some diseases which are characteristic of childhood which rarely, if ever, appear in the later years of life. We constantly observe how the errors in lifestyle and in nutrition seem to have a far-reaching and cumulative effect on health as the life course is traversed. Physiological insults of a myriad kind nibble away at health prevent the fulfillment of the birth potential of self. It is interesting to observe that in each of the nine stages, we find many of the same stresses, the same diseases, similar errors, and, of course, similar results. Our nine stages are arbitrary choices, of course, but our students can probably see the logic of the divisions chosen.

1. Period of Childhood
2. The Adolescent Years
3. The Emerging Adult
4. The Parenting Years
5. The Middle Years
6. The Late Middle Years
7. The Beginning of Retirement and Old Age
8. The Post-retirement Years
9. The Years of Custodial Care

Because we feel it is important to the understanding of the elderly, we are presenting a brief synopsis of the transition from Stage One to Stage Nine. We include some general observations to increase understanding, we note the types of diseases common to each stage, the determining factors as to the type(s) experienced and, finally, the most common errors made by individuals as they pass through each one of the nine stages.

It is important to note that young people are biologically very similar. This is true because their bodies have, as yet, not sustained the vast numbers of physiological insults which can be experienced as the pattern of life is revealed. The changes continue slowly and inexorably, under present standards of living and eating, until the life force is exhausted and the physiological point of no return is finally reached. This is why the elderly are so biologically different. Their bodies represent the sum total, the cumulative and final effect of multiple errors.

Each elderly person is different from every other elderly person because he has been imprinted by different stresses and to a greater or lesser degree. Also, because at birth he entered the world with a constitution, a collection of weak and strong organs which were strictly his own, his private legacy from the past. Persons with a strong inheritance survive the stresses of life far better than those less well endowed. Like strong trees that bend with the wind and grow stronger, persons with a strong constitution are able to survive relatively well the vicissitudes of life. The weaker ones seldom attain a great age.

However, it is the purpose of the Hygienic practitioner to teach both the weak and the strong to get the most out of life, to show them that life is a possible dream to be lived to the full and that this can be accomplished in full measure when we know and follow the principles you are learning in this course, the principles of Life Science. The student will observe in the following mini-glimpses into the nine stages that we will, unfortunately, not be able to include all influences and/or conditions that could conceivably arise. Our purpose is to provide a broad index so that students can be aware of the evolving biological degeneration brought about through multiple physiological errors, these leading to the aging of people as customarily observed. The Hygienist, of course, has sufficient evidence to demonstrate epidemiologically and historically that such aging is contrary to organic law. However, by having knowledge of the progress of toxemia at work within the body, the Hygienic practitioner should, in the normal course of events, be better equipped to help his elderly clients to attain a far higher plateau of health than they presently experience.

As we progress through the nine stages, from birth to death, we will actually be watching the diverging paths of the chronological and biological clocks. We should bear in mind that humans are probably designed to live, on an average, about 150 years. Let us observe how the biological clock outpaces the chronological clock, and why!

3.1.1 Stage One—The Period of Childhood

In this first stage we cover the period of life from birth to about the tenth year. This is normally the time of childhood, a time of life when a person is more or less completely dependent upon parents and/or others for life's necessities:

- Custodial care both in sickness and in health.
- Housing.
- Cleanliness.
- Clothing.
- Education.
- Food.
- Environment including: Social, emotional, physical and spiritual.
- Other.

In Lesson 80 we paid some attention to child abuse and pointed out that there are many ways to abuse young children. Probably such abuse has existed throughout the history of mankind but it remains, nevertheless, a troubling problem which must, in our view, be rightfully attributed to the inner turmoil which damages the nervous structures of the body and leads, more often than not, to erratic behavior.

We should remember that the various kinds of abuse are often difficult to detect and even more difficult, we are told, to prosecute since the child, either out of a sense of fear or love for the abusing parent, may refuse to testify or because of his young years, may be unable to do so.

In recent years still other multiple problems have arisen, these being most often associated with the single parent home. These are presently receiving some small attention but they have certainly not, as yet, been resolved insofar as the possible psychological and other effects on the developing child are concerned.

In Lesson 80 we noted that the family unit, as traditionally constituted, is undergoing change. However, we must recognize, especially as we look forward to the problems of the elderly, that the long range results of these changes, whatever they may turn out to be and however they may have been created, have yet to be evaluated. The evidence that is already "in," seems to indicate that the effects may be long-reaching and profoundly negative in kind. Many elderly clients are often greatly troubled by the fact that young children are being neglected by their parents and also by the fact that they themselves have apparently become almost "nonpeople" in the eyes of their children.

The Types of Disease Commonly Experienced in Stage One:

- Acute: Chicken-pox, measles, eruptive fevers of all kinds, poliomyelitis and similar "self-limiting" diseases.
- "Allergies": Rashes, itches, various nasal and lung catarrhal disorders which may or may not exhibit periodicity, coming and going at intervals.
- Others: Frequent colds, tonsilitis, glandular swellings, pinworms and other fungus infections. (Don't forget, pinworms find a happy home in catarrhal victims!). Leukemia is the No. 1 killer of young children. Digestive disturbances, including diarrhea and/or constipation, infant colic and irritability.

The State of Health Observed in Children is Determined by:

1. Inherited Diathesis—the child's legacy from generations of ancestors which have preceded him for hundreds of thousands of years; includes health of parents at conception.

2. The health and care of the mother during the prenatal period.
3. The care and feeding of the child following birth including, among other things, the following:
    a. The emotional environment and experiences.
    b. Physical care and nurture including protection from violence.
    c. Kind, quantity and frequency of feedings.

The Most Common Errors Made In Child Care:

1. Overnutrition—Feeding too much food and/or feeding too frequently.
2. Poor Nutrition—Inability to nurse the infant. Poor quality food or too little food.
3. Too much handling or too little handling.
4. Failure to satisfy physiological and emotional needs. The "Empty House Stress" of children with working parents: "Latch-key children."
5. Too little exercise.

3.1.2 Stage Two—The Adolescent Years—Ages 10 to 20

In Lesson 82 we discussed the adolescent and Hygienic living and noted that this period of life is a period of transition from childhood to adulthood, one which begins with a more or less complete dependence upon others and evolves into a state of emerging independence.

We wish to call your attention to the bodily and health changes that gradually take place during this transition period, these changes illustrating, in many cases, the beginning of disorders which will trouble the elderly, but to a far greater degree. It is in these early years that we witness the *alpha*, beginning phases in the biological evolution which results, finally, in the elderly individuals as the *omega*, of life, when catastrophic diseases begin to take an ever-accelerating toll. When the foundation is faulty, the structure will eventually give away.

The Types of Disease Commonly Experienced in Stage Two:

- Acute: Note that the acute diseases of childhood become less frequent but other kinds of disorders develop, such as: Sinusitis, hay fever, bronchitis and various other kinds of catarrhal involvements: frequent colds, influenza, etc.
- Digestive Disturbances including diarrhea, constipation, colitis, appendicitis, and ulcers. (Notice how the seriousness of the conditions is increasing.)
- New Disorders now often appear: rheumatic disorders including neuritis and inflammation of the joints. (So-called "growing pains." Growth actually produces no pain. These pains are due to the increasing toxemia.)
- Eye Deterioration.
- Acne, boils, pimples, eczema or similar skin eruptions.
- Mouth and body odors that prove annoying. In females, menstrual disorders: irregular menses, painful menses, vaginal discharges, edema, depression before and during period—the PMS or the Premenstrual Syndrome.

The State of Health Observed in Stage Two is Determined by:

1. All those cited in Stage One, plus the following:
2. The number, kind and frequency of physiological insults experienced during this stage in the life cycle: Emotional insults, poison insults (both exogenous and endogenous), Deficiencies, (either in lifestyle or in nutrition) and Excess insults (either in lifestyle or in nutrition); or a combination of these.

The Most Common Errors Made in Stage Two are:

1. Overnutrition—the "Eat All You Can" Syndrome.
2. Poor nutrition.
3. Failure to accept responsibility for one's acts, especially among males.

4. Emotional trauma: poor home environment, poor school environment, poor community environment, too much pressure to achieve on part of authority figure, usually parent.
5. Too little discipline in all aspects of life, but especially in the home and school. Creates the false sense that "I can get away with anything and the roof won't fall on me!"
6. Peer rejection or the converse, peer domination.
7. Failure to satisfy basic physiological, biological and/or emotional needs of the immature, but growing body.

3.1.3 Stage Three—The Emerging Adult

During these years the chronological clock ticks on; the adolescent emerges into and becomes the adult. In the beginning of the period, there are varying degrees of dependence upon parents but, by the time this stage has been concluded, most persons have assumed full responsibility for their own care and well-being.

At about the halfway mark, that is, at about age 24 or 25, growth ceases and the body now begins to concentrate as best it can on health maintenance, on healing and repairing the wounded cells and, from this point on, it will be required to wage a constant war against sickness and death.

It is during this stage that mates are chosen and new family units are established. In recent years, marriages have had a tendency to be postponed with many young people, for one reason or another, not seeking the responsibility for a family and opting, instead, for "live-in" partner either of the same sex or, more frequently, of the opposite sex. Almost without exception, however, the future beckons and is full of challenge, hopes are high and all aspects of life are thought to be capable of a successful conclusion!

Those in the twenty to thirty age group, Stage Three, show considerable differences in emotional maturity, no doubt due to their current health status and different backgrounds. The imprinting of the years on their lives profoundly affects the manner in which they handle today.

Educational goals are usually achieved somewhere in this time frame and a wide divergence in aims and aspirations in life appear. Whether or not these are successfully consummated during the generally productive years of the twenties will certainly have a very noticeable influence following retirement, as we will soon see. In fact, it will color an older person's complete attitude toward life and living. It may also determine his health status. But, for now, the overall attitude among this age group can perhaps best be expressed in the words of a popular song: "Kiss Today goodbye. Point me towards Tomorrow!" To the 25-year-old the future is there to be conquered and he has no doubt that he will conquer it! Health maintenance is generally a matter of major concern only to those who do not have it.

The Types of Disease Commonly Experienced in Stage Three:

(Note: Observe the steady inroads made on the vital force, this being sapped by the adaptations required within the body in order to maintain life.)

1. Acute Diseases: the diseases of childhood are, for the most part, nonexistent. Colds and other respiratory disorders are common and more frequent. Asthmatic conditions, bronchial troubles and other similar disorders often become more severe.
2. The teenage "allergies" often disappear and the young adult is said to have "grown out of them. The truth is that a higher level of tolerance to toxins has been attained with a commensurate and equal lowering of the health status
   Some skin disorders now become more or less chronic: for example, chronic eczema or psoriasis.
3. Various other common disorders which are frequently experienced:
   a. Arteriosclerosis, multiple sclerosis, etc.
   b. Rheumatic and/or arthritic symptoms either now make their appearance or, if previously present, increase in severity.
   c. Heart irregularities and other disorders affecting (Note: These troubles seem to be

   appearing with more and more frequency also in Stage Two, especially within the last fifteen years or so).
   d. Digestive disturbances, especially ulcers, diarrhea and colon constipation.
   e. Kidney malfunctioning; especially frequent is nocturnal urination.
   f. With females, the menstrual period continues to cause trouble and frequently increases in length.
   g. Painful childbirth.

The State of Health Observed in Stage Three is Determined by:

1. Care and nurture during prenatal period and during all the preceding years from birth to present.
2. Inherited strengths and weaknesses.
3. Frequency, number and kind of physiological insults to which the body and mind have been subjected thusfar during the life course.

The Most Common Errors Made in Stage Three are:

1. Overnutrition.
2. Poor nutrition.
3. Indulgence in false stimulants: Condiments of all kinds, alcohol, nicotine; using palliating drugs to disguise symptoms; using prescribed, "social," hard or other drugs including herbs, synthetic vitamins, and/or other so-called "supplements."
4. The emotional stresses incurred in trying to make a living and/or provide for a family in a very competitive business and social scene.
5. The stresses caused by economic and other pressures as, for example, during a depression; the stresses of "keeping up with the Joneses;" trying to provide the "best" for one's children; competition for a suitable mate; the noise and fast pace of modern living, especially in large cities.
6. Overindulgence in all aspects of living; sexual burnout.
7. Failure to satisfy basic physiological and biological needs, especially two such needs: namely, sufficient exercise and rest.

3.1.4 Stage Four—The Parenting Years

In the normal course of events, those who have lived to this fourth stage in the life course have fully accepted their roles as adults and, as such, provide for their own requirements: physical, emotional, financial and spiritual.

Families are usually established, children born, with parents now assuming the nurturing described in Stage One. By this time, the childhood home is no longer a factor except for the effect it may have had upon the individual in all phases of his life to this time.

Formal education has, for the most part, ended and the individual strives to establish himself in the business and social worlds of which s/he is now a part, although for a limited time. Efforts are still made to gain approval of one's peers, although peer pressure is not generally as important as in previous years. During this stage, which includes those between the ages of 30 and 40, both males and females tend to participate actively in the organized life of the community, joining several civic and service clubs, both professional and occupational, as well as participating socially and actively in all kinds of other organizations and activities. Church leadership is assumed by many while others play a more passive role. The over-riding concern of members of this age group is the welfare of the several members of the family unit but, particularly, that of the children they have brought into the world. There is now only a limited concern for the needs, financial and other, of their parents or for older generations still living; that is, for grandparents or great-grandparents. These have become almost non-persons in modern America. This is not true, however, in many other cultures.

During this stage, the future looks fairly secure. Stereotypes begin to emerge, especially in the business world as individuals find their "niche," as it were. This could well be called the period of "Individual Strategy" with the term "Individual" applying equally well to the individual, male or female, perse, or to the family as a unit.

The proliferation of this kind of activity is usually especially important among those with above average mental capacity and is limited only by the physical status of the individual and by his previous educational opportunities and/or achievements.

Sometimes the stress thus occasioned becomes an important factor in the downward decline in health so frequent and often so dramatic during this stage. The members of this group are often boxed into a corner by the times and are called up to develop strategies to compete, and to cope with all manner of situations and, importantly, they must now do all this on their own. The awareness of this fact can often assume major importance and have a profound effect on the nervous system, usually adverse in kind.

With females entering the business world more frequently now than in former years, they are now subject to the multiple stresses not previously experienced and, in addition, they must often be concerned not only with the care and rearing of children but also with the maintenance of the household. Characteristically, few males contribute in this regard, although more seem to be doing so now. However, females are called upon to assume a multi-faceted role: giving birth to children; assuring that the emotional, physical, spiritual and education needs of the children are met; taking care of the physical home in which the family lives; assisting with the financial needs of the family unit; and, finally, participating more or less actively in community organizations such as the PTA, Boy and Girl Scouts and similar child-oriented groups. The stress factor can be enormous when the traditional maternal role is thus expanded and it is not unreasonable to expect a subtle erosion of the life force under such circumstances, one that will, no doubt, have an impact on women's later years.

The Types of Disease Commonly Experienced in Stage Four:

1. Acute diseases: Colds, influenza and various other kinds of respiratory disorders of varying intensity according to previous history.
2. Chronic diseases now become increasingly evident and, when present, these can have a major impact on the family unit as well as upon the individual thus encumbered. As always, the conditions experienced are the fruits of the past.

The most common chronic diseases which emerge in Stage Four are:

a. Heart disease of one kind or another.
b. Liver complaints of varying severity.
c. Chronic prostatitis.
d. Ulcers (10% have either a stomach or duodenal ulcer).
e. Benign tumors.
f. Diabetes.
g. Various joint and bone diseases.
h. An assortment of the so-called "itis" diseases: cystitis, metritis, sinusitis, neuritis, colitis, etc.
i. Digestive disorders of one kind or another, including but not limited to: burning, constipation, diarrhea, gas emissions, fullness, anorexia, etc.
j. Varicose veins.
k. Sclerosis of arteries, poor circulation with cold extremities being a common complaint.
l. Most now wear glasses.
m. Irritability, extreme nervousness, tics, etc.
n. Female complaints worsen, with menstrual periods often extending from seven to ten days in length, indicative of extreme toxicity and causing many to opt for an hysterectomy.
o. Diseases commonly associated with the female sex organs.

State of Health Determined by:

We are sure our students can now begin to see where we are headed with the ticking of the biological clock, this, of course, under so-called "normal" living and eating habits.

1. All previous factors listed up to this point as they may be applicable to any one individual.
2. Whatever kind of disease or diseases which may have evolved will have been determined by the individual's own peculiar diathesis and by the number, kind, and frequency of the physiological insults—the multiple stressors—to which the individual has either subjected himself or to which he has been subjected, either knowingly or unknowingly. The stressors can be either mental or physical in kind, of internal or external origin, and multiple or single in number.

The Most Common Errors Made in Stage Four Are:

1. Overnutrition.
2. Lack of moderation in all aspects of life.
3. Failure to obtain a full quota of the organic requisites of life.
4. Failure to satisfy the individual's basic physiological, biological or spiritual needs and/or disobedience to any or all of the fundamental laws of life. Enervation, due to toxemia, of one or both partners results in the breakup of many marriages.
5. False stimulation: continuing to use condiments, alcohol, nicotine, drugs as detailed earlier; the wrong kind of sex life; snacking, using chemicalized soft drinks and other processed "food," generally poor nutrition.
6. Killing overstress in one or more areas of lifestyle.
7. A driving urge to achieve in one's career or profession, or in some other area of life in spite of demographic contrary evidence indicating possible failure.

3.1.5 Stage Five—The Middle Years

We include in this category those persons between the ages of forty to fifty, the period of mature adulthood. Persons in this age group are commonly referred to as being "middle-aged."

It is in this stage that individuals, both male and female, begin to question where they stand in the scheme of life. Many become extremely anxious and develop a sense of frustration and inadequacy. Many find that the problems and/or challenges they face seem increasingly more difficult to solve and/or meet successfully.

It is in this middle period of life that, perhaps for the very first time, a sense of foreboding failure produces a state of mind wherein the possibility of defeat becomes imprinted on the subconscious mind. Often people in middle-age begin to feel boxed-in, even hopeless at times. Many begin to make less and less of an effort to cope with daily matters of concern. Anxiety, worry and fear about the future replace planning and performance.

Many emotional peaks and valleys, destructive of health, are occasioned as children leave the home scene to pursue their own lives.

Sometimes the anxiety takes another line of defense with the three P's taking over: 1. An obsession with *perfection*, 2. Since perfection is either unlikely or impossible, the individual tends to *procrastinate*; and, finally, 3. The disturbed person simply settles for *paralysis*—non-performance—and often gets locked into life-destroying habits. This is especially true of men in the business world but the same synopsis will, no doubt, appear in women attempting to cope with dual roles.

The more intelligent ones in this age group, the ones who have thus far fully coped with life, often begin to delegate responsibilities to younger employees, especially in those areas that require physical effort as well as mental. Some enter a new dimension of life successfully by developing a wide diversity of management skills, especially those concerned with decision-making and with long-term planning.

It is interesting to observe how physical activity begins to decrease as the middle-aged, due to the mounting toxemic load within their stressed bodies, tend to lead a more sedentary lifestyle, this being due to the fact that they are increasingly plagued by muscular ailments, stiffening of muscles and joints.

The ranks begin to thin-drastically due to deaths caused mainly, in the male population, by heart attacks and, among females, by diseases associated with child-bearing: uterine, tumors, kidney failure, breast tumors. Many females fall victims to surgical procedures such as hysterectomies and mastectomies or various drug-related (iatrogenic) diseases. The biological clock ticks rapidly during this period.

This is the period when both males and females become acutely aware of the fact that they are aging. They feel they have done all that could possibly be demanded of them and forget that when we stop producing, we are already old.

All the chronic diseases which previously annoyed become moreso now. Many, indeed, become life-threatening. The vast majority develop what Dr. Virginia Vetrano calls, the "Run-to-the-Doctor Syndrome." Many also become addicted to the stimulant habit. These have been correctly termed, "The Critical Years."

The Types of Diseases Commonly Experienced in Stage Five:

1. Colds, bronchial and other respiratory disorders now tend to appear more frequently and last longer due to the diminishing vital force. Emphysema is now more frequently observed than in former years.
2. Arteriosclerosis and atherosclerosis with accompanying symptoms, such as cold hands and feet, sudden chills, and other indications of clogged circulatory channels.
3. Cirrhosis of the liver.
4. Heart disorders of all kinds; many fatalities.
5. Emphysema.
6. Rheumatoid arthritis. This disease was formerly considered to be a disease of old age. It is now common in this age group and even in much younger people. For example, there are at least 60,000 American children who are afflicted with juvenile varieties, according to Dr. John Baum, M.D., director of the Pediatric Arthritis Clinic at Strong Memorial Hospital in Rochester, N.Y. The medical community, of course, knows no "cure" other than palliation of pain and cannot understand why children often "recover" from arthritis while adults seldom do
   Life Scientists know, however, that when cause is removed, the body wisdom takes over and tends to move toward perfection when basic organic needs are fully met.
7. Benign and malignant tumors, especially among the female members of the group. However, the medical community fails to recognize that these tumors represent the final link in the chain of errors both in lifestyle and eating.
8. Menstrual disorders with increased flow.
9. Cancer of the colon, especially among males.
10. Ulcerative colitis.
11. Obesity.
12. Alcoholism and/or addiction to other drugs, especially upon mood-altering drugs.
13. Lack of vitality—the "Fall on the Couch After Work" Syndrome.
14. Frequent heaadaches, especially among females but also among males, these being due, of course, to toxic overload.

The Stage of Health Determined by:

1. Failure to correct errors in diet and in lifestyle.
2. The type of counsel sought and obtained, whether knowledgeable or otherwise.
3. The inherited diathesis.
4. The number, kind, amount and frequency of intake of drugs

   We note in this middle group that the ranks begin to thin as the indiscretions of a lifetime begin to take their toll/ The biological ticking now begins to accelerate.

The Most Common Errors:

1. Strangely enough, all of the former errors are usually continued largely because it is difficult to change long-established habits. This is especially so when education in the application of Hygienic principles has been nonexistent in the individual or in those persons consulted for advice in matters of health care.
2. Because of the errors noted in No. 1 above, "middle-aged" people as a rule tend to gravitate to an even greater dependence upon prescribed and over-the-counter drugs; and also to cocaine, alcohol, nicotine, and so on. Many play Russian Roulette with themselves by using combinations of several drugs at one and the same time.
3. Overnutrition.
4. Increasing dependence upon sugar, tea, coffee, salt, pepper, etc.
5. Failure to seek suitable relief from stresses, many of which increase in number and intensity and seem to attack in various life spheres: at home, in business and in social contacts often due to the fact that younger people are striving for their own niche and so attempt to displace the older ones.
6. Failure to recognize and adjust appropriately to the subtle erosion of the life force which is now accelerating.
7. Reluctance to admit that parenting days are over and to find interests in new directions.

3.1.6 Stage Six— The Late Middle Years

Ages fifty to sixty represent the late middle years. The biological clock has far outpaced the chronological clock. Since the itinerary of life was not figured out in advance of the journey, and seldom is—we find that all the former symptoms of uneasiness about the future and all the diseased conditions usually continue and, indeed, become more intense.

There is an old saying to the effect that "you can't put an old head on a young man's shoulders!" This is true and perhaps fortunately so, but the Hygienic practitioner, if he wishes to be successful in working with patients, will necessarily have to come to grips with the realities of the aging process. This is so because the great majority of his clients will come from the older members of the general public. He should make himself familiar with the generalities noted as being characteristic of each age group, with the kinds of anxieties and hopes for the future, with the common errors in living and eating and, of course, with the kinds of disorders most commonly characteristic of each group. Only in so doing can he hope to develop the kind of empathy required for effective counseling.

Females

Females, in the late middle years, come to grips with the stresses customarily, but erroneously we believe, associated with the aging process, namely the "change of life."

Alexis Carrel, M.D., the Nobel Prize winner, in his book, *Man, The Unknown*, stated that herein lies a fundamental difference between men and women but comes to a rather abrupt conclusion in middle age among women. Carrel held that this single fact places women at a disadvantage to men.

Hygienists, of course, hold that toxemia and toxemia alone is responsible for the manifold discomforts endured by most women during this period of life, discomforts which are both physical and mental.

The hot flashes which at times seem about to consume the woman; menstrual flow which often lasts from ten days to over two weeks, often flowing so copiously that women are required to take to their beds; flow which returns at irregular times, sometimes after only a relatively short interval of a week or so. Such abnormal blood flow saps the body's energy reserves and aggravates a!» existing physical conditions.

We can but wonder at times that women in this age group survive as well as they do, although, of course, many do not. Hysterectomies are common. The concerns of women are a fertile hunting ground for money-hungry surgeons. In 1975 over 800,000 such operations were performed. In recent years we have heard of such operations being performed on gullible women as a "preventive" for uterine and other cancers. Such mindless butchering is a twin to the present trend to remove a woman's breasts, even in young women, as a preventive against the possibility of having cancer of the breast.

The Hygienic practitioner can often provide much comfort to older women in this time frame. Their physical discomforts lead to mental anxieties about their "worth" as women. Many believe they will no longer be attractive to men. They require assurance of their ability to play a meaningful role in the scheme of a well-planned life. They also require assurance that their physical discomforts can be alleviated provided they follow the teachings of Natural Hygiene. As we shall see when we come to our review of some actual case studies, the rewards for the Hygienist can prove highly satisfactory.

Males

When men finally attain this age, they start looking forward to their retirement. *Then* I'm going fishing. Then I'm going to take that trip. *Then* I will paint that painting, one worthy of the great masters. They spend many hours in their "magic moments." Their physical activity usually lessens. This is true of women also. Both sexes now prefer to be spectators at sports rather than active participants.

Many men begin to look around for groups to join: service clubs, church-sponsored support groups, and so on. Both men and women tend to look around for "causes," much as young people do. This is often due to the fact that their children become more and more involved with their own family units and have less and less time or inclination to spend with their parents. They are forced into the realization that *their* parenting days are over. This is, for many, often a moment of cruel truth, particularly to those men and women who have devoted their time largely to their children and have forgotten to develop *themselves* as they travelled through life. Sometimes all the Hygienic practitioner is required to do to improve the mental health of clients is to suggest ways and means, to provide a list of ways in which the client may yet offer meaningful service to the community at large.

We suggest to the sincere practitioner that he contact the local chamber of commerce to obtain a list of clubs functioning in his particular community. Find out if the city or town has a recreational department. Interview the personnel and find out what is offered. Ask to be placed on their mailing lists. Contact local churches to see what group discussions are held regularly. For example, one local church this community of Tucson offers all kinds of classes from painting to aerobics. Additionally, the A.A., Al-anon and St. Luke's Healers meet there, as well as Over-eaters Anonymous. An individual well versed in Natural Hygiene can often provide meaningful input at these kinds of group meetings.

We should point out at this juncture that both the males and the females in this group normally become increasingly aware that there is a limit to the human life span which can reasonably be anticipated. With most people, this is like a thunderbolt out of the blue. Younger people seldom think about the end of life because they are deeply involved *in* life. However, even this acceptance of the fact that their days are numbered does not prevent their actively wanting to outlast all their peers!

This is why this age group is especially susceptible to spurious remedies which may be suggested by allopathic charlatans and other "quacks," this word being used in its commonly-used sense and not especially in its original connotation as a reference to a medical doctor who overdosed his patients on mercurial remedies.

The use of tranquilizers becomes almost a way of life, particularly among the females, although as many as half the men may also become addicted to mood-altering drugs. Many begin to develop strategies to make themselves appear to belong to a younger age group as, for example, seeking for and submitting to suitable cosmetic surgery, dying the hair, taking up tennis or other physical exercises commonly associated more with those in a younger age group; not that there is anything essentially wrong with any of these pursuits except as they may prevent or hinder more correct age-deferring methods and practices. Coronary bypass operations and organ transplants, even though their effectiveness is open to Hygienic debate, are resorted to more and more frequently as sick men and women try vainly to stop the ticking of the chronological and biological clocks. We know one gentleman in this age group who has already had four heart bypass operations! In this age group many are actually reduced to medical servitude. Before they come to the Hygienic practitioner many will have had just about every expendable organ removed and will have poisoned their bodies for years. Many will expect, too, to be restored to health in a matter of days and weeks even though every single cell in their body has been severely damaged by the indiscretions and errors of a lifetime!

The Types of Diseases Most Commonly Experienced in Stage Six:

1. Loss of sexual drive or abnormal interest in same.
2. Breast cancer in females.
3. Cancer of the colon, especially among males.
4. Rheumatoid arthritis and, in women, menopausal arthritis.
5. Cirrhosis of the liver.
6. Cystitis and other kidney disorders.
7. Tuberculosis and other abnormal respiratory disorders.
8. Cancer of the larynx.
9. Strokes.
10. Heart attacks, angina pectoris.
11. Varicose veins, "grape" clusters.
12. Spine disorders and various bone diseases, especially osteoporosis or sponging of the bones.
13. Ulcerative colitis.
14. Chronic prostatitis.
15. Loss in vitality.
16. Depression as well as other nerve-related disorders ranging all the way from simple tics to Parkinson's disease.
17. Alcoholism.
18. Drug addiction. Many become victims of. poly-pharmacy, the indiscriminate prescribing and taking of drugs. This age group represents but 10% of the population but consumes over 25% of all prescription drugs as well as the larger proportion of other drugs, including social and nonprescription drugs.

We trust that our students are developing their understanding of how past errors can limit the quality of our present and future life unless suitable (Hygienic) remedial steps are taken and, of course, in time.

The State of Health Determined by:

1. As usual: the previous and continuing errors in the diet and lifestyle, the cumulative effect of which is now being seen in the rapid degeneration of all organs and systems. In many members of this age group, the biological clock is now racing even though they may be consciously unaware of this fact. As Dr. Robert W. McCarter, Sr. used to say, "Their inner parts are a foul mess!" They function, but barely.
2. The number and kind of operations to which the body has been subjected and the amount of adaptation and accommodation thus required, both mental and physical, and by all parts of the system. In many cases it becomes a matter of "Died at 36, buried at 60!"

The Most Common Errors Made In Stage Six Are:

1. All those previously stated, especially overnutrition, this in spite of the fact that both mental and physical activity has been curtailed, often greatly so because of one or more infirmities.
2. Drug dependence, especially on the mood-altering drugs and alcohol. Many of the elderly who live in mobile home parks, or other "Communities of the Aged," regularly go on alcoholic binges. The arthritic may take mood-altering drugs to relieve the depression so commonly associated with this painful condition as well as several highballs to impart a false sense of well-being. The arthritic often has recourse to one or more of such drugs as butazolidin alka, motrin, indocin, naprosyn and nalfon among the most common ones being presently prescribed in this senseless age of poly-pharmacy!
3. Surgical removal of ailing parts in a vain attempt to remedy past errors. We say "vain" because

CAUSE remains.

4. Little or no effort is made to modify behavior to one more in keeping with the physiological and biological requirements of the living organism, largely because of a more or less complete ignorance of the same. Who is there on the present scene except the Hygienic practitioner to educate the public on the relation of cause to effect in body care?
5. Becoming increasingly out of the "mainstream" of life as more and more of the aging population moves into communities with their peers. They put themselves physically out of contact with other age groups and, by so doing, become the forgotten members of society, tolerated but not really wanted.
6. Overnutrition. Even though less active, physically and mentally in most cases, they continue to eat as they always have.
7. Concern about the future becomes an added stress to all former stresses. Anxiety about one's health often becomes the major concern.

3.1.7 Stage Seven—The Beginning of Retirement and Old Age

In present-day thinking this age group arbitrarily includes all persons between ages sixty and seventy. These are the retirement years and the beginning of what is commonly recognized as "Old Age," although to the very young any person over the age of twenty-five is "old!"

Some few make this transition with flying colors. Usually the more successful life travellers are the ones who possess a higher degree of health. The majority, however, because of numerous infirmities, begin to conserve and safeguard their constantly dwindling energy reserves. They walk slower, they think more slowly. They tend to make many attempts to retain their own image of the importance of SELF, husbanding the thought of their former status in life, their imagined or real prestige and even the authority and seniority they may have possessed in the work situation and, also, whatever, power, real or imagined, they may have had either in their own family group, at work or among community situations and groups. In other words, they tend to hold on to the past because of the emptiness of the present!

A relatively small percentage of the population managed to survive long enough to become a member of this age group. While there are conflicting reports in this regard, we have seen figures which state that only about 10 percent of the population at birth reaches the age of 65. These, as we have said, are the tough ones. They have either possessed a remarkable constitution, one that was able to withstand the multiple assaults of a lifetime or, possessing some lesser stamina, they knew enough to take good care of themselves.

Whichever may be the case, members of this group often become acutely aware of the fact that they are now old and this largely because of the fact that many of their financial and social expectations anticipated in their younger years have been shattered and also because many of the supports offered by the community at large to the more productive younger age groups are, in far too many instances, nonexistent. The media constantly presents the beautiful side of young life and the constant barrage of "that which might have been" becomes a physiological insult of major dimensions to the elderly. Too often, we fear, communities sadly neglect the social and other real needs of this age group and fail to offer or sustain beneficial activities for them, although we must say, that there are exceptions. Tucson is such an exception. In general, this city provides well for the elderly.

In the previous age grouping both sexes generally look forward to retirement. They expect the future to be both enjoyable and rewarding. This often proves to be true provided three factors are in evidence: First, the individual possesses a higher degree of health than is experienced by the average person today who passes the sixty-year mark, secondly, his financial needs are well taken care of, and thirdly, both partners to a marriage survive and especially when both are physically and mentally well and-active.

Unfortunately, however, we find that shortly after retirement, far too many in this age group find that they suffer from this disease or that condition and that the ensuing rapid decline in physical vigor does not permit them to, fulfill their former hopes and dreams. The vital force they do possess begins to decline even more rapidly and, during t the last five years of this stage, the loss in the ranks accelerates to a devastating degree, often due to an overwhelming depression occasioned by the loss of loved ones, friends and relatives, and to a series of unanticipated happenings with which they have difficulty coping.

Of course, a few emerge from this decade relatively unscathed and in good mental and physical health, but the majority do not. They succumb to the pressures of financial and other worries and to their physical ailments. Many lose their life's mate and are overcome by loneliness and despair. Suicides become increasingly more common as life's problems become too great for effective coping.

The Types of Diseases Commonly Experienced in Stage Seven:

1. Cancer in its many forms.
2. Arthritis in its many forms but especially rheumatoid arthritis. Ankylosing (fusing of joints) is common, especially among the hardier ones. In the weaker, one or more organs may give way with death resulting. Deformed and painful joints often curtail participation in social events and can lead to social isolation.
3. Tuberculosis and severe bronchial disorders of all kinds.
4. Bright's disease.
5. Abnormal growths including benign and malignant tumors, these in various places within the body.
6. Digestive disturbances and associated diseased conditions.
7. Diabetes with organic degeneration as, for example, of the pancreas; extreme fatigue; failure to heal wounds, etc.
8. Bone diseases (brittle bones, sponging of bones, scoliosis of the spine).
9. Sclerosis.
10. Cataracts and other eye diseases.
11. Early signs of senility.
12. Extreme depression resulting in suicide. This age group represents 25% of all reported suicides!
13. Drug addiction.
14. Alcoholism is very pronounced.
15. Heart attacks and strokes.

Again we suggest to our students that they go back to Stage Six and compare the disorders most frequently experienced in that age group with the above list. Note how the conditions have become pejoratively worse as the cause or causes remained operational.

The State of Health Is Determined by:

1. Those who have reached this advanced age (by present standards, of course, not by Hygienic standards), have demonstrated not only their good inheritance but also the fact that they have taken reasonably good care of themselves.
2. The frequency, number and kind of physiological insults they have endured during their life course, including, of course, their prenatal care, their care during the dependent years of childhood and adolescence, and during the intervening years. An insult of major dimensions in this age group is the wasting of their resources by children who sponge off them, borrowing their substance and leaving the elderly parent "holding the sack," as the common saying goes.

The Most Common Errors Made in Stage Seven Are:

1. Overnutrition; often now a compensation for life's negatives.
2. Poor nutrition.
3. Lack of exercise.
4. Using drugs, including vitamins and other supplements.
5. Overstimulation and incorrect stimulation—especially alcohol.
6. Falling prey to charlatans and quacks who offer "quick" cures for a lifetime of errors.
7. Failure to seek help when needed from whatever sources are available in the community of

residence. Such help is available from a wide variety of sources: churches or from community, federal, state and private agencies which are to be found in almost every community either at no charge or for a very nominal fee. As we have stated, the Hygienic practitioner should become knowledgeable about these services. Many newspapers regularly list them.

8. Failure of the community to provide participatory and/or leadership roles for the retired. The government at the federal level does have a program for the retired in which they can share their wealth of experiences with younger members of society. This is especially available to persons with business expertise to share. Practitioners may make themselves more knowledgeable in this regard by visiting the offices of the Small Business Administration. Inquire about opportunities for the elderly.

3.1.8 Stage Eight—The Post-Retirement Years

We should like to point out at this juncture that the constant intake of drugs soon pushes the drug taker into new dimension of life in which all body cellular membranes suffer, nerve pathways become erratic and con fused, and the total metabolic routines become uncertain and inefficient. This fact no doubt has a profound effect on many facets of the life process, if not, in fact, on all.

This is the period of life, from ages 70 to 80, that is generally accepted by both the population at large and the individuals concerned as being "Old Age." It should be the "Period of Harvest," the time of life when men am women should enjoy the fruits of their lives of love and labor but, unfortunately, the contrary is more often true.

The post-retirement years are only too often the years of trial and tribulation, rather than a time to gather in the rewards of a life well lived. As we look around we find very few persons in this age group who are still contributing members of society. This is, of course, both unfortunate and unnecessary. The members of this age group not only demonstrate their good inheritance but also the fact that they have generally, and more or less consistently, taken good care of their physical and mental bodies, at least according to the tenets popularly espoused, but certainly not by Hygienic standards.

This is the age that should be a time for one's self, a time to engage in one's very own thoughts and activities, in various hobbies, or in private work of one's choosing. I should perhaps be a time to go back to school for a higher level of "Re-creation," a renewal of soul and a reassessment of values. The world remains to be explored a does the mind and soul of humans. This could and should be the most challenging time of life.

Unfortunately, major emotional stresses often enter and intrude upon daily living: fear of further hurts, of financial insecurity, of disease, of loneliness, among a host of other possible stresses. Anxiety often comes from within and is sponsored by imagined or real states which prove unacceptable to the mind. When a loved one is lost through death as, for example, one's lifetime mate, an all-embracing grief takes over. Danger, loss, or injury, too, are often just imagined but these may, of course, prove to be real. The stresses occasioned by either state may prove devastating to poise and thus to life itself. Such individuals, even though threatened by an unreal threat, often withdraw into some inner world of their own, one which is more comfortable for them.

The more the physical body is beset by physical degeneration, the more intense the retreat into a personal kind of fantasyland. Ordinary griefs and anxieties become exaggerated and may then turn into deep depression, this being the most common psychological involvement among the aged.

With others, a deep sense of anger sometimes evolves,; feeling that the entire world has placed itself in direct opposition to one's personal hopes, dreams and ambitions. A scapegoat may then be sought in an attempt to find some person or some thing which can be blamed for whatever predicament the individual happens to find himself in Such an attitude, of course, tends to alienate those around him and the individual thus possessed finds himself re treating more and more from a society which is, in his view, antagonistic toward him. This kind of attitude is usually amenable to corrective changes in eating and living habits.

Some Types of Diseases Commonly Experienced in Stage Eight:

1. Organ degeneration throughout the entire body with all parts, organs and systems involved.
2. Heart failure.
3. Digestive disorders of all kinds, sometimes psychosomatic in origin; loss of appetite due to depression.
4. Bright's disease.
5. Tuberculosis.
6. Cancer, although with a lessening susceptibility, due no doubt to the fact that organs give way before the onset of true cancer, actually a rare disease.
7. Cataracts and other eye disorders.
8. Great loss of vitality; loss of sexual drive. Occasional increase in the interest in sex but often accompanied by the inability to perform, this latter often observed in nursing homes where patients of both sexes are watched constantly else they intrude on other patients for the purpose of having sex; in other words, some develop an abnormal sexual interest but it is not accompanied by sexual power.
9. Bone diseases, loss in hearing, nervous disorders, especially Parkinson's disease (the "shaking" disease).
10. Emotional disorders: schizophrenia, senility, organic brain syndrome (general deterioration) and other psychopathologies resulting in extensive disorganization of the personality; the suicidal tendency which is often demonstrated by a refusal to eat or to get out of bed when perfectly capable of doing so; and also, at times, an unexplainable loss in weight, or a total lack of appetite. Hygienists, of course, recognize that all these symptoms are indicative of the presence of an unusual complement of morbid waste within the body.

The State of Health Is Determined by:

1. All those errors, circumstances and situations previously cited.
2. The nature of the continuing care of Self, whether good or poor.

The Most Common Errors Made in Stage Eight Are:

1. Overnutrition.
2. Poor nutrition.
3. Lack of exercise.
4. Lack of challenging and purposeful mental activity.
5. Failure to enter into community and other affairs.
6. Failure to seek help as and when the need arises.
7. Failure to prepare properly for this time of life, financially and otherwise, including mental preparation.
8. Physical and psychological abuse by families and/or others; 2 1/2 million elderly are thus abused every year in the U.S.

3.1.9 Stage Nine—The Years of Custodial Care

In today's society when an individual reaches the ninth stage in life's journey, he is generally regarded as "having had it." We include in this grouping all those persons who have lived in excess of eighty years, ages eighty to ninety and beyond! Unfortunately by far the greater number of persons in this category require more or less complete custodial care similar to that required at the other end of the spectrum of life—in the first stage.

There is another similarity to the very young, also. Sad to relate, the very old, like the very young, often suffer from family and/or institutional abuse—the battered grandparent syndrome, as it is termed. The abuse ranges all the way from the psychological to actual physical abuse. Family neglect is common with many in this age group being housed by their children in institutions of doubtful reputation. We have known of patients who have been placed in custodial care provided by second-rate and/or by good institutions and who have never thereafter been visited by their children or other caring members of their family. Often the desire for some small gesture of love and affection visibly evident in the older "inmates" is pitiful, indeed.

A very low profile is kept of these elder citizens, their public visibility being practically nonexistent and, since most of the members of this age group (in excess of 98%) have long since passed away, there are few physically and mentally able among them who are able or in a position to protest. So it is that this group is, more often than not, at the complete mercy of a noncaring society.

The crying need of our times is for loving homes for these citizens who have served us and our country so well throughout their lives, Hygienic homes in which correct diet and lifestyle are taught and encouraged; where meaningful, constructive activity is provided, both mental and physical; where all the biodynamics of life are employed according to the several capacities of individuals to utilize them.

Sad to say, most Americans simply don't like old people. They have an image, fostered by financial interests, that all the elderly are foolish and senile, a potential burden. Consequently, they do not wish to be reminded of their presence. In their childishness, they refuse to accept that they, too are presently riding on the same train that these elderly once rode and that, by the very nature of life, if they too are tough, they will reach this station in life.

The Types of Diseases Commonly Experienced in Stage Nine:

1. Neuroses of all kinds, especially depression caused by ill health and extreme loneliness. The kinds of neuroses observed may range from sitting in complete silence to constant talking and even yelling, as if in pain; failure to connect the present with the past; loss of memory, unwarranted suspicion, etc.
2. Brain damage.
3. Loss of hearing.
4. Loss of some degree of sight; total blindness.
5. Various organic failures due to eruption of latent organic illnesses. Incontinence is a common disorder.
6. Digestive disorders, especially colon constipation, a condition which causes extreme emotional stress among the elderly.
7. Existing organic diseases and conditions become aggravated, due to lack of proper remedial steps, and these often prove fatal.
8. Fear of change. Even moving a bed-fast patient to another room may cause unwarranted distress.

The State of Health Determined by:

1. All factors, influences and conditions which have previously cited.
2. The present care and nurture.

The Most Common Errors Made in Stage Nine Are:

1. Overnutrition and/or poor nutrition, both in and out of an institution.
2. Lack of exercise.
3. Emotional uncase.
4. Lack of a meaningful purpose for living.
5. Extreme loneliness.
6. Loss of the "will to live."

3.2 The Best in Institutional Care of the Elderly

A short time ago we were invited by a newly-found friend who is and will remain an active participant in life, to accompany him to a nursing home that had recently been built in Tucson. Since we had not, as yet, had the opportunity to look over this particular facility, we met both with him and the director and were escorted around.

Being new, this home for the elderly was shiny bright. The floors sparkled, assistants and nurses were everywhere. There were three sections, each designed to provide a certain predetermined level of "health" care for the guests.

The first section housed the elderly guests who were able, for the most part, to provide for their personal care. They could put on their own clothing, attend to their personal cleanliness, and even go shopping occasionally in a group setting accompanied by staff personnel, such excursions being arranged from time to time.

The guests in this section were able to wend their separate ways to the dining room at meal times and to go to a beautiful outdoor setting where there were tables and lawn chairs available. There was also a whirlpool bathing facility for those who cared to use it. A television set and mall library were at one end of the facility for the use of 'those who cared to do so. However, there was little else to do.

Consequently, the guests who care to, and there seemed to be many such, wandered the main hall; some eat in the circular lobby which served this and two other sections, and there they simply watched the comings and goings of other guests, visitors and staff members. There were no crafts, no study groups, no organized exercise sessions or sunbathing.

We were fortunate to be present at mealtime so we observed the food which was served to the guests and staff. The day's main level, served at noon, consisted of either baked chicken or fish, baked potatoes, and a cooked mixed vegetable dish which looked to us like the familiar peas and carrots frozen mixture. The dessert was ice cream. White bread was on hand plus oleo margarine and, of course, plenty of coffee, tea or a popular chemicalized lemon mix. We must say that this meal was superior to many we have seen placed before the elderly in similar "homes."

We were given plenty of time to examine the facility. All of the guests were obviously suffering from chronic degenerative conditions of one kind or another. We observed signs of sclerosis, rheumatic disorders, forgetfulness, osteoporosis of the spine, etc. However, to us each and every person in this section appeared to have more than sufficient vitality to assure a reasonable degree of recovery, even at this advanced age, were they to be taken out of this kind of "care" center and then placed in a Hygienic institution where they could be taught the ways of health, rather than be subjected, as they presently are, to the ways of premature death. For example, when asked, the director told us that all guests were kept on some kind of medication and most were required to take sleeping pills. Our students will recognize the fact that the meal served would in no way serve the cause of health.

We then returned to the circular main lobby and began our examination of the second facility, this being designed to house individuals who required more care. Most of the guests here required assistance in dressing, bathing, and for transportation, since many were confined to wheelchairs chiefly because of rheumatoid arthritis, heart conditions, and other advanced degenerative disorders. We were told that most of these guests were kept on medication more or less constantly.

The ages of the guests here in this section ranged from about fifty years of age to perhaps eighty years. None appeared to be older and most were probably in their late sixties and early seventies. Their sad faces mirrored their multiple concerns, their constant pain, and their weariness.

These guests also went to the dining room for their meals. If they were unable to manage their wheelchairs by themselves, they were assisted either by other more mobile guests or by staff personnel. The same boring environment was evident here as in section one.

The director then told us that we were now about to enter the third and last section of this home for the aged, this "Health Care Center," as it is called. The guests here did not have free access to the central section or to the outdoors. Upon opening the large double doors leading into this restricted area, a loud bell clanged. The sound reverberated throughout the facility, from one end to the other. We heard it ring repeatedly as staff entered and left. The director explained that the guests here were not responsible mentally and therefore had to be restricted in their movements. Most were, of course, also severely impaired physically.

The director advised us to prepare ourselves emotionally before meeting the poor souls housed here. We, of course, had previously been in similar institutions but it is always a shock to see what can happen to humans who do not know or care about the ways of health or who, knowing what they should do, refuse to acknowledge in their mind's eye, the inevitable consequences of error: pain, suffering and eternal darkness of mind and consciousness.

Among the guests, we learned, were a former bank president, several retired school teachers, the wife of one of the wealthiest men in town, and the son of a deceased well-known industrialist. All the guests came from the more affluent of society. The basic cost of housing in this third section is enormous by most standards and all extras are computed on a per item cost value.

We observed a television set and a small room or two where both the aides and guests sat. In one of these rooms smoking was permitted. The guests simply sat looking out into a nothingness. Some issued strange moaning sounds, others cried aloud, as if tortured by some inner demon.

A small courtyard opened to the outdoors from this section. It was surrounded by a high wire fence. Access to it was through a closed and locked door. Not a single guest was that day enjoying the sunshine and the cool fresh air. When we remarked how sad it was that the guests were inside instead of being outside, the director replied, "I know—but we're all just so busy!"

All the guests in the third section required maximum care. They had to be fed, clothed, and transported. They had to be put to bed and gotten up. Many suffered from incontinence and had to be kept in diapers. Like small infants, they required constant care and nurturing.

We were happy to have joined our friend on this excursion. This is one of the best "homes" we have thus far visited. The need to provide Hygienic facilities for the elderly is obvious. There should be many opportunities for our students, to enter into this field of true health care. We live in what amounts to a family-estranged society. So often the elderly are shunted away from the familiar environment of the past into a strange setting where they often lack the sight of family or friend for the duration. They are surrounded by the new, the strange, the unfamiliar. They miss the tranquility of their homes, the peace of the expected. They cope but only with great difficulty with the constant confusion stirring within and around them.

There are those in the medical community who do have compassion on these poor souls but they lack the knowledge of how properly to serve them. Most facilities are, however, run strictly on the profit motive. There is nothing basically wrong about making money for work well done. But in most homes the foods are selected not for their nutritive value but rather with two criteria in mind: 1. Cost and 2. Palate pleasing.

We have yet to find a facility where Hygienic care or anything resembling Hygienic care is provided. Instead, we have seen the elderly lying in their own excreta and writhing in pain on their beds. We have heard them cry out to us, "Get me out of here!" and, sadly, we had to turn away. We have smelled the foul odor of decay that pervades the very air they breathe, the decay of their own sickened and poisoned bodies. This is the forgotten segment of society, the warehoused ones, stuck away so as not to haunt the eyes and minds of the young who do not yet comprehend that their own biological clock is ticking away, too, and that they, like these, will also dissipate their vital force prematurely because they have not learned how to live.

4. A Contrasting View

In America only about 0.4% of the total population is said to survive to age 90 or over and even this figure is suspect since older persons tend to make themselves older, for some strange reason! The majority of Americans in their sixties and seventies stare out of blank eyes at a nothingness. Their faces are lined with care, their bodies twisted by arthritis and sclerotic diseases, their minds are overcome by worry, anxiety, care. As a consequence, many relapse into early senility and withdraw into a world of their own making.

In contrast let us look at some other people. In the Caucasus region of the Soviet Union there are an estimated 4,500 to 5,000 over-100-year-old people. Nearly 50 out of every 100,000 people in that part of the world live to celebrate their 100th birthday and many just keep going on from there! In fact, most believe that youth ends at about the age of eighty, but they just aren't quite sure about that! In 1977, the latest figures we have, the oldest Russian known was said to be a "hale and hearty 168 years old." Only three Americans in 100,000 ever reach 100 years of age and only a handful go much beyond.

Over 10% of the Vilcabambans of the Ecuadorian Andes customarily pass the century mark. The longevity of the Hunzas of Pakistan has been well publicized. The longevity of all we have mentioned has been well documented. But the intriguing part about the longevity of these various groups of people is not mainly that they have lived so long but rather that they have lived more or less constantly, throughout their lifetimes, always in a state of *superb health*. They seem to have stumbled onto the fountain of perpetual middle-age!" They remain vigorous in body and spirit all their lives. Their minds are alert and they remain filled with a zest for living. At 140 years of age, and perhaps even beyond, they work in the fields beside their great grandchildren and, in the upper regions of the Himalayans, it is said that the ninety-year-olds, after their hard days's work in the field, often join the "kids" for a game of volleyball. When was the last time you ever saw a ninety-year-old playing volleyball or any other physical game?

The head of the National Institute on Aging, Dr. Robert N. Butler, spent 17 days in Russia a few years ago at the invitation of his Russian counterpart, Dmitri Chebotarev. He concluded from his research in that country that the legendary long-lived Russians are indeed for real and that they don't do it by eating yogurt!

Dr. Butler found 1. That the Soviets are ahead of the U.S. in recognizing the intimate connection between nutrition and the aging process, and 2. That the U.S. has more equipment for research. He cited these reasons why, in his view, the people in the Caucasus lived so long:

1. They remain vigorous in body and spirit all their lives.
2. They keep their minds active.
3. They retain a zest for living, are fun-filled, family-oriented.
4. They work hard and are physically active all their lives.
5. They have a good inheritance. (He pointed at whole families, all the members of which live well over the century mark.)
6. They have good nutrition. They eat sparingly and do not snack.

Dr. Butler sounds like a Life Scientist when he says that he observed that the aged Russians ate mostly of fruits and vegetables and they they consumed only modest amounts of protein, very little fat, no salt, and no butter. They garnish their food, he said, with nuts instead of using sauces and they do not eat just before going to bed.

Butler observed that the old people stayed active and participated fully in home and community life. In a Gannet News Service release Butler recounts how one of the very old men threw a party for him. "It appeared to be important to him to be a good host," commented Butler!"

In light of our present knowledge of what is required for us to live always in a high state of health, just as these Russians do, it is incumbent upon all Life Scientists to participate actively in educating all people in the principles and practices that will impart to our aged ones a far higher state of health than they presently enjoy.

Butler noted that the Russians are actively pursuing their research while at American facilities devoted to gerontological research he stated that, "The longest time we can get people to come in is for two or three days." The Soviets have even tracked down birthdates and histories put down in old Korans and retrieved passport data from border crossing records of centuries ago. It seems that the Soviets are learning what retards the ticking of the biological clock while Americans appear to, be quite content merely to pop their pills and, in their narcotized state, passively to catch the rising tides of catastrophic diseases and painful deaths as well as they skyrocketing costs of housing and caring for all the sick, diseased, the senile and the dying, the numbers of which seem ever on the increase.

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5. The American Express

A total of 225 million prescriptions are written annually for older America. At least 80% of these prescriptions are for mood-altering substances. Sleeping pills are the most frequently taken drug of all.

As noted, the problems are augmented because of the resulting drug complications due to multiple drug usage. When drugs are taken, the elderly are far more likely to have visible adverse reactions which are long-standing than are the young. In the latter, drugs usually produce acute symptoms which are repressed by another drug and then forgotten.

However, in the elderly, pill taking often leads to unexpected death. In the U.S., it seems we are so obsessed with drugs that we fail to study the ways of health!

We recently attended a lecture by a prominent surgeon. The lecture was intended to inform those persons who were about to retire as to the proper course of action. We found that most of those in attendance had long since retired.

They had come to listen to the sage advice of this eminent man of medicine, words that would restore them to health.

The surgeon's first thesis was to assume that retirement comes with age and that with age comes disability. His first words of wisdom invited his guests to visit various nursing homes and to choose which one they thought would best suit their future needs. Why? Because this would be their final home!

Next, he began a long recitation of disorders and gave the medical solution. If you suffer from dropsy, why just take your pills. We have purified exact doses of digoxin. Retirement has a great salubrious effect, but you must continue the drug, and sometimes add a diuretic.

If you retire in the tropics, you must take your quinine regularly. Do you have a thyroid disorder? We have exact doses in tiny pills that aren't hard to swallow and they are "curative" for myxedema or hypothyroid states. If diagnosed early enough, this physician noted, and then treated (with drugs was, of course, implied) regularly, mental, deterioration, weight gain, arteriosclerosis are prevented. Low thyroid states must be diagnosed early, before retirement, and the hormone continued through retirement. So, keep taking your pills.

If you haven't retired yet and you're having trouble with your gallbladder, get it out now. Don't wait until you're retired. We're really getting more skilled at this sort of thing all the time. And don't forget to take your aspirin every day to keep your blood pressure down! I take three myself.

In reference to pacemakers and heart blocks, he commented somewhat as follows: The block is an interruption in the electrical pathway making the heart beat. It is temporary or permanent. Your pacemaker can be inserted safely to stand by and cut in if the pathway fails. No longer are you subject to the unexpected faints and falls as the heart stops, blood pressure increases and brain fails. Moral: Keep checking the batteries. They last longer now.

Following the lecture, we introduced ourselves and requested a copy of the physician's notes. The above is only a part of the advice given to all those sick, worried and suffering souls that day. Is this all modern medicine has to offer: Take your pills and have that surgery *now*! At the end of his talk, this highly-respected surgeon pulled out a long computer printout sheet. It extended for yards and yards. It represented the item by item billing for a single 28-day stay at a local hospital, at the end of which time, the patient had died. The total bill amounted to $28,950.00. His final words to the audience? Why, of course! "Don't forget to take your pills!"

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6. The Hygienic Approach—Case Studies

6.1 The Case of Mrs. B.

We have told Mrs. B.'s story elsewhere in other writings but her story illustrates so well the kind of miracle that the full application of Natural Hygiene can produce that we feel it bears repeating here.

Mrs. B. was brought to our office by her daughter and son-in-law. She barely had sufficient energy to walk through the door even, though supported on either side. She was 66 years of age. A large portion of her body was covered with ulcerated sores. She was obviously in pain and extremely weak. We were advised that her doctor had suggested that it might be necessary to amputate her right leg. That he had exhausted his resources.

Upon examination the leg appeared swollen, ulcerated and a reddish brown to almost black in color. In spite of the ulcers and grape-like veins on both legs, she had been advised by her physician to constantly wear a tightly-fitting elastic garment which she put on like a pair of pantyhose. This was "for support," she told us.

Constipation, heart irregularity, lack of appetite, inability to eat any uncooked foods, gas, stomachache—all these symptoms and more were recited. This was, indeed, a woman in trouble. She was also a victim of the "poor me" complex. She was firmly convinced that nothing could be done for her, that she was doomed.

We decided to take "baby steps" with Mrs. B. We made no changes whatsoever in her eating program except to urge her to combine the foods she liked according to accepted Hygienic standards. We also told her to take off this restraining garment and to toss it in the ashcan. We carefully explained how it would serve only to restrict the circulation and how she needed a good blood flow to encourage healing of her leg.

Within two weeks, the stomach pains were gone and she was having an occasional "normal" bowel movement. Gradually, but gradually, we improved her diet. Then came the sunbaths. This was a real adventure, but she decided she liked this so they soon became a regular habit. We showed her a few simple stretching exercises. Dr. Robert lay on the floor and did them for her so she could see how to help herself when raising the legs up. She knew that if he at his age could do all that, perhaps she could, too! And she did.

Soon she began to walk. Walk she did around and around the mobile home park where she lives. Her doctor said it was a miracle. Today there is no talk of amputation, no drugs. Instead there is hope. Mrs. B. knows that life can be beautiful. She is now over 70 years of age. We recently gave a lecture and guess who was there. Mrs. B., of course, there with a few friends. She blew a kiss. There was joy on her face but not a single ugly ulcer. For Mrs. B the past is history. She confided to Dr. Elizabeth that she has a boyfriend!

6.2 The Case of Brother's Brother

Our readers recall the story of our 97-year-old friend. Well, this story concerns the younger "brother." At age 73 he attended one of our lectures and subsequently enrolled in a class which consisted of seven sessions.

For 13 years Mr. M. had made regular visits to a local hospital to have his blood pressure checked and to get his prescriptions filled. For 13 years he had followed directions and taken his pills. His blood pressure reading was sky-high. Obviously, the danger of a stroke was very real to this man. However, he was an extremely intelligent man. He saw the rationale of the Garden of Eden diet and the grand sense of adhering to organic realities. He immediately shifted into high gear, as it were. Fruits, fruits and more fruits. He bought watermelon and cantaloupes by the box. He complained at first because he had to get up at night, as many as ten times to urinate, but he persisted.

Mr. M. began to lose weight. He had to buy new clothes but he kept on. He began to walk. He walked over all of Tucson! His complexion became beautifully smooth and clear and his eyes sparkled with life. He began to fast on his own, first a single day at a time, and later extended the fasts first to three days and then to five. Each time he lost more weight which he did not regain. Now each time he fasts, he loses but very little weight. One of these days he will stabilize and then, perhaps, regain some of his lost pounds. But, Mr. M. really doesn't much care about that. He is rejoicing in his new lease on life and, also, because his "brother" is doing so well and, especially, because brother will now give up bread!

6.3 Case Study—Mr. X

We include this brief news item to illustrate how abuse of the elderly can even be unintentional, simply perhaps a matter of negligence. Daily reports are made on local television as to the maximum sun exposure time before burning can be expected. Today, in the Arizona Daily Star there is an item which states, "The Medical Audit Committee for Pima County's Department for Improved Adult Living will hold an inquiry this morning Into the circumstances surrounding the death of an 87-year-old man who may have been left out in the sun too long. This is the public program which oversees nursing homes. The man in question, it seems, was wheelchair bound. Left in the sun, he developed a temperature of 108° and died shortly thereafter."

6.4 Case Study—Mrs. A

Mrs. A. was aged 86 when she came under our care. Her husband, a few months older, was to come to us shortly thereafter. Mrs. A. was already senile, somewhat difficult to manage and suspicious.

However, she became greatly attached to Dr. Elizabeth who sometimes would just simply sit quietly by her side and hold her hand. Simple dietary changes were made with emphasis on food combining. Once each week, she was dressed and taken for a walk and out to dinner. She looked forward to these times. She responded well physically but the mind did not. In fact, she lost her own identity and that of her husband. One day she took out her false teeth and threw them at him exclaiming at the same time, "He just wants my money!" However, the physical improvement was remarkable, under the circumstances, considering the advanced state of deterioration present when Hygienic care was started. This woman lived to be 90 years of age. Her general disposition became loving and outgoing, but she became more and more childlike.

The husband had been diagnosed six years prior to our taking over his care as having leukemia. He told us his fecal matter had been so impacted that practitioners were compelled literally to dig into the colon to extract it. Apparently he had been taking radioactive cobalt during these six years.

One day one of a pair of workmen who were doing some repairs at his house and also painting one of the ceilings was discharged by the old man who was highly dissatisfied with the work. Being very determined, he got up on the ladder to do the job himself and promptly fell off. The shock triggered an immediate and rapid deterioration and it was necessary to place him in a nursing home since there was no one to care for him at home. He died shortly thereafter and it is interesting to our study to note that an autopsy showed extensive organ deterioration and spinal bone sponging. He was 90 at the time of his death, also. This gentleman refused all dietary and other Hygienic suggestions. He continued taking his pills. He continued to suffer.

6.5 The Case of Mrs. R.

Mrs. R. came to us from another state. We bring her to your attention because she demonstrates how well the mind and body will respond when the full impact of the correctness of Natural Hygiene principles is immediate and causes radical changes in all aspects of living and eating.

At first meeting we learned that Mrs. R. had given birth to eight children and did not know what had happened to a single child. She was in her late 50s and the-children were all in the 20 to 35 age group. During the turbulent fifties and sixties they had joined communes and many had gotten caught up in the drug culture.

Her physician had diagnosed a severe liver disorder and given a dim prognosis. Our first meeting lasted two hours during which time she poured out all her misery, anxiety, her fears. We found out that she was very religious so we urged her to concentrate on her faith and on the future. We gave her a course of study in Natural Hygiene and asked her to give it due consideration.

From time to time we corresponded and at such times answered questions. A year later she came for her second consultation. The change was remarkable. She was smiling, her attitude was positive. Her complexion was much improved but, best of all, she had developed an attitude that life's problems could be satisfactorily solved. She obviously had not as yet solved all of her problems, but she was certainly much more confident of herself and the future.

Three years have passed. She now knows where every single one of her children is. In fact, this last year, she and her husband made a trip around the country and visited every single one of the young people. They have all, but one, entered the mainstream of life. The one exception is presently in a hospital under treatment for tuberculosis. But, best of all, this woman is herself a picture of radiant health. Her family doctor? Why, he has asked to borrow her study books! You see, even at her advanced age, her liver made a fantastic recovery, this in spite of his dim prognosis and, what is more, without his prescribed pills!

6.6 Case Study—Mrs. R. D.

Mrs. R. D. came to us after having experienced a limited hysterectomy, three massive heart attacks followed by a mastectomy and two years of severe angina "attacks." She had been advised that there were several coronary occlusions but that her body had partially corrected all but one of these. Mrs. R. D. expressed her willingness to place herself completely in our hands since she had finally come to the conclusion that her doctor of many years had nothing more to suggest. However, she was afraid to fast and, perhaps, it would not have been desirable in her case. We placed this woman on our Extended Rest Plan which involves the following:

First Three Weeks

1. A diet of raw foods only except for a single baked potato served twice a week
   Breakfast—A single fruit, preferably melon.
   Luncheon—A simple vegetable salad with 3 T nuts or 1 medium avocado

   Dinner—Fruit—2 varieties.
2. Ten hours rest at night.
3. During the day: 2 hours prone in a darkened room, 1 hour either sitting up in bed or, later on, in a chair.
4. Passive exercise; i.e., arms and legs being moved by an assistant.
5. Passive massage: Assistant using the flat side of three fingers lightly massages the skin and especially of the back.

Second Three Weeks

1. Diet same as above.
2. Night rest same as above.
3. One hour prone in a darkened room, 2 hours up, either sitting reading in a chair or listening to music, or about the third week, walking out of doors. Sun bath every day.

Seventh Week

1. Diet continued.
2. Client began simple exercises and extended walking to about one block.
3. Daily sunbathing when possible.
4. Up all morning. Two-hour nap after lunch. Got ready for bed immediately after third meal of day, at about 7 p.m.

Before the tenth week had passed, this client was able to walk a mile with ease. Almost three years have passed during which time she has taken no medication and has not had a single angina attack. Her physician requested her to go over her diet with the hospital dietitian and stated that he would like to try it on some other patients. Her EKG and other signs continue to stand up well under examination. Mrs. R. D. is now in her late sixties and travelling all over the country! The past is a closed book. This recovery is remarkable in that it took place in a cold, largely hostile climate. It shows the tremendous healing powers present within even a badly-abused body and how, when given the tools, the body will accomplish almost the impossible, restoring to even the very sick the opportunity to enjoy many more productive years of healthful living.

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Article #1: Inward Time by Alexis Carrel, M.D.

The declining years of maturity and senescence have little physiological value. They are almost empty of organic and mental changes. They have to be filled with artificial activities. The aging man should neither stop working nor retire. Inaction further impoverishes the content of time. Leisure is even more dangerous for the old than for the young. To those whose forces are declining, appropriate work should be given. But not rest. Neither should physiological processes be stimulated at this moment. It is preferable to hide their slowness under a number of psychological events. If our days are filled with mental and spiritual adventures, they glide much less rapidly. They may even recover the plenitude of those of youth.

... So far, human beings are classified according to their chronological age. Children of the same age are placed in the same class. The date of retirement is also determined by the age of the worker. It is known, however, that the true condition of an individual does not depend on his chronological age. In certain types of occupation, individuals should be grouped according to physiological age. Puberty has been used as a way of classifying children in some New York schools. But there are still no means of ascertaining at what time a man should be pensioned. Neither is there any general method of measuring the rate of the organic and mental decline of a given individual. However, physiological tests have been developed by which the condition of a flyer can be accurately estimated. Pilots are retired according to their physiological, and not their chronological, age.

Young and old people, although in the same region of space, live in different temporal worlds. We are inexorably separated by age from one another. A mother never succeeds in being a sister to her daughter. It is "impossible" for children to understand their parents, and still less their grandparents. Obviously, the individuals belonging to four successive generations are profoundly heterochronic. An old man and his great-grandson can be complete strangers.

From the concept of physiological time derive certain rules of our action on human beings. Organic and mental developments are not inexorable. They can be modified, in some measure, according to our will, because we are a movement, a succession of superposed patterns in the frame of our identity.

Although man is a closed world, his outside and inside frontiers are open to many physical, chemical, and psychological agents. And those agents are capable of modifying our tissues and our mind. The moment, the mode, and the rhythm of our interventions depend on the structure of physiological time. Our temporal dimension extends chiefly during childhood, when functional processes are most active.

Then, organs and mind are plastic. Their formation can effectively be aided. As organic events happen each day in great numbers, their growing mass can receive such shape as it seems proper to impress permanently upon the individual. The molding of the organism according to a selected pattern must take into account the nature of duration, the constitution of our temporal dimension. Our interventions have to be made in the cadence of inner time. Man is like a viscous liquid flowing into the physical continuum. He cannot instantaneously change his direction. We should not endeavor to modify his mental and structural form by rough procedures, as one shapes a statue of marble by blows of the hammer. Surgical operations alone produce in tissues sudden alterations. And recovery from the quick work of the knife is slow. No profound changes of the body as a whole can be obtained rapidly. Our action must blend with the physiological processes, substratum of inner time, by following their own rhythm.

... A child may be compared to a brook, which follows any change in its bed. The brook persists in its identity inspite of the diversity of its forms. It may become a lake or a torrent. Under the influence of environment, personality may spread and become very thin, or concentrate and acquire great strength. The growth of personality involves a constant trimming of our self. At the beginning of life, man is endowed with vast potentialities. He is limited in his development only by the extensible frontiers of his ancestral predispositions. But at each instant he has to make a choice. And each choice throws into nothingness one of his potentialities. He has of necessity to select one of the several roads open to the wanderings of his existence, to the exclusion of all others. Thus, he deprives himself of seeing the countries wherein he could have traveled along the other, roads. In our infancy we carry within ourselves numerous virtual beings, who die one by one. In our old age, we are surrounded by an escort of those we could have been, of all our aborted potentialities. Every man is a fluid that becomes solid, a treasure that grows poorer, a history in the making, a personality that is being created. And our progress, or our disintegration, depends on physical, chemical, and physiological factors, on viruses and bacteria, on psychological influences, and, finally, on our own will. We are constantly being made by our environment and by our self. And duration is the very material of organic and mental life, as it means "invention, creation of forms, continual elaboration of the absolutely new."

... There is a striking contrast between the durability of our body and the transitory character of its elements. Man is composed of a soft, alterable matter, susceptible of disintegrating in a few hours. However, he lasts longer than if made of steel. Not only does he last, but he ceaselessly overcomes the difficulties and dangers of the outside world. He accommodates himself, much better than the other animals do, to the changing conditions of his environment. He persists in living, despite physical, economic, and social upheavals. Such endurance is due to a very particular mode of activity of his tissues and humors. The body seems to mold itself on events. Instead of wearing out, it changes. Our organs always improvise means of meeting every new situation. And these means are such that they tend to give us a maximum duration. The physiological processes, which are the substratum of inner time, always incline in the direction leading to the longest survival of the individual. This strange function, this watchful automatism, makes possible human existence with its specific character. It is called adaptation.

All physiological activities are endowed with the property of being adaptive. Adaptation, therefore, assumes innumerable forms. However, its aspects may be grouped into two categories, intraorganic and extraorganic. Intraorganic adaptation is responsible for the constancy of the organic medium and of the relations of tissues and humors. It determines the correlation of the organs. It brings about the automatic repair of tissues and the cure of diseases. Extraorganic adaptation adjusts the individual to the physical, psychological, and economic world. It allows him to survive in spite of the unfavorable conditions of his environment. Under these two aspects, the adaptive functions are at work during each instant of our whole life. They are the indispensable basis of our duration.

Whatever our sufferings, our joys, and the agitation of the world may be, our organs do not modify their inward rhythm to any great extent. The chemical exchanges of the cells and the humors continue imperturbably. The blood pulsates in the arteries and flows at an almost constant speed in the innumerable capillaries of the tissues. There is an impressive difference between the regularity of the phenomena taking place within our body and the extreme variability of our environment. Our organic states are very steady. But this stability is not equivalent to a condition of rest, or equilibrium. It is due, on the contrary, to the unceasing activity of the entire organism. To maintain the constancy of the blood's composition and the regularity of its circulation, an immense number of physiological processes are required. The tranquility of the tissues is assured by the converging efforts of all the functional systems. And the more irregular and violent our life, the greater are these efforts. For the brutality of our relations with the cosmic world must never trouble the peace of the cells and humors of our inner world.

As extracted from his major work, Man, the Unknown. Out of Print.

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Article #2: Overnutrition—All About Protein by The Doctors McCarter

Epidemiological And Historical Evidence

In light of the continuing confusion existing not only among the public at large but also in many scientific circles with regard to the optimum amount of protein required to maintain superb health and especially because of the current media emphasis on our supposed need to eat a diet high in protein, it would appear of considerable importance to review some of the epidemiological and historical evidence that bears on this subject.

It would appear that such evidence is the only really solid evidence to be had: how have people responded for thousands of years to whatever dietary practices they, as a tribe or people, have constantly pursued? It takes many generations to observe results that can be considered conclusive. Pottenger and his cohorts at Yale University demonstrated that it takes three to four generations to prove the validity or lack thereof, of a particular dietary regimen with cats. We must assume that the same would hold true with humans.

Throughout history, and in various parts of the world and in different climates and under diverse circumstances, millions and billions of people have lived exclusively on a simple vegetable protein dietary intake, rarely exceeding 30 to 35 grams per day. Some used animal flesh only occasionally, as on special feast days. Many have totally avoided all animal products, such as milk or eggs. In other words, they were vegans. Recorded history strongly suggests that they have as a rule, enjoyed far better health than the average meat-eating person or tribe of peoples.

Dr. Alan Walker of the Department of Cell Biology and Anatomy, The Johns Hopkins University School of Medicine, startled the scientific community when, in 1979, he announced that, according to extensive studies of fossil teeth performed by him and his associates, he had concluded that early man lived for millions of years on an exclusively fruit diet. (In a letter to your authors. Dr. Walker states that man was able to adapt successfully to progressive dietary changes. His paper on this research was, published in Great Britain.)

It has been shown by many researchers that dietary habits powerfully determine the particular lifestyle and character of peoples. Walker, for example, quotes from research originally reported by R.A. Dart in 1953 as follows with regard to *Australopithecus* (an early man):

"... carnivorous creatures, that seized living quarries by violence, battered them to death, tore apart their broken bodies, disembodied them limb from limb, slaking their ravenous thirst with the hot blood of victims and greedily devouring livid writhing flesh."

Many modern studies have showed the relationship between diet and hyperkinetic behavior and how chemicals added to food can relate to adverse neurotic tendencies. Other studies have related depression, inability to sleep, loss of memory, moods in general to dietary insufficiences or excesses of one kind or another. Dr. Brian Morgan, an assistant professor at Columbia University's Institute of Human Nutrition in New York City, is reported to have said that, "You can affect your mood and behavior by the kinds of foods that you eat." Natural Hygiene has long held this view as have your authors.

Crime and cancer are rampant across America and in other parts of the world and especially in those parts where heavy meat eating is the custom; whereas among the rural Chinese, East Indians and among certain native peoples of Latin America, these scourges are almost nonexistent. These latter peoples all consume low-protein diets. The Hunzas of the Himalayas, for example, are well known for their emphasis on indigenous fruits in their diet and for the fact that they eat little, if any, animal protein. This tribe is also noted for the longevity of its individual members and for their superb health. It must be noted, of course, that these people live largely out of doors, work hard at their agricultural pursuits, do not consume processed and chemicalized food—all of which contributes also to their well being. We hear that many modern "delights" are now finding their way into this area since the building of a road there. It should be interesting for future generations to observe the changes that may accrue in the health of these people.

Indians living at 13,000 feet in the Andes continue to eat their high natural carbohydrate, low-protein diets and continue to demonstrate amazing endurance and strength. The Tarahumara Indians of Mexico stick to a similar diet and are able to run 90 miles at seven miles per hour with no heart expansion or shortness of breath.

Perhaps we should contrast this ability with the condition of some marathon runners at the conclusion of a run of only 26 miles, runners considered by the press and the public at large to be in superb physical condition! Many collapse at the end of the run, some take weeks to recover.

The long-living and extremely healthy Georgians of Russia are living examples in our day of the correctness of a diet low in protein and high in carbohydrates. They are a hard-working, fun-loving, outgoing people, family-oriented, who live, on an average, beyond the century. Most rarely eat meat. Many do consume Koumiss, a kind of fermented milk.

This is the kind of evidence that cannot be ignored. This is the kind of superb health which is the result of eating practices followed by hundreds of generations and for thousands of years. This is the kind of health and longevity which is in direct contrast to what can be observed among the tribes who consume a high-protein diet: the Eskimos, Laplanders and Masai being prime examples.

Both the Eskimos and Laplanders are gross in development and more or less dull mentally. They rarely live beyond the age of forty-five years. The Masai grow to great heights, often in excess of seven and even eight feet, but their life span is short. They live, on an average, to about the age of twenty-five years. The Masai are a tribe living in Africa. They are a sub-grouping of the Sudanese.

The Eskimos consume much fat and eat whale and other raw sea animals. At certain times of the year they subsist on native plants of the far north. The Laplanders are reindeer-eaters, for the most part, while the Masai consume mare's milk and drain the blood from animals for sustenance. The Laplanders live beyond the Arctic Circle where vegetation is sparse. Those who live in coastal areas do have occasional access to fish. Gross of body and shortlived they offer mute testimony to the long-term effects of their diet.

It is interesting to note that, for the most part, these meat-eating tribes maintain a high level of health during their short lives probably due to the fact that their lifestyle is basically correct: they live out of doors, the stresses of civilization are practically nonexistent, they are very supportive of one another, they do not have access to foodless foods and are not exposed to other factors known to be destructive of health.

The average person in America today probably consumes two to four times as much protein as he requires for optimum living with many consuming six to eight times as much. This latter figure would apply, in many instances, to executives on the "party-entertainment circuit," those who make a practice of consuming sixteen-ounce steak and lobster dinners and favor steak and egg breakfasts. (We recently heard about a restaurant that features steaks in excess of 40 ounces!)

It is the considered opinion of your authors that the nausea experienced so often by astronauts in space is due not only to the stress of the occasion but also to the emphasis placed on animal protein in their diets. They would be far better served to eat little or nothing prior to lift-off or to eat a meal high in carbohydrates, and especially if they ate a well-combined and properly constructed meal consisting of fresh ripe fruit plus, perhaps, some lettuce and celery. It has long been known that emotional stress can stop the digestive process for hours during which time all undigested foodstuffs ferment and putrefy giving rise to nausea, diarrhea and other uncomfortable gastric and related disorders such as headaches, insomnia, as well as others. A meal such as we suggest would be largely pre-digested and pose no such problems. Additionally, it would tend to conserve body energy for the exacting tasks at hand. It would tend to "burn clean" and not add clutter to body channels.

A physiologically-correct dietary program such as we suggest would provide ample energy for performance, would conserve body resources, increase mental alertness and permit normal metabolism. It would not occasion the four adverse responses of a high-protein intake, nor would it waste energy resources—energy wasted during the required prolonged digestion and in combatting the fermentation and putrefaction forthcoming when poorly chosen and incorrect foods are eaten at any time, and most particularly, when they are eaten at times of great stress.

Article #3: Health

Extracted from The New American Encyclopedia published by Books, Inc. Copyright 1938, 1939. We include this extract for the purpose of showing our students that the requirements of the good life are both simple and well known. All that is lacking is the doing!

Health is the state in which the body functions normally. This condition finds the body free from disease, with all organs and component parts of its structure performing their functions properly and in correct balance.

Health is a normal and relatively constant state in wild animals, this condition prevailing from their heeding of instinctive guidance, and from the free operation of nature's laws of survival of the fittest which inexorably eliminates the weak.

Man's instinctive apparatus has become dulled by the exercise of his reasoning powers and by habits of civilization which lead him to rely upon others for guidance. Health to him represents a relative condition, in which he seldom enjoys a state of perfection.

With the development of medicine and surgery the weak are preserved, resulting in inherited defects or weaknesses. Hence a constantly increasing need for (1) Development of scientific treatment of disorders; (2) Understanding by man himself of the warnings and subsequent treatment of his ills.

It is an impressive fact that most ailments in persons can be, in part, prevented by properly regulating diet, by avoiding overindulgence in food and alcoholic beverages, by controlling the weight within normal limits, by taking mild physical exercise and leading a normal mental existence, free from excessive nervous strain or emotional disturbances.

Our modern mode of living has much to do with involving us in what is known in medicine as a vicious cycle. At the age of thirty or so, a young person becomes deeply engrossed in his career. Exercise is soon curtailed, but since the nervous system craves some form of amusement and diversion, the pleasures of the table and the soothing action of tobacco or the stimulating influence of alcoholic beverages are substituted. In consequence, the weight increases, the appetite enlarges, and there is further disinclination to physical exercise, a deeper absorption in the business of and readier yielding to the temptations of food, tobacco, and wine; and so, endlessly, he whirls tighter with each revolution. As a result, at the age of fifty or sixty, he is likely to find himself the possessor of a fortune, a large abdomen, a bad heart, and a pair of damaged kidneys.

From the standpoint of health the chief enemy of young people is tuberculosis; of the middle-aged, personal neglect. The middle age diseases such as chronic heart disease, high blood pressure, kidney disease, are painless, and their onset usually gradual and insidious. If one relies upon some signal from within to be warned of the impending danger, however, there is a risk of these conditions developing to the extent of causing irreparable damage before their presence is known. Good heredity and robust, constitutions are no guarantee of long life. The desire not to know if anything is wrong is cowardly and stupid.

The secret of good health is moderation in all things—in eating, work, mental effort, ambition, play, and exercise. The life of moderation is the simple life and, therefore, the healthy, long, and a happy one. Those who prefer speed and profess a contempt for the consequences, always change their views when, too late, nature demands payment.

After the age of 50, the thinner an individual is, the better is his chance of reaching old age, provided he does not have a tendency to develop tuberculosis or has not suffered from tuberculosis in earlier years, and provided, too, his light weight is not due to some organic disease.

You have no doubt been repeatedly told that persons who weigh too much past the age of 35, have poor prospects of attaining old age. Their particular enemy is heart disease. Statistics have abundantly demonstrated the truth of this statement. This does not mean that a very fat person cannot live to age 90 or even 100, but his chances of doing so are small.

Overweight is usually due to overeating, although stout persons nearly always insist that they are very sparce eaters; but, they measure the amount of food that they eat by their appetities, and the appetite is a very flexible measuring rod, capable of being enormously stretched by hungry persons. With very few exceptions, any person who is too heavy can reduce if he will make an effort to do so. The effort is worthwhile. At the age of 50, for instance, every pound of weight in excess increases a man's likelihood of dying during the ensuing year by about one percent. In other words, if a man 50 years old weighs 50 pounds in excess of the standard figures, the likelihood of his dying is constantly 50 times greater than that of a man 50 years old who is of normal weight. (Hygienists generally hold that the standard figures are too high, possibly to the extent of 15 or more pounds.—The Authors).

In order to effect weight reduction intelligently, an elementary knowledge of food and food values is necessary. With regard to protein, this Encylcopedia comments, "The average person uses too much protein. If protein is taken to excess, the body is unable to split up this food completely into harmless end products; instead, certain irritating substances are produced which have a harmful action on vital organs of the body, particularly the kidneys." With regard to fats, "Fat is the most difficult food for the body to digest and consume. The energy of fat is released slowly and those who eat fats excessively become sluggish mentally and physically."

"If your work demands much physical effort, such as that of a laborer or farmer, this is not necessary except when you are not working. But the man doing office work must do some physical work daily to insure good health. Past the age of 40 the best exercise is walking. Five miles a day is not too much, provided you start out by walking a mile the first week and increasing it a mile a week until you are doing the five miles. Golf playing is good, not once a week, but daily. In the summertime, an hour or two in the garden, hoeing, etc., may be substituted for walking. Do not attempt the more strenuous exercises after the age of 40, and remember that outdoor exercise is better than indoor."

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Article #4: Why Exercise?

"Why exercise?" We all want to keep the vigor of youth. Exercise is a means to that end, but we must exercise regularly to get the full benefits. Before the dawn of civilization mankind was not troubled by the need for exercise. Our forefathers, in the dim ages long passed, had to exercise to *live*—to get their food, to fight off enemies. Today we no longer depend on hunting and fishing for our food. Large numbers of us sit at desks or tend machines. We ride in automobiles, trains, elevators. The enemies of. primitive life do not bother us. And the result is that most of us do not get the amount and variety of physical activity which the human body needs.

The suppleness of limb and the untiring vigor developed in the play and sports of childhood soon tend to pass with advancing years. Our daily work often requires little or no muscular activity—or, perhaps, the use of only a limited number of muscles. And so we must make up for this lack in our off-work hours. We must deliberately choose to exercise if we would enjoy its benefits. As we grow older it becomes all too easy to take us little exercise as possible, despite the fact that this is the time when a certain amount of exercise is very much needed. It is needed to keep the heart and lungs in prime condition—to keep the circulation active—to improve digestion and elimination—to preserve a healthful and attractive posture. In short, it helps to insure proper functioning of the whole body—to keep us full of vigor and feeling fit."

Dr. Robert's Daily Exercises

1. Twisting. Hands on hips. Turn to the right, then to the left. Up to 100 times.
2. Dr. Tilden's face and neck exercises
   Turn head first to right, then to left. 10 times each.
   Move head backwards as far as it will comfortably go. Return to chest. 10 times.
   Move head to right shoulder, then to left shoulder. 10 times.
3. Rotate shoulders, first in one direction, then in opposite direction. 20 times.
4. Raise shoulders to ear level. 10 times.
5. Extend arms forward to horizontal position. Rotate hands as rapidly as possible until reasonably tired. Extend arms to full vertical position and repeat same exercise
   Extend arms to horizontal position to side and repeat same exercise.
6. Shadow box for two to three minutes.
7. Rotate arms in full circle simultaneously crossing the chest. 25 times
   Using dumbbells (start with 5 pounders and increase poundage as soon as ten Reps are comfortably achieved):
   Bend over at waist. Dumbbells in hand, bend arms at elbow. 10 reps

   In standing position. Repeat.
8. Using both dumbbells elevate to overhead position and return to shoulder. 10 reps
   Extend dumbbells out to side from hip position to shoulder position. 10 Reps

   Shadow box with 10 pounders.
9. Windmill. Touch right toe with left hand, then left toe with right hand. 20 Reps.
10. Deep knee bends. 20 Reps.
11. Ride bicycle. 25 times. In bicycle position, 10 bending of knees and push up to extended vertical position. 25 times.
12. Aerobic dancing. Tap dancing to music. 5 to 10 minutes.
13. Running in place. 10 minutes.
14. Walking as time permits.

On January 1, 1984, Dr. Robert will be 83 years young. In addition to the physical activity, he spends 10 to 12 hours actively engaged in research, writing, and operating Bionomics Health Research Institute.

Lesson 84 - The Basic Four Diet

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- 2. What Is The Basic Four Diet?
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- 4. Does The Four Food Plan Work?
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- Article #1: Should We Drink Milk? By Dr. Alec Burton
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- Article #3: Eat Your Heart Out, Galloping Gourmet By Cary Fowler

1. Introduction

There was a large wall chart, and the third-grade teacher was pointing to it as she taught me and my elementary school classmates our first lesson in nutrition.

There were four big pictures on the chart. One picture showed a cow surrounded by milk, butter, and cheese. Another picture had steaks, porkchops, and sausages piled high, with a few beans sprinkled around the different meats. At the bottom of the chart was a picture of loaves of bread and a bowl of cereal. Finally in the other corner of the poster was a head of lettuce, apples, oranges, and a yellow squash.

The teacher was pointing to each picture. "Now to grow up healthy and strong," she said, "you must eat different foods every day. You need milk and meat and bread and some vegetables or fruit at every meal." She pointed to the picture of the cow, and then to the steak (I didn't know at that time that the steak had come from the cow!) and then to the bowl of cereal and the yellow squash.

It sounded good to my eight-year-old ears. All you had to do to eat right and be healthy is just to remember to eat four types of food at every meal. It was logical and so neatly explained by that big food chart that had been supplied by the U.S. Department of Agriculture.

Twelve years later after following such a diet, I knew my third-grade teacher had lied to me. I wasn't healthy or strong or well. I studied nutrition on my own, and discovered the real truth about diet and well-being—the truth that had been so carefully hidden from me and is still denied children in school today.

The Basic Four Food Group diet that was so vividly illustrated on that chart is still the most popular diet and nutrition plan in this country today. And it is dangerously incorrect.

2. What Is The Basic Four Diet?

The Basic Four Diet was created by the U.S. Department of Agriculture, and is formally known as the USDA Four Food Group Plan.

This plan classifies all foods into four basic groups, and recommends a minimum number of servings from each group in order to satisfy the Recommended Daily Allowances (RDAs) of nutrients. The RDAs are a set of recommendations for daily intake of calories, protein, vitamins, and minerals made by the Food and Nutrition Board of the National Academy of Sciences. The amounts recommended by the board will, according to them, "provide for the maintenance of optimum nutrition in healthy persons in the United States."

In the Four Food Group Plan, foods are arranged into four categories:

1. Milk Group
2. Meat Group
3. Bread and Cereal Group
4. Fruit and Vegetable Group

Each group contains foods similar enough in nutrient content to be more or less interchangable, or so the reasoning goes. The table below shows the four food groups, serving sizes for the group, and the alternative selections that may be chosen from when planning on a diet using the Four Food Group Plan:

2.1 Four Food Diet Plan

Food Groups Minimum Servings For Adults

1. Milk Group
   2 servings. (One serving is 8 ounces of milk or yogurt, or 1 slice of cheese.)
2. Meat arid Meat Alternatives
   2 servings. (One serving is 3 ounces of any of the following: lean meat, fish, shellfish, eggs, poultry, cheese with dry beans or dry peas or peanut butter.)
3. Bread and Cereal Group
   4 servings. (One serving is 1 slice of bread or 1 ounce of dry cereal or 2/3 cup of cooked cereal.)
4. Fruit and Vegetable Group
   4 servings. (One serving is 1/2 cup cooked fruit or vegetable, or 1 medium-size raw fruit or vegetable)

2.2 The Reasons for the Four Food Groups Diet Plan

The Four Food Group plan was basically devised to cover the foods predominantly produced by our agricultural and commercial enterprises. Ostensibly, it simplified meal planning, assured us of our nutrient needs, and was an easily understood approach to nutrition.

Here are the major nutrients in the diet that each food group was supposed to supply:

PROTEIN	Meat Group, Milk Group
CALCIUM	Milk Group
IRON	Meat Group

B VITAMINS	Bread and Cereal Group, Milk Group
VITAMIN A	Fruit and Vegetable Group
VITAMIN C	Fruit and Vegetable Group

2.3 The Advantages of the Four Food Group Diet Plan

There are two major advantages in using the Four Food Group plan to develop a diet:

1. The plan is relatively simple to understand. All foods are divided into four easily recognizable groups, and exact serving amounts of each food group are specified. Even those people entirely ignorant of nutrition can use the Four Food Group plan without any additional education.
2. Some nonfoods and junk foods such as soft drinks, candy, and other snacks are not included in any of the four categories. (You should notice, however, that many poor foods and processed foods are included in these groups— for example, nitrate-preserved meats, white bread, polished rice, pasteurized milk, etc.).

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3. And Now For The Truth

The Basic Four diet plan is 75% incorrect. Three of the four food groups it uses (Meat, Milk and Bread) are inimical to human nutrition and well-being. The inclusion of foods from these three groups is the cause of most of the dietary ills suffered in this country today.

Only the group of Fruits and Vegetables can be considered essential for nutritional well-being. The Basic Four Food Group diet plan, then, has a batting average of 25%—perhaps not bad for major league baseball, but a deplorable percentage for your state of health.

Since the Basic Four Food Group plan is still the most popularly recommended and well-known diet plan in the country, you will need some hard facts to convince others that it is a dangerous and incorrect diet to follow. To help you understand why this diet plan cannot promote health or even supply basic nutrient needs, each of the four recommended food groups are examined in great detail in the following sections:

3.1 One Man's Meat Is Everyone's Poison

Meat is one of the most heavily-promoted food groups in the United States. We are told that we must eat meat every day in order to get the necessary "complete" protein that animal food products can supply.

In fact, *the alleged need for meat-eating is based entirely on the need for protein in the human diet*. Except for a few B-vitamins, protein is the only major nutrient that meat can supply. The meat group of foods that is included in the Basic Four Food Group diet is done so entirely because of an unhealthy obsession with protein foods that is common to American society.

Not only are protein foods heavily promoted, they are so intimately associated with meat that the two are almost synonymous. Tell someone that you do not eat meat, and he will almost assuredly ask, "But where do you get your protein?"

The Basic Four Food diet propagates this misconception that protein comes almost exclusively from meat by naming its first food category, "Meat and Meat *Alternatives* Group." Notice that the category is not called "Protein Foods" or "Essential Amino Acids Foods" but "Meat." The other protein foods listed in the group which are not animal flesh (such as cheese, dry beans and peas, and peanut butter) are called "Meat Alternatives." An "alternative" is defined as a second choice or something that may be used in place of the first choice. In other words, according to the Basic Four diet plan, meat is the number one protein source. All other protein foods are called alternative (or "second-rate") choices.

Dr. Herbert M. Shelton has stated that "the so-called scientific world is wedded to the carnivorous practice and all of its dietetic advice is designed to induce mankind to eat more flesh, eggs, and milk." Notice that the healthiest sources of concentrated protein, raw nuts and seeds, are not even included in the protean or "Meat and Meat Alternatives" group!

The casual user of the Basic Four Food Group diet plan would probably conclude that the number one nutritional need is protein, and preferably animal protein. Of course that conclusion suits the meat-packing, poultry, and dairy industries just fine. Please remember that the Four Food Group plan was devised by the U.S. Department of Agriculture which has a commitment to supporting and promoting cattle-raising, milk and egg production, and other livestock industries. In fact the U.S.D.A. is staffed at the top by members of these industries.

Are protein needs so great that this nutrient should be our number one concern? The Basic Four Diet plan certainly places a strong emphasis on getting plenty of protein (or meat and meat alternatives) in our diet. Do we need concentrated protein sources or alternatives to this Meat group?

Dr. Shelton in his masterwork *Human Life: Its Philosophy and Laws* tells us that "the adult body requires only enough protein to maintain repairs and that this amount is extremely small if the body is rightly cared for. We can safely say, Dr. Shelton continues, *"that if the adult person never touched any of the more concentrated protein foods s/he would never fail to secure all the protein, required by the body, to maintain repairs."*

What can we say then about this first food group in the Basic Four Food diet plan? In a "nutshell," just this: Meat-eating is not only nonessential, but is a degenerative practice that leads to illness and disease. There is no need for "alternatives" to meat, and recommendations for other highly-concentrated protein foods are spurious.

If you eat a diet of natural and unprocessed foods, you will receive an abundance of amino acids, or "protein." You certainly do not need to eat two or more servings daily from a food group that consists chiefly of chemically-preserved, hormone-laden, and decomposing pieces of animal corpses.

Bypass the "Meat and Meat Alternative" group—there are biologically correct ways to meet your protein needs.

3.2 If You Don't Eat the Cow, Why Drink the Juice?

The next major food group in the Four Food Diet Plan is the "Milk and Milk Products" or dairy category. Before looking at the reasons for making dairy food items a separate category, you should know one fact:

Over 75% of the world's population—3 out of every 4 people on earth—cannot digest milk (or milk sugar-lactose) after the age of three.

For many people, indigestion, gas, cramping, and/or diarrhea occur after a single glass of milk is drunk. Does this sound like an "essential" food or food group when most people cannot tolerate dairy products, let alone digest and appropriate them?

Let's ask another question. Do the government nutritionists sincerely believe that every human being must have two or more glasses of milk each day to survive in good health? Maybe or maybe not, but one thing is sure: The milk and dairy industries and similar vested interests would certainly like everyone to believe it.

"Milk has grown to become one of this country's staple businesses," Dr. Shelton notes, "and the profits of milk distributing are very high. This industry has fostered the idea that man should be a suckling—should never be weaned, and that he should suck at the teats of the cow even if he lives to be ninety to a hundred years old." Dr. Shelton concludes, "For adults, milk is both an inefficient and uneconomical food. It is certainly not an essential element of the human diet."

Over two-thirds of the world's population never have a single glass of cow's milk. They consume less milk in their, entire adult lives than is recommended for one day by the USDA. Only in the United States is milk-drinking so heavily promoted for adults.

Why, then, did milk-drinking and cheese-eating become so prominent in our society, and why are dairy products named as one of the four important food groups? Well, the obvious reason is money. The best way to get people to buy and consume more of a food item is to convince them that it is absolutely essential for their health.

And how are milk and other dairy products promoted as being essential for our well-being? The answer in one word: Calcium.

Calcium is to the dairy industry what protein is to the meat industry. If you can convince people that a nutrient which is abundant in a specific food category (such as calcium for dairy, or protein for meat) is required in large amounts for optimum health, then foods which contain those nutrients will be consumed in larger and larger quantities.

Except for a few B-vitamins and protein, calcium is the only major nutrient in milk products. Dairy producers try to "beef up" their products by adding vitamin D and fortifying them with other additives. Yet after all is said and done, even the highly-promoted calcium content of milk may be all for naught.

Studies have shown that the calcium in pasteurized and processed milk products is poorly digested and absorbed and used by the body. Indeed, the calcium in such products may be used more to form "stones" or inorganic deposits in the body instead of being used to build strong bones. Is it mere coincidence that patients prone to kidney stone formation no longer have this problem after eliminating dairy products from their diets?

Still, calcium is an essential mineral for our well-being. In fact, it is the most abundant mineral in our body. Among the elderly, especially women, calcium loss is a real problem. Bones become osteoporotic and brittle. Hip injuries often occur due to demineralization and calcium loss. The solution, however, is not in using milk for calcium, but instead, to avoid those foods which increase our calcium requirements and to consume those foods that supply it in its finest form.

That's correct. A diet high in meat products and junk foods is the real culprit in calcium loss and calcium deficiencies.

Many foods eaten in the typical American diet are calcium-poor already, such as meat, starches, refined grains, and high-sugar foods. In addition, the majority of these foods are also acid-forming. To neutralize these acids formed by a poor diet, base minerals such as calcium are needed in excess of the body's normal requirements. Further, the body needs extra calcium and other minerals to metabolize these refined and deficient foods. Moreover, much calcium is deranged and thus unusable when foods are cooked.

When refined foods (already calcium-poor) that are high in acid residues are consumed, calcium needs increase. As a result, we are told to drink large amounts of milk to satisfy the calcium requirements of the twentieth-century diet.

When naturally alkaline foods such as a fresh fruits and vegetables are eaten, calcium needs are lowered because body acidity is lowered. Thus the high calcium recommendations made by nutritionists are not valid for those who follow a natural and unprocessed diet of raw fruits and vegetables.

Writing in his book Superior Nutrition, Dr. Shelton states: "In a condition of markedly lowered alkalinity or so-called acidosis, calcium will not be utilized even though abundant in the diet. Increased alkalinity of the blood increases calcium utilization." A diet of fresh fruits and vegetables keeps the body in an optimum state of alkalinity for the most efficient use of calcium. Thus, although smaller amounts of calcium may exist in a diet that is free of milk and all animal products, the calcium is actually absorbed by the body at a much higher and efficient rate than in the body of the meat-eating and milk-drinking person.

And if you are a vegetarian that persists in using milk and other dairy products, you should ask yourself why. If there is no nutritional need for dairy foods, then why do you drink the juice (milk) if you refuse to eat the cow?

In fact, pity the poor cow. She is raised for both meat and milk, and sold to consumers with a package of lies for the basest of reasons. And, like the cow, the consumers of this animal and its products are also kept in ignorance by the men who raise and promote the consumption of the beast.

Now ignorance is no excuse. You know that two of the four food groups (Meat and Milk) are never essential for our health and well-being and, in fact, are pathogenic. Protein and calcium needs are real, but these needs can be fully satisfied with a natural diet of fresh fruits and vegetables.

3.3 The Staff Of Whose Life?

The third food group contains bread, cereals and other grain products. Is this group just as nonessential as the meat and milk groups? Let's see why these foods are considered to be so important in the first place.

The chief reason for including grains arid breads as one of the major four food groups is that such foods are thought to furnish us with the B-vitamin complex, as well as vitamin E and (in the case of "fortified" bread) iron.

Whole, unprocessed, and unrefined grains do contain a significant amount of B vitamins. But are such foods otherwise health-promoting and beneficial to eat?

The truth is that whole grains and their derived products are at best "second-rate" foods. In times of famine or when fresh fruits and vegetables cannot be stored or not available, then grains may be used as a temporary food supply. Whole grains, however, are not a complete or optimum food and cannot support life when eaten cooked instead of sprouted.

"The only grain products that are permissable in the diet of an intelligent and informed individual' are the whole grains in their natural state. However, grains are inferior articles of food and they certainly form no normal part of the diet of man. Every man, woman, and child in the land would be better off by leaving them out of their diet."

If you have doubts about Dr. Shelton's statements, then please look at the case histories of those enthusiastic followers of a macrobiotic diet who have attempted unsuccessfully to live on a 100%-grain diet. Perhaps we should say "ex-followers" since all such attempts to live on a pure grain diet have resulted in poor health or death.

The Basic Four Food Group diet plan does not advocate a total grain diet. Still, why should we be told to eat four servings or more of bread or cereal each day? The reasoning for this recommendation is that the typical American diet consists heavily of sugar and white flour products. These nonfood items actually *deplete* the body of B vitamins. To get the vitamins back into the body, we are told to eat more breads and cereals.

But the very foods that are recommended, breads and cereals and other flour products, are usually so processed, refined, and cooked that all the B vitamins have been destroyed! The producers of these processed grain products then add *artificial* B vitamins to the breads and cereals. Of course, as a student of Life Science, you already know how terrible breads and cereals are.

The bread manufacturers also found another way to sell their worthless goods. They started adding iron to the flour so that their processed foods would then be eaten for the iron "content." Why stop there? Just add some calcium, protein and vitamin C. Then you would supposedly obtain all of your nutritional needs from a delicious loaf of "fortified" white bread!

Unlike the Meat and Milk food groups, the Bread and Grain category of food is not totally worthless or destructive. When grains are sprouted and eaten raw, they are an acceptable addition to the optimum diet. If they are eaten fresh and raw from the field while still in their milky stage (as corn sometimes is), then they are digestible and usable food. Even if they are cooked and used whole and unrefined, the negative effects of these foods are still not as great as meat and milk. But if refined and processed flours and breads are introduced into the diet at four servings per day, they become as destructive to the health of the person as pasteurized milk and roasted flesh.

In summary, we should remember these four points that were made by Dr. Shelton in volume two of his book *Orthotrophy*:

1. Cereals (breads and grains) do not form any part of the natural diet of man and are not necessary to health and life. Man did not become a grain eater until late in his history.
2. Grain products are best omitted from the diet entirely, especially from the diets of infants and children.
3. When grains are eaten, only the whole and unprocessed grain should be used.
4. In any case, grains, breads, and cereals should form but a small amount of the diet and should be properly balanced and combined with an abundance of green vegetables.

3.4 And The Winner Is...

The last group of food items is Fruits and Vegetables. As a student of Life Science, you know that these food items should actually make up 90% to 100% of your daily diet.

The Basic Four Food Group diet plan instructs its followers to eat four servings of fruits and vegetables daily. A serving is either one piece of fresh fruit or one fresh vegetable or one-half cup of cooked fruits or vegetables.

Fruits and vegetables are included in the Basic Four Food diet plan in order to supply the needed vitamin A and vitamin C requirements. The developers of the Basic Four Food Group diet plan also advise people to make sure that one of these servings is a dark green or dark yellow vegetable in order to get sufficient amounts of vitamin A into the diet.

There is nothing wrong with these suggestions, except that cooked vegetables or fruits are not healthful, nor are four servings of fresh fruits and vegetables a sufficient amount of food for a person following a healthy diet. Fruits and vegetables should not be merely eaten as vitamin insurance, or to get specific nutrients. They should be included in the diet because they are most suited to man's digestive physiology and have the highest health-promoting qualities of all foods.

Until only very recently, traditional nutritionists and government spokesmen have always downplayed the importance of fruits and vegetables in the diet. The only worthwhile qualities that these foods had, according to these people, were their vitamin C and vitamin A contents.

Vegetables were mere side-dressing to the bread and meat diet of so many people, and fruits were something for dessert or to bake into pies. For many people today, this attitude toward fresh vegetables and fruits as second-rate foods still exists. To suggest that a complete meal can be made on fruits alone, or upon only one fruit, brings raised eyebrows and disbelieving looks.

Yet students of Life Science and Natural Hygiene have long known that a diet that consists almost entirely of fresh, raw foods from this last food group (Fruits and Vegetables) is not only satisfying but conducive to the highest state of health.

Dr. Shelton strongly advises that "the bulk of each meal should consist of fresh fruits or fresh green vegetables." This is so for four reasons, according to Dr. Shelton:

1. It prevents the overeating of concentrated foods.
2. It assures an abundant supply of minerals.
3. It provides the highest quality of vitamins.
4. It insures the needed bulk that is necessary for normal peristalsis.

Of course, if your meals should consist chiefly of fresh fruits or vegetables, then the four serving amounts of this food group recommended by the Basic Four diet plan is an absurdly low amount. A person on a well-established all-fruit-and-vegetable diet might eat 20 or more such "servings instead of the four servings suggested by the USDA.

And this brings us to the next question about the Basic Four Food Group Diet plan: Are servings or measured amounts a good way to manage your diet?

3.5 Second Helpings, Anyone?

The woman was surrounded by notebooks, cookbooks, measuring cups, and food scales. She was chopping up a raw carrot and weighing the amounts on a scale and then looking at a diet chart.

"I know I'm supposed to have one serving of a yellow vegetable today, but I don't know if I should eat four ounces of carrots or a half-cup of cut carrots," she said to me as I visited her.

"Why don't you eat the whole carrot and just get it over with?" I joked.

She looked serious. "No, I'm going to do this by the book," she said. "Okay, what's next?" she asked as she reached for her diet plan. "Let's see ... four leaves of lettuce or two stalks of celery make one serving of green vegetables"

I left her with her charts and measuring cups. I wondered if she ever figured out what she was supposed to have for lunch before it got to be suppertime.

Do you also try to "eat by the book?" Many diets today, including the Basic Four Food Group diet plan, are arranged into groups and categories and serving amounts. You can eat one serving of this and two servings of that, and three ounces of meat or eight ounces of milk.

Eating by serving amounts is like making love with a stopwatch, and just about as necessary.

If you are eating the proper and natural foods suited for our physiological constitution and biological heritage, then forget all about servings and helpings and quantities. Eat when you're hungry, eat until you're satisfied, and don't eat again until you're hungry again.

Eating by specified serving amounts is an artificial and meaningless practice. The Basic Four Food Group diet plan recommends these serving amounts so that the person will be "assured" of getting all the vitamins, minerals, and other nutrients needed. If you are eating a biologically-correct diet, then such concerns are not needed.

According to Dr. Shelton, "Fresh, uncooked fruits, nuts, and vegetables will supply the body with a super abundance of the known and unknown vitamins, all the minerals, studied and unstudied, with fine sugars, easily-digested fats, and proteins of the highest grade." You don't need to eat one serving from this group or two servings from that group.

Just so long as all of your "servings" come from the fresh and wholesome fruit and vegetable group, then eat what you desire and don't be afraid to reach for "second helpings."

4. Does The Four Food Plan Work?

To complete our evaluation of the USDA Four Food Group diet plan, we should see how well or how poorly it delivers what it promises: a balanced and complete diet that satisfies our basic nutritional needs.

Here is one meal that supposedly furnishes "all of the serving amounts for one day," as recommended by this diet plan:

The "Complete" Nutritional Meal

1. Two cheeseburgers
2. A milkshake
3. One order of french fried potatoes
4. A hot apple turnover

Here's how this meal breaks down into serving amounts and food groups:

1. Meat Group - Two servings of hamburger patties
2. Milk Group - One serving of cheese and one of milk
3. Bread Group - Four servings of hamburger buns
4. Fruit and Vegetable - Four servings, with one of potatoes, one of apple filling, and two for the lettuce, tomatoes, and onions on the cheeseburgers.

And there you have it. A fast food meal that "meets" all he requirements for one day of nutrition as described by the Four Food Group diet plan.

Of course the USDA did not actually mean that we should eat fast food and junk food to meet their serving requirements, but please note that they did not recommend that such foods *not* be eaten.

This is another major shortcoming of the Four Food Group Diet plan—there are no provisions for eliminating the really harmful and destructive foods (salt, sugar, cooked fats, white flour, etc.) that are such a large part of the typical diet, and no provisions are made for proper food *combining*.

Like so many other diets, the Four Food Group diet plan concentrates entirely on what we should eat and how much, and ignores the harmful foods that we should avoid.

The best thing that can be said for the Four Food Group approach to nutrition is that it is simple and easy to understand. Even children can divide the foods they eat into basic categories and serving amounts.

But if the categories are all wrong . and, the serving amounts are totally meaningless, then what does it matter if anyone can understand the diet plan?

Let's look at an even easier-to-understand "Basic Four Food Group" diet plan that follows the rules for optimum nutrition.

5. The Life Science Basic Four Food Group Diet

If you want to divide your diet up into categories and serving amounts, let's apply your knowledge of an optimum diet to do so. Here are the four food groups that a Life Scientist should be concerned with:

1. Fresh and dried fruits.
2. Raw vegetables (excluding onions, garlic, hot peppers).
3. Raw nuts and seeds.
4. Sprouted grains and legumes.

For Group One (fresh and dried fruits), eat an abundance of servings. Remember that dried fruits are four-times as concentrated as fresh fruits and eat accordingly. Don't eat servings from this group with any servings from the other three food groups, and combine fruits properly.

For Group Two (raw vegetables), eat a moderate amount of servings. Do not include the irritating vegetables from the onion or hot pepper families, and do not "overeat" from this lower calorie group so that you neglect servings of fresh fruit.

For Group Three (nuts and seeds), eat no more than three to four ounces daily. When eating a serving from this group, make sure you also include servings from Group Two (raw vegetables) as digestion, and assimilation and nutritional benefits are improved when nuts and leafy vegetables are eaten together.

For Group Four (sprouts), eat these at your option and to your taste. Eat other sprouts (lentil, wheat, and other legumes) in more moderate amounts if eaten at all.

Let true hunger dictate the number of "servings" you eat from each of these groups. I suggest you eat no foods that are not in these groups, and avoid all meat, dairy, and processed food products.

You will satisfy all of your nutritional needs if you eat a calorie-sufficient amount of foods from these four groups. Don't weigh or measure your food and don't be concerned with serving amounts. Eat food as it is packaged by nature and in amounts according to hunger. You will never make a mistake.

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6. Questions & Answers

A simple question. If the Basic Four food group diet is as bad as you say, then just why is it so popular? It seems like that even with big business interests and government propaganda that people would discover the truth about nutrition.

> That's a very interesting point. After all, we would like to think that the common man has the necessary intelligence and discrimination to know when he is being lied to
>
> It is a mistake to think that our country's dietary ills can be blamed entirely on the Basic Four Food Group diet plan. Actually, very few people follow any sort of diet *plan*—good or bad!
>
> You'll notice that the Basic Four diet is very, very similar to what the average person eats anyway—a lot of meat and protein, dairy products, refined flours and breads, and so on. Actually, if you just added a fifth group called Salt, Fats, and Junk Foods then you would have the twentieth-century United States diet pinpointed
>
> That is why the Basic Four diet approach to nutrition has held sway. There was already a strongly established base of support. People eat like that anyway, and so they think the government and the food industries are giving them good advice
>
> Everybody's the same: We all like to be told that what we are already doing is right and

correct, even if it will eventually kill us in our relative youth.

You talk about the Basic Four diet plan as if everybody in the country knew about it. I'm sixty-three years old, and this is the first time I've ever had this concept explained to me. Aren't you exaggerating about how widespread this notion is?

At the age of sixty-three, you may never have been exposed to this nutritional scheme, but ask your children and grandchildren. They will have heard about the Basic Four Food Groups because it is used as indoctrination for elementary school children. This is the standard, proscribed approach to teaching health and nutrition to school children.

What can we do then? Can we get our schools to teach another approach to nutrition?

Perhaps we are depending too much on public schools. It would probably be far better to leave nutrition teaching out of the curriculum entirely since the traditional and conservative approach to this subject that is always taken by schools simply perpetuates misinformation and institutionalizes error

Don't forget that schools teach children what parents want them to know! What do you think the reaction would be if a teacher told a classroom of eight-year-olds that milk was not only unnecessary for health and growth, but actually harmful? The parents would have the teacher's scalp if their children were taught any nutritional information that conflicted with the family's normal eating practices

That's why the Basic Four diet will be taught in our public school system for some time to come: It simply reflects the traditional diet eaten in this country. It doesn't "rock the boat" and it is a nonthreatening approach to nutrition

Never mind that it is a completely wrong approach or that it perpetuates ignorance which will undermine the health of every person who follows its advice. It's what we're used to, and heaven help the person or teacher who is courageous enough to expose its fallacies, dangers, and lies

As a parent, you can only work mightily to overcome the nutritional propaganda and nonsense thrown out in the name of education. Please teach your children and grandchildren the sensible alternatives to the Basic Four diet plan.

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Article #1: Should We Drink Milk? by Dr. Alec Burton

Hygienists have always adopted the position that milk is for infants, mother's milk that is, and that this is the normal practice among all mammals. During the initial phase of life it is the invariable practice of all mammalian species to take the milk of their mothers following which they are weaned. Then they spend the remainder of their life sustained by other foods. Man, on the contrary, teaches that milk is an ideal food, essentially cow's milk, and that after mother has performed her nursing, the cow should take over. In his feeding of infants, man has produced all types of formulae and means to usurp the natural habit of breast-feeding. Man even includes milk in the diet of his mammalian pets.

Many women regard breast-feeding as culturally regressive and primitive, something one should abandon as quickly as possible. They say it ruins their figure, that their breasts become atonic and pendulous. Such remarks are unfounded and other factors are responsible yet seldom considered.

It is normal in Nature for the mammal to breast-feed well past the time the infant obtains a mouth full of teeth, not just a few teeth but all teeth. Species of apes nurse for six or seven months although their first teeth have appeared at the end of three months. With mammals there is a wide variation in the transition period and in many weaning takes place over a long period of time.

However, should milk constitute an integral part of the diet after weaning? Is milk a normal food for adults? The answer to both these questions is an unequivocal no!

Milk and milk products such as cheese and yogurt are viewed with suspicion by Hygienists. What are the unfavorable attributes of milk? Today milk is very much a processed product. It is pasteurized, homogenized, sterilized and otherwise treated to render it "safe." All these processes greatly impair its nutritional value.

Besides all this, strong evidence indicates that gastric juice of adults does not contain rennin, an enzyme abundant in the stomach of infants which initiates the digestion of milk. The protein and fat of milk is constituted in such a way that enzymes of the human digestive tract fail to digest it adequately—some of the elements are absorbed intact and cause trouble.

Milk also contains a high content of cholesterol and so has been a factor in the development of coronary artery disease. Many people observe the quick action taken by the body when milk is consumed; much mucus is secreted or diseases associated with the mucous membranes—asthma, sinusitis, bronchitis, etc.—are aggravated. Milk is said to be a "mucus forming" food. While I don't favor this description, I do suggest that the presence of milk and milk products in the body may occasion greater mucosal activity.

Milk is often considered a major source of the vital element calcium: the myth is that if we don't drink milk, our teeth will fall out and our bones collapse, or some such nonsense. The fact is that calcium is abundant in Nature. Most of the foods (fruits, vegetables and nuts) we recommend are excellent sources of calcium. It would have to be a very poor diet indeed that did not supply half a gram of calcium daily. A good Hygienic diet provides over one gram.

It is extremely doubtful that we can utilize any of the calcium in milk in any event. The calcium in milk is bound to its protein complement, casein. Without the key enzyme, rennin, neither casein nor its nutrient complement, calcium, can be used in the digestive system.

Milk forms no part of the normal diet of man after the period of infancy and therefore our advice is—don't drink milk or eat milk products.

Reprinted from the Hygienic Review

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Article #2: Hygienic Considerations in the Selections of Foods by Ralph C. Cinque, D.C.

The selection of foods for optimum health requires that many factors be considered, including nutrient content, ease of mastication, deglutition, digestion, absorption and assimilation, presence or absence of irritants, the amount of vegetable fiber (which could be too little in the case of refined foods, or too much in the case of mature kale), gustatory satisfaction to the unperverted taste, and the effect on blood alkalinity. An ideal food would contain a broad array of nutrients, would be delicious, would contain a moderate amount of fiber, would be easy to eat and digest in the raw state, would possess no irritants or digestive antagonists and would leave an alkaline ash after metabolism. Applying these criteria, we find that there are virtually no perfect foods. Most fruits and vegetables, for example, contain at least minute amounts of oxalic acid, which is a mild irritant and which has a binding effect on calcium.

Tannic acid is contained in the skins of some nuts (particularly almonds) and this, too, is a mild irritant. Lettuce is said to contain lactucarium, a mildly toxic alkaloid with soporific effects. This is particularly true of head lettuce. Beans contain trypsin inhibitors, aflatoxins and purine bodies which raise serum uric acid levels. Grains contain much phytic acid which binds minerals like zinc and iron, impairing their utilization by the body. It should be obvious that perfect foods (like perfect health) are a theoretical ideal, not a reality.

From a Hygienic standpoint, there are three major tenets that guide us in the selection of foods. These tenets enable us to construct a diet that is philosophically and physiologically ideal for the human species. We will admit beforehand that due to various anatomical and physiological weaknesses and defects, not everyone can adhere to the philosophical dietary ideal with complete success. However, before alterations and deletions are made, it is important that we determine what constitutes an ideal diet, a truly natural diet, and then be guided accordingly. Our three major tenets are that:

1. Whole foods are superior to fragmented and refined foods.
2. Raw foods are superior to cooked foods.
3. Plant foods are superior to animal foods.

These three principles summarize Hygienic philosophy regarding food selection, and we will expound upon each in turn.

1. The Superiority of Whole Foods

The fact that whole natural foods are superior to refined foods such as white sugar, white flour, polished rice, requires no substantiation to the readers of this article. However we must emphasize that any fragmenting of whole food destroys nutrients and lessens the suitability of that food as an article of diet. Whole carrots contain more complete nourishment than carrot juice. Brown rice is better food than rice polishings. Whole wheat is superior to wheat germ. Consider the following experiment conducted by Weston A. Price, D.D.S., the renowned author of Nutrition and Physical Degeneration.

"Three cages of rats were placed on wheat diets. The first cage received whole wheat, freshly ground, the second received a white flour product, and the third was given a mixture of bran and wheat germ. The amounts of each ash, of calcium as the oxide, and of phosphorus as the pentoxide and the amounts of iron and copper present in the diet were tabulated. Clinically, it was found that there was a marked difference in the physical developments of these rats. The rats in the first group, receiving the entire grain product, developed fully and reproduced normally at three months of age. These rats had very mild dispositions and could be picked up by the ear or tail without danger of their biting. The rats fed upon white flour were markedly undersized. Their hair came out in large patches and they had very ugly dispositions, so ugly that they threatened to spring through the cage wall at us when we came to look at them. These rats had tooth decay and they were unable to reproduce. The rats fed upon bran and wheat germ did not show tooth decay, but they were considerably undersized and they lacked energy. The wheat germ was purchased from the miller and hence was not freshly ground. The wheat given to the first group was obtained whole and ground while fresh in a hand mill. It is of interest that notwithstanding the great increase in calcium, phosphorus, iron and copper present in the foods of the last group, the rats did not mature normally, as did those in the first group. This may have been due in large part to the fact that the material was not freshly ground, and as a result they could not obtain a normal vitamin content from the embryo of the grain due to its oxidation. This is further indicated by the fact that the rats in this group did not reproduce, probably due in considerable part to a lack of vitamins B and E which were lost by oxidation of the embryo or germ fat."

This account demonstrates how important it is to distinguish between the nutrient content of a food and its overall biological effect. It has been shown repeatedly that eating wheat bran impedes iron *absorption*, despite the fact that it contains abundant iron. This may be the result of mechanical factors, or, perhaps it is the result of the high phytate content of the bran. In any case, it proves that foods cannot be evaluated solely on the basis of mathematical tables of nutrient analysis.

At first glance fragmented foods may seem to be more nourishing than whole foods. Dried apricots, for example, score much higher in calcium and iron than do fresh apricots. Quite obviously, if we extract the water from the apricots, we can triple or quardruple the number of fruits we are comparing, and thereby score higher nutrient values. This seeming enhancement is, of course, a figment of the mind. *Whole foods offer the most complete nutrition*. Powdered whey is a nutritional shadow of whole milk. Extracted chlorophyll is a lifeless fraction of green leaves. Lecithin granules are a denatured fragment of soybeans. These various extracts and concentrates are inferior to the whole natural foods they supposedly improve upon. Processing incurs drastic nutrient losses as a result of heat, oxidation, chemicals, and enzymatic destruction. It is correct to say that these foods have been devitalized. Only whole natural foods contain the amount and proportion of nutrients that the body requires. Only whole natural foods are acceptable in a Hygienic diet.

2. The Superiority of Raw Foods

Although some foods seem to be rendered more digestible by cooking, it is a fact that most foods are rendered less digestible. Furthermore, any food that is difficult to eat and digest uncooked is not a normal constituent of humanity's natural diet. Cooking partially or totally destroys the nutrient content of food. Water-soluble vitamins, like ascorbic acid and pantothenic acid, are particularly susceptible to thermal destruction, but it is to some extent true of all vitamins. What may be more important, however, is the fact that cooking alters the proportions of the various vitamins contained in foods. For example, cooking alters the natural ratio between thiamine and niacin in foods. This occurs because thiamine is readily destroyed by moist heat, whereas niacin is more resistant. Therefore, cooking not only lowers the vitamin content of foods, it also modifies vitamin ratios, which are a very important feature of whole foods.

Minerals may be rendered nonusable by the body as a result of cooking. A good example of this is the effect that pasteurization has upon milk. The complex organic salts of calcium and magnesium, in conjunction with carbon and phosphorus, are decomposed by heat, resulting in the precipitation of insoluble calcium phosphate salts. These inorganic salts are not assimilable by the body. This is one of the reasons why dental decay has reached epidemic proportions among milk-guzzling Americans.

Cooking tends to deaminize proteins and denature their secondary and tertiary configurations. With the exception of egg whites and certain dried legumes, they are rendered more difficult to digest by cooking. Subjecting fats to heat, produces toxic cyclic hydrocarbons and free fatty acids, both of which are highly irritating. Heated fats and oils have been shown, by countless experiments, to be highly carcinogenic. No informed person will consume heated fats in any form.

Cooking causes a great loss of the soluble minerals in foods and drives off part of the food into the air as gases (this is particularly true of sulphur and iodine). Cooking softens vegetable fiber which may hamper intestinal motility and promote fermentation and putrefaction. Although cooking adds to the palatability of some foods (e.g., yams, asparagus, zucchini, grains), most foods are rendered less palatable by cooking, which gives rise to the use of unwholesome flavorings, condiments, dressings, etc.

On the basis of these considerations and others, a diet, in order to be considered Hygienic, would have to consist of at least predominantly uncooked foods.

3. The Superiority of Plant Foods

This category could also be designated the *detrimental effects of animal foods*. All animal products (with the exception of mother's milk) have certain negative features which make their dietary use questionable. Consider, first of all, the effect that animal foods have upon protein consumption. Even modest use of meat, fish, eggs and dairy foods tends to create a protein overload and this is one of the most dangerous dietary excesses. Research has shown that high-protein diets actually promote aging and early degeneration. Too much protein exerts a tremendous burden upon the liver and kidneys. It also leaves acid residues in the blood and tissues which must be neutralized by sacrificing indispensable alkaline mineral reserves. The process of aging is characterized by the transfer of calcium from the bones to the soft tissues, that is, to the arteries (arteriosclerosis), to the ureters (kidney stones), to the skin (wrinkles), to the joints (osteoarthritis), to the valves of the heart (producing frozen shoulder) and to other sites. This, course, leaves the skeleton osteoporotic, leading to the development of stooped posture, a kyphotic spine, spontaneous fractures and other maladies that are so common to the elderly. High-protein diets (due to the accumulation of phosphoric, sulphuric, uric and other acids) accelerate this demineralization of bone and bring about calcific deposits on the soft tissues.

One could argue that nuts and seeds contain as much protein as meats, eggs, etc., and therefore they are as likely to create an excess. However, most people are easily satisfied eating a few ounces of nuts or seeds every day, whereas few people will eat just a few ounces of yogurt. Restaurants serve up to a pound of meat at a sitting, along with other foods. Cottage and ricotta cheese is eaten in huge quantities, even by vegetarians. The simple truth is that animal proteins tend to promote overeating moreso than do plant proteins.

The relationship between high-protein diets and cancer has been clearly established by studying both animal and human populations. Remember that cancerous cells are characterized by run-away protein synthesis and rapid cellular division. Protein synthesis is accelerated by increased protein intake, so it is not surprising to discover that cancer bears a close tie to excess protein. There is a direct correlation between the amount of protein in the diet and the incidence of cancer on a worldwide basis. Americans, Australians and West Europeans, who ingest the largest amounts of protein, also have the greatest incidence of cancer, whereas the rural Chinese, the East Indians and native peoples of Latin America have the lowest cancer incidence. This is no casual relationship and it cannot be written off by blaming it on the "stress of modern life."

Animal products are loaded with the worst kind of fat—saturated, cholesterol-laden animal fat. A mountain of evidence has been accumulated relating high animal fat intakes with the development of cardiovascular disease (which is characterized by the deposition of saturated fat and cholesterol in the intimal layer of arteries), and many different maligancies including breast cancer, colon and rectal cancers, and cancer of the liver. Even such diverse conditions as multiple sclerosis and diabetes have been related to the consumption of animal fats. As we have already stated, heated animal fats have been shown to be even more carcinogenic, and considering that Americans take all of their flesh, milk and eggs well cooked, it's no wonder that one in four eventually succumbs to cancer. Pandemically, those peoples who subsist on low-fat, low-protein, largely vegetarian, unrefined diets demonstrate the greatest resistance to cancer. The incidence of cancer and heart disease among the American Seventh Day Adventists is approximately half the national average. This is quite remarkable considering that only about half of this group are thought to be vegetarian.

Flesh, fish, yogurt and cheese contain various putrefactive products resulting from their bacterial decomposition. Putting partially-spoiled food in the body can hardly be considered a Hygienic practice, despite the arguments of the fermented food enthusiasts. Flesh also contains considerable quantities of the end products of metabolism (like uric acid) which are held up in the tissues at the time of death. These wastes are poisonous, irritating and burdensome to the body. Consider the fact that animal products tend to be reservoirs for pesticides, herbicides, and various other drugs and inorganic contaminants—there are many good reasons to avoid using them. Certainly, a Hygienic diet would contain no more than small amounts of animal food—better yet, none.

There are just five classes of foods that meet all the criteria established by our three, major, tenets. These are: fruits, vegetables, nuts, seeds and sprouts. A diet comprised of these foods would abound in every nutrient known to be required by humans, with the exception of vitamin B-12, and most people apparently derive enough of this from bacterial synthesis in the intestines. However, we should note that soil bacteria also produces B-12 on the surface of roots so that adding stringy roots grown in organic soil (with abundant microbial activity) to the diet would constitute a pre-made plant source of B-12 that would be a perfectly acceptable addition to a Hygienic diet. Supermarket vegetables would not be adequate for this purpose.

We should note, in closing, that adding to the diet some cooked food (like baked potatoes and brown rice) or limited amounts of animal foods (such as uncooked, un-salted cheese), although not strictly Hygienic, may be required in some pathological conditions. Certain people would experience a drastic and undesirable weight loss were they to make an immediate transition to a 100% uncooked, all-plant food diet. For these people, eating a baked potato now and then represents not a mere compromise but rather a necessary modification of their Hygienic regimen.

Quoting Dr. Alec Burton, "We must adapt the system to the needs of the individual and not adapt the individual to the needs of the system." With this acknowledged let us state, in conclusion, that a diet, in order to be considered Hygienic, would have to consist predominantly (if not exclusively) of uncooked foods, of vegetable origin, eaten whole.

Reprinted from Dr. Shelton 's Hygienic Review.

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Article #3: Eat Your Heart Out, Galloping Gourmet by Cary Fowler

Al Krebs of the Agribusiness Accountability Project tells a story about a scene from a popular TV show. "A Fernwood, Ohio, housewife is preparing a packaged pineapple filling pie for her family. As she pours the rather grotesque contents of a can of pineapple filling into the pie pan her sister Kathy, who is watching the process, wonders aloud where the pineapple is."

"The housewife reads the contents as they appear on the label. Amidst the various acids and flavorings and sugar, no mention is made of pineapple except in the advertising on the label."

"She pauses and, looking at her sister questioningly, remarks: 'I don't see any pineapple listed here.' Kathy replied: 'They don't make food out of food anymore.' The housewife asked: 'What do they do with food, if they don't make food out of it?'"

That's a good question! Eating is a personal activity all people share. At its core, eating is an emotional experience tying us to our home and upbringing and to the larger society and time in which we live. Yet today, control over nourishment is slipping from our fingers. Decisions about the type, form and quality of food we eat are no longer ours to make.

Control over our nation's food system has shifted from people like you and me to an economically-concentrated food industry. The dazzling array of food products available at the modern supermarket gives the impression of a vibrant, competitive food industry. We naturally assume that such products as Wyler soup mixes, Borden cheeses, Drake's cookies, Wise potato chips, Cracker Jacks, Bama jellies, ReaLemon and Kava coffee are made by separate companies, while in fact they are just a few of the many products made by one corporation—Borden.

Likewise, Maxwell House, Brim, Yuban and Sanka coffees, Post cereals, Stove-Top stuffing, Calumet baking powder, Bisquick, Shake 'n Bake, Jell-O, Cool-Whip, Baker's Chocolate and Kool-Aid are all made by General Foods, who also owns Burger Chef. Heinz's 57 varieties have mushroomed to over

1,200.

Of the 1,500 new items made available to the supermarket chains by such corporations each year only a few will reach your grocer's shelf—those that are highly advertised, those with fast turnover and those with the most attractive profit margins. Competition for shelf space is fierce. Initial decisions about what we will have to eat are made by the supermarket chains when they divvy up their shelf space. And these decisions are based on different values than we ourselves would apply to such a crucial matter as what we eat.

More often than not, the result is one row of fresh fruits and vegetables and ten or twelve rows of boxes and cans. The magazine of the world's largest agribusiness company, the Dutch-based Unilever Corporation (Lipton tea, Good Humor ice cream, Wish Bone salad dressing, Mrs. Butter-worth's syrup, Imperial margarine and others) bluntly sized things up when it conceded that "... the return on investment in the basic nutrition business isn't exactly promising." This goes a long way towards explaining why the airwaves are full of commercials for french fries and potato chips rather than raw potatoes for baking at home.

Will an Apple a Day Keep the Doctor Away?

As control over our food system has changed hands, alarming shifts in consumption patterns have occurred. From 1950 to 1970 per capita consumption of fresh fruit dropped 26%. Americans ate more sugar than vegetables by weight in 1970. Soft drink sales doubled. Fortunately, a recent study showed that salad bars are becoming increasingly popular, creating a new demand for fresh vegetables, but people still don't eat enough of them, considering that they usually cook those that aren't in their salads.

A Department, of Agriculture study has concluded that better diets might reduce diabetes problems by 50 percent, heart disease by 20 percent, obesity by 80 percent, alcoholism by 33 percent and intestinal cancer by 20 percent. Recently studies have linked as much as 50 percent of the cases of hyperactivity in children to the heavy doses of synthetic colorings and flavorings in food.

The Divorce of Food from Nutrition

The individual should scarcely shoulder all the blame for the declining quality of the American diet. Few people with proper regard for "food the way Mother used to cook it" could be accused of having demanded the kinds of food they now eat. The deterioration of food and the divorce of food from nutrition parallels the growth in corporate control over food production and distribution. .Today nearly 75 percent of all food manufacturing assets are controlled by just 50 corporations.

Local, small farmers who once supplied our towns and cities with truly delicious produce have been pushed out of business. Today's supermarket produce, shipped-in from huge corporate farms in Florida or California, is a far cry in quality, taste and price from the locally-grown products we once had.

Our relation to food is no longer our relation to nature or even to local farmers and neighborhood grocery stores. We relate to food through the new suppliers. Food (most of it, that is) may still come from the good earthy but only after it has passed through the fingers of a General Foods or a Del Monte. Food has thus become just another commodity to be manufactured, altered, packaged and sold like toothpaste or razor blades. Food is no longer simply food.

Manufacturers use television to teach us that certain foods, like other commodities, can "add life," make you an Olympic athlete or help your love life. By falsely attributing such capabilities to food in order to self high-' profit items, the crucial, age-old link between food and our true physical needs has been severed. Shall our food provide nutrition or shall it "add life?" Why should we make our own spaghetti sauce when we can buy the brand that will "take you back to old Italy?"

The modern American diet evidences a deep-seated frustration and no small degree of confusion about food and its proper place in our lives. The way in which people prepare and serve food says a lot about how they regard themselves and others. It tells us something about the spirit of a society and the quality of life, for food is life.

Golden arches, colonels, doughboys and a host of other gimmicks have partially succeeded in distracting us from what is happening to our food. But for those of us who can remember what a truly good meal tasted like, and can remember the warmth and intimacy which came with sitting down at the table to enjoy it with family or friends, a silent anger remains at the travesty. The, temple, we sense, has been profaned by the money changers.

Living and eating are forever a matter of politics. We can have any kind of food policy and any kind of agricultural program we want. We can decide to eat only hamburgers and sugar, throw our good food in the ocean, starve the poor and save one or two family farmers to use as museum exhibits.

Or we can decide that food, being a necessity, should also be a right, that we need family farmers to produce good food and we don't need the middle men engaged in destroying and polluting it. We might even decide we don't ed to have ourselves and our children indoctrinated by commercials which teach us "good" buying habits in the place of good eating habits.

Jim Hightower, author of *Eat Your Heart Out*, got right to the point when he said: "Food cannot be assembled like a telephone and there is no reason it should be. If anything ought to be real in our lives, ought to be left to nature rather than being simulated by corporate technicians, it is food. Monopolisitic conglomerates cannot make our telephones work; why should they be arrogant enough to think that they can handle dinner? More to the point, *why should we be dumb enough to let them?*"

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Lesson 85 - The Dangers Of A High-Protein Diet

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1. Introduction

1.1 A Case of Protein Poisoning

David looked really bad. His face was covered with red, rash-like bumps and his eyes were swollen. "My mouth and throat," he said, "feel like you poured burning chemicals down them. I woke up in the middle of the night and couldn't breathe," he gasped, "and my nose feels like a huge sore."

David thought he had an allergy, but there was another name for his condition—*proteinosis*, or poisoning by protein foods.

It was the week after Thanksgiving and David had been to a family reunion. "I never ate so much turkey and ham in my life," he told me. "Everybody brought platters and platters of meat, and I had to sample them all. I also ate a lot of desserts. It must have been something in the food I was allergic to that made my face swell up like this."

It was indeed "something" in the food that had caused David's condition, but it wasn't some mysterious hidden allergen. No, what made David so sick, so miserable was simply an *excessive amount of animal protein*.

Protein in large amounts, and of the wrong type, can poison you as surely as any other substance taken in excess of the body's true needs. In fact, what many people call allergies are often symptoms of proteinosis. When you consider the super-high protein diet that most people in this country eat, it is no surprise that a majority of the population is suffering from a continual low-level of protein poisoning.

That's right—protein, the food item so widely hailed and promoted by nutritionists and meat industry spokesmen, can cause serious harm when ingested in amounts in excess of the body's needs.

1.2 Too Much Of A "Good Thing"?

You've heard bad stories about fats in the diet, and even carbohydrate foods (especially refined sugars and starches) take a beating from weight-conscious individuals. But you probably never thought you would hear a bad word about protein.

Protein does the glamour jobs in the body. It builds muscle, hair, skin, and nails. Enzymes, hormones, hemoglobin, and antibodies are also made from protein, and everyone knows that protein (or amino acids) is essential for the healthy growth of the young.

All true. Protein does a vital job of keeping the body maintained, but *it is required in far lower amounts than commonly consumed by the average person*.

Well, so what? If protein is so vital for our well-being, then doesn't it make sense that a lot more protein would make you a lot more healthy? After all, you really can't get too much of a good thing, can you?

As with anything else taken into the body, the nutrient protein must either be used, stored, or eliminated by the body. If more protein than can be used is eaten, then it is converted into stored fuel for the body. Along with this converting of protein to stored fuel, toxins or nitrogenous waste products are produced from the extra protein. The toxins or by-products from this protein conversion consist of nitrogen or ammonia-like compounds, and are eliminated from the body via the kidneys.

When protein is consumed in greater amounts than can be processed, toxicity of the blood will result from the excessive amount of nitrogen in the blood. Excessive nitrogen impairs working capacity, and the accumulation of a nitrogen product, kinotoxin, in the muscles, causes fatigue.

Partially or incompletely digested proteins cannot be assimilated, and poisons are absorbed into the blood. Various symptoms of protein poisoning are experienced by different individuals, including burning of mouth, lips and throat, skin symptoms, nasal symptoms, and other signs of intolerance of certain foods and other substances, known as allergies.

In *proteinosis*, or acute protein poisoning, there is general aching and a bad headache. Hyperproteina is caused by incompletely digested protein due to impaired digestion or bad combination of foods and may be thrown off as mucus, and might also cause aching and headaches.

Can you get too much of a good thing? If the "thing" is protein, the answer is yes. High protein intake forces extra work on the body. It must convert the protein to fuel and eliminate the harmful acids created in the process of digestion. Acid saturation of the body cells, due to excessive protein intake, can quite simply cause death. Perhaps a better question is: how "good" a thing is protein anyway?

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2. The Problems With Protein

The following conditions may result from too much protein in the diet:

1. Heart disease
2. Kidney damage
3. Constipation
4. Tumors and cancerous growths
5. Biochemical imbalances in the tissues (overacidity)
6. Arthritis
7. Bone-loss (osteoporosis)

Let's look at some of these problems caused by an excessive protein diet in more detail.

2.1 Eat Your Meat, Lose Your Bones

As people on a traditional diet grow older, they often experience "bone loss" or *osteoporosis*. Bone loss usually occurs more often in elderly women than anyone else, but almost everyone who eats a high-meat and protein diet will suffer from some amount of bone loss, and this includes children as well as mature adults.

Bone loss, or osteoporosis, occurs when calcium is removed from the bones of the body in order to fulfill the body's metabolic requirements for this stored mineral. Why does the body need so much calcium that it must rob its own bones?

Quite simply, the answer, according to medical researcher Dr. Robert Heaney, is that "the more protein you take in, the more calcium you excrete." His studies have shown that a diet that contains 50% more protein than is needed may result in as much as *one percent loss of bone per year.*

Since almost every woman (and man) in this country exceeds the 50% excessive protein amount, bone loss does occur in about 98% of the population,. What are the dangers of the bone loss?

One of the most obvious signs of bone loss occurs around the teeth and under the gum lines of the mouth. As bone is lost or removed from the jaw, the teeth loosen and eventually decay or fall out. Most so-called gum disease in this country comes from bone loss.

Another very obvious danger of bone loss is the tendency of older people to crack their bones after a minor fall. The hips especially are susceptible to bone loss in elderly women, and there have been many instances where these women's hips have actually snapped under the body's own weight.

A high-protein diet can cause a total bone loss of 1 % or more per year. This means that a normally healthy woman of 25 years could lose up to *half* of her bone structure by the time she reaches 75 years, if she continues to eat the typical high-meat, high-protein diet of twentieth-century America.

2.2 Protein: A Kick In The Kidneys

If protein is not needed by the body for tissue synthesis (or rebuilding the body), it is returned to the liver. In the liver a process called *deamination* takes place which separates the amino acids into a nitrogenous residue and non-nitrogenous residue. The nitrogen portion undergoes a series of chemical changes and is converted into urea by the liver and excreted in the urine.

Intake of protein greatly in excess of the body's needs creates extra work for the liver. Excessive protein also creates extra work for the kidneys. Ideally, it is their job to remove excess acids, the deaminated group of chemicals being most suitably disposed of when excreted as urea.

When a high-protein diet is followed, the kidneys soon become overworked as they try to eliminate all the toxic by-products of protein metabolism.

David A. Phillips, a Hygienist author and lecturer from Australia, observes that: "The premature breakdown of kidneys in the Western world no longer surprises one when it is realized that the body's protein intake has risen all out of proportion to its needs." This condition is unfortunately compounded when the nature of the protein is more complex and more prone to create a high-acid residue, such as characterizes animal proteins.

Dr. Herbert M. Shelton, writing on the effects of a high-protein diet on the kidneys, states: "In middle-aged adults perfectly normal kidneys are the exception rather than the rule. By a careful selection of a low-nitrogen (low-protein) diet, it is possible to reduce the amount of work required of the kidneys to a level at which they are able to keep the waste products in the blood within normal limits."

Uric acid in the bloodstream, besides overworking the kidneys, is a preliminary to the later development of gout or arthritis, both conditions being invariably traceable to excessive, unsuitable protein in the diet.

2.3 Protein: Are Those Just Rumors About Tumors?

According to a recent popular survey, one of the things that Americans fear more than death itself is cancer and the painful, lingering death that ensues.

And no wonder. Cancer seems to creep up on us in the twilight of our lives—silent, unwarning, implacable, and uncontrollable. It is the death sentence that twentieth century man passes upon himself, and we fear it as much as any inevitable executioner or, faceless murderer.

Yet we create cancer in our own bodies with every bite we take of processed, refined, and preserved foods. And the biggest offenders are the traditional high-protein foods—cheese, eggs, and especially meat.

In 1982, the National Academy of Sciences suggested that there is a *strong* link between animal product foods high in protein and occurring cancers of the breast, prostrate, and colon. In fact, Dr. Colin Campbell, a member of the panel who studied the link between diet and cancer had this to say:

"The weight of the evidence certainly points to a link between high-protein foods and resultant cancers.

You don't hear too much about it because consumption of animal products is a big industry in this country. It's also a status symbol. But the result is that there's a higher level of breast cancer here than in countries where people eat fewer animal products."

By now it should be old news that cancer is related to the consumption of animal products high in fat (meat, dairy products, eggs, etc.). Heavy beef eating is directly related to the high incidence of colon and rectum cancer in this and other predominantly meat-eating populations. Almost ten years ago, Dr. Ernest Wynder announced to the Greater Boston Medical Society that dietary fat and animal protein combine with bacteria in the colon to form acids which are linked to tumor formations. He also said that evidence furthermore shows that such high-protein, high-fat foods are also implicated in tumors of the breast, pancreas, kidneys, ovaries, and prostrate.

Although animal protein is the biggest offender, all high and concentrated protein foods have the potential of becoming carcinogenic. *Excessive* protein, whether from animals or vegetable sources (seeds, nuts, beans, grains), decomposes or rots in the stomach and turns into poisonous ammonia. This ammonia in turn produces *nitrosamines*. Nitrosamines, according to biochemist Dr. Lijinsky, are "among the most potent cancer-causing chemicals known."

Malignant tumors require amino acids for growth that only protein foods can supply. The high-protein requirement for cancerous growths comes, as a rule, from eating animal carcasses (meat). Tumors have been described by some researchers as "traps" for excess nitrogen in the body. In controlled experiments, the rate of a tumorous growth increased twice as fast when concentrated protein was added to the diet.

Many recovered cancer patients must limit their protein intake so severely that they cannot eat even the vegetable foods high in protein. In her book *How I Conquered Cancer Naturally*, Eydie Mae Hunsberger described how fasting and a raw food diet allowed her to overcome breast cancer. In the book, she states how she must avoid all high-protein foods, even peas and beans. "I go easy on the proteins," she said, "because cancer patients have a protein digestive problem. Soy products, for example, are too high in protein for me. If I want protein foods, I choose avocados, almonds, sunflower seeds, and sprouts."

The demand for protein by cancerous cells is almost *ten times* the amount as required by healthy tissues. Sufficient protein builds healthy bodies. Excessive protein builds tumors.

2.4 The High-Protein, Low-Health Weight-Loss Diet

By just following the typical United States diet of heavy animal foods, meat, and dairy, you will experience many problems associated with a high-protein diet. The average American woman consumes 50% more protein than the Recommended Daily Amount (RDA), while the typical male will eat almost 100% (twice as much) more protein than the RDA. Please remember that all RDAs are set intentionally "high" to make sure that people get all the nutrients they need. Even by these high standards, Americans are heavy protein eaters.

Yet there are some people who intentionally consume *even more protein*!

Athletes, weight-lifters, and body-builders are some of the people who consciously eat extra high-protein foods in a mistaken belief that such foods are needed for energy. Yet there are some people who increase their protein intake and reduce their carbohydrate intake in a bizarre effort to lose weight fast. On such a diet, weight-loss and a health-loss do occur.

The rationale of high-protein diets for weight loss, such as the Stillman high-protein diet or Dr. Linn's liquid protein diet, is based on the fact that protein requires much more body energy for digestion and metabolism than it supplies.

The body's first nutrient need is for fuel—carbohydrates. When excessive protein is eaten instead of needed carbohydrates, the body will try to convert the extra protein into a carbohydrate-type of fuel source. This conversion process is a difficult and energy-expending one for the body, and so a net-calorie or weight loss may occur.

The problem with this attempt at weight loss with a high-protein diet is that harmful by-products are produced in the protein to carbohydrate conversion process. Dr. Robert R. Gross, Ph.D., New York professional Hygienist, stated the problem this way: "The hitch is the end products of protein digestion are acidic—urea, uric acids, adenine, etc., which, beyond a certain normal range, will cause degeneration of body tissues, producing gout, liver malfunctions, kidney disorders, digestive disturbances, arthritis and even hallucinations."

Dr. D. J. Scott, D.C., N.D., Ohio professional Hygienist, also agrees that weight-loss through high-protein diets is a dangerous practice. He says: "Too much protein solidifies (like coffee) and has the same stimulating effect, and a high-protein diet will eventually destroy the glandular system, and damage the liver, adrenals and kidneys."

2.5 You Can't Fool The Body!

High-protein diets for weight-loss are all based on fooling the body. Instead of giving it the carbohydrate fuel it needs, you fill the body with acid-forming protein that must be expensively converted into fuel within the body. It's like pouring water into your gasoline tank and hoping that your car will try to turn it into suitable fuel. Your body does try, but it really can't be fooled. Consider these latest research findings:

At the Massachusetts Institute of Technology, a husband and wife research team, Drs. Judith and Richard Wurtman, discovered that you simply cannot deny the body carbohydrates in preference to protein. In a controlled study, the researchers studied people who were denied carbohydrate foods (such as fruits, potatoes, etc.) and fed protein foods instead.

After a few days, the people on the no-carbohydrate diet did indeed lose weight. But they also developed such strong cravings for any kind of carbohydrates that they uncontrollably ate sugary and starchy foods in such amounts after the diet that they gained all their weight back.

In the January 1983 issue of the *Journal of Nutrition*, the MIT researchers concluded that carbohydrate-starvation caused by a high-protein weight-loss diet actually creates a chemical imbalance in the brain.

This imbalance drives people to seek out carbohydrates (which is only natural since carbohydrates are our most efficient fuel source). The desire for a predominantly carbohydrate, low-protein diet is inherent in the human make-up, and it cannot be fooled by a high protein diet.

The article in the journal also suggested that instead of a high-protein approach to weight loss, a more natural and healthy approach would be to eat small amounts of naturally occurring *high-carbohydrate* foods (such as fruits) and forget about the protein.

2.6 The Ultimate High-Protein Diet

What's worse than a high-protein, low-carbohydrate diet for losing weight? Answer: An *all*-protein diet.

Incredible as it may seem, there were thousands of people in the late 1970s who followed a high-protein, weight-loss diet that consisted of nothing more than highly-processed animal protein, sugar, and artificial coloring.

Called "liquid protein," the only foods consumed in this diet were vials of animal extracts that contained hooves from cows and other animal waste products from slaughter houses. This "protein" (actually the unusable by-products from meat-packing) was liquified or melted down and then artificially flavored and colored so that it would taste like a grape or cherry soda. You can imagine how melted cow hooves would taste—small wonder that they had to disguise the obnoxious odors and sickening taste of such a product.

Each day, a person would open a plastic tube of this pure protein "gunk" and squeeze it down the throat. The protein syrup would fill the person up at a low-calorie cost, and weight loss would follow.

Unfortunately, not only did weight loss occur, but so did vomiting, dehydration, muscle cramps, nausea, dry skin, and loss of hair.

In the late 1970s, the liquid protein diet craze was at its peak. Thousands and thousands of vile vials of grape- and cherry-flavored protein were sold to gullible men and women who proceeded to wreck their health on a dangerous 100% protein diet.

To be certain, these people were also losing weight. And some even lost more.

In Dix Hills, New York, Donna Cochran began an eight-month Super Pro-Gest liquid protein diet. First Mrs. Cochran lost sixty pounds on the diet. Then she lost her life. She dieted because of heart complications brought about by the all-protein diet. Her husband and son sued and received $55,000—a small amount indeed for a loved one's life.

Liquid-protein diets can cause hard-to-detect, and possibly fatal, heart problems. The all-protein diet, disrupts the body's mineral balance, and drastically reduces the potassium level. This dangerously reduced potassium level leads to arrhythmia, or the abnormal beating of the heart.

The liquid or all-protein diet was first developed by a doctor who got the idea from intravenous feeding. Just like intravenous feeding, the liquid-protein diet is an unnatural and debilitating practice. Fortunately, word has now gotten around about the dangers of this all-protein diet trick. Unfortunately, people still believe in the power of a high-protein, low-carbohydrate diet for weight loss, and think it is safe.

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3. The True Needs Of The Body

3.1 Carbohydrates—Not Protein

Carbohydrates in their natural forms of fresh and dried fruits and some vegetables should always be used in preference to concentrated protein foods. People who consciously reduce the amount of complex carbohydrates in the diet and eat more protein foods instead in an attempt to lose weight or "improve" their health are playing a dangerous game. Listen to what Dr. Helen C. Kiefer of the Northwestern University Medical School has to say about the relative importance of carbohydrates and proteins in a well-balanced diet:

"Carbohydrates must not fall below a certain limiting amount in any diet, or we run the risk of ending up in an unhealthy metabolic state; or, perhaps worse over the long run, we may waste the body's protein stores from tissues such as muscle to prevent this unhealthy metabolic state."

"Proteins, unlike carbohydrates or fats, contain the element nitrogen. When we strip this nitrogen from the amino acid components of proteins in order to convert them to carbohydrates for energy, we run the risk of building up ammonia in our bloodstreams. Ammonia is highly toxic.

After detailing the dangers of ammonia and other protein by-products in the bloodstream, Dr. Kiefer gives this unqualified endorsement of a predominantly carbohydrate-based diet over the typical protein diet used for both weight loss and as a regular diet by so many people:

"An appropriate level of the oft-maligned carbohydrate is perhaps the best protection in any diet. It protects the need of the brain cells for carbohydrates; the need to metabolize fats for energy without increasing the acid load of the bloodstream; the protection of protein in tissue and the prevention of excess nitrogen excretion when protein components (amino acids) must be used for energy."

3.2 Sufficient Protein: It's Easy!

Protein needs and requirements are incredibly low for a healthy person. In fact, one measure of a person's health is how much protein they must consume to maintain their body weight. Sick and diseased people crave large amounts of protein for stimulation for their exhausted bodies. Healthy people, on the other hand, can function very well on about one-fifth of the protein the average American consumes.

How can we make sure that we get enough protein, but not too much? Easy. Just eliminate all substandard, harmful, and processed foods from the diet and eat an abundance of fresh fruits with some vegetables, sprouts, and nuts or seeds (if desired). All of these foods can be eaten in their raw state, and (with the exception of nuts and seeds) are low in concentrated protein. Yet these foods do supply all the essential amino acids that we need for a healthy life. More importantly, the foods of the Life Science diet supply us with an abundance of natural carbohydrates—our body's number one nutrient need. In addition, we receive a full array of vitamins, minerals, enzymes, and yet undiscovered elements from these fresh and wholesome foods packaged by nature.

A true protein deficiency on a calorie-sufficient diet is a rarity. Cancers from a high-protein diet are all, too common. Say "No!" to the propaganda and misinformation that is circulating about any supposed benefits of a high-protein diet. Say "Yes!" to the health-promoting and nutrient-abundant diet of fresh raw fruits, vegetables, sprouts, and seeds.

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4. Questions & Answers

I feel so good after eating several high-protein meals. I feel like I could fight a tiger! How could that be bad?

> There is a very good reason that you feel so "energetic" or stimulated after a high-protein meal. The chemical composition of uric acid, a by-product of protein metabolism, is remarkably similar to that of caffeine. You're not getting any energy from the high-protein meals, you're receiving chemical stimulation. Heavy protein eaters are always "high" on drugs—either from the stimulating effects of the uric acid by-products, or they may actually become intoxicated on the alcohol that forms in the body from protein fermentation. And please—don't go around fighting any tigers; they're almost as dangerous as those high-protein meals you're putting away.

Well, then, is protein bad? Should I just not eat any protein foods ever again?

Better not stop eating all protein foods, or you may go hungry! All our biologically-correct foods (such as fruits, sprouts, vegetables, etc.) contain ample protein in the form of easily assimilable amino acids. No, protein is not "bad." But protein from animal sources is harmful because of all the accompanying toxins, fats, etc. And excessive protein, whether from plants or animals, is always harmful.

Okay, so how much protein is too much? What do you mean by excessive?

If you eat any of the foods that are not suitable for our physiology (and this includes all meats, dairy products, eggs, and other animal products), then you will be getting too much protein. If you overeat the substandard foods such as legumes and grains, you will be getting more protein than is probably needed. To guard yourself against excessive protein intake, follow these simple rules: 1) Never eat any animal products. 2) If you eat concentrated protein foods from the plant kingdom, such as beans, peas, grains, soy products, then eat these no more than once every day or two. 3) Do not overeat on nuts and seeds. If you want more calories, or need to feel "full," then reach for some fruits, fresh or dried, instead of more nuts.

I was believing most of what you said until you told me that protein causes cancer. Come on! Everybody eats protein and we've eaten lots of it over the years. Why don't we all drop dead from cancer?

There is no single cause for cancer or any other illness. All such conditions take years of poor living, eating, and exercise habits to develop. The facts are this: Most cancer patients have a history of moderate to heavy meat-eating with liberal use of fatty animal products and processed protein foods. Dr. Frank Madden of the Egyptian School of Medicine in Cairo, Egypt, conducted an extensive study of cancer throughout Egypt. He found that the tribes in Egypt who lived on an almost exclusively vegetarian diet (the Sudanese and Berberines) never experience cancer. Never. On the other hand, cancer was very common among the Arabs and Copts who followed the traditional high-protein, high-meat European diet. You cannot say that protein "causes" cancer, nor can you even say that meat-eating causes cancer. But you can most assuredly state that the usual overall lifestyle and attitude that accompanies heavy meat and protein eating certainly seems to foster the development of all forms of cancer throughout the world.

One last question. My friends and I have tried the high-protein diet in the past for weight loss. We only stayed on the diet for about six weeks, and we lost ten to fifteen pounds. It does work! Shouldn't we judge only by the results?

This reminds me of a story about a salesman who went door to door, selling what he said was a guaranteed method of weight loss. He sold a small box that would take off pounds or your money back. Inside the box was a knife and the following instructions: "1) Sterilize knife. 2) Carve away unwanted pounds."

Hopefully, all of his customers took the package as a joke or novelty item. Unfortunately, it does illustrate how far some people will go to lose weight without changing the conditions that brought about the weight gain. Sure, a high-protein, low-carbohydrate diet will shed pounds, but you are not reducing—you're wasting away and wrecking your health. Are you sure these are the results you want?

Article #1: The Enigma Of Protein by T.C. Fry

Even though the truth about protein as delineated in this article, and its role in human nutrition, have been known for nearly a century, there still rages a conflict and welter of confusion on the subject.

The misconceptions are primarily fostered by commercial businesses that are selling protein products, primarily meat and milk products. Even our American government serves these entrenched interests. The truth will not drown but ever keeps rising to fuel the fire of this controversy.

At the outset I would like to dispel some of the prevalent myths about protein.

MYTH NO. 1: We must have meat for best health. The argument goes that the best source for protein is meat inasmuch as it has all the requisite amino acids in a very assimilable form. Even the eminent (in so-called health food circles) Carlton Fredericks has gone on record as stating that the more nearly the composition of the flesh is to human flesh the more wholesome it is for us. Of course there was never a better argument made for cannibalism than this!

The "we must have meat" argument is obviously good for the meat-packing industry but it is patently absurd—the argument obviously destroys itself. If this were true every species could live from other animals but best of all from its own kind! The fact that almost all animals, including humans, do not have the anatomical and physiological equipment to make good use of any kind of meat is conveniently overlooked or denied. Cattle, rabbits, elephants, horses, etc., are herbivores and are equipped only for a leaf/grass diet. There are a class of graminivores, primarily birds, that thrive on the grains of various grasses. There are other animals that thrive on fruits. And so it goes. Every animal has a class of food to which it is adapted.

Humans are anatomically and physiologically adapted to a diet of fruits, vegetables and nuts and can profitably use certain seeds and legumes under certain conditions. That this is true is denied by commercial interests and their "scientific" apologists. An educated populace would bring an end to their niche in the marketplace.

Not even carnivores thrive on an all-meat diet. For humans, meat is a pathogenic and deficient food.

MYTH NO. 2: We must have all the essential amino acids at every meal. This argument is based on two premises: (A) That the body does not store protein or amino acids and (B) that, in order to synthesize protein, no more protein can be created by the body than the amount creatable as determined by the least bountiful supply of the essential amino acids. Every protein link requires so much of such and such amino acids and if any are missing from the meal, no proteins requiring these amino acids can be synthesized. This argument, too, is absurd. *It is not necessary to point out with detail that man and animals fast for lengthy periods and that, instead of suffering protein deficiency, the end of the fast finds them with restored protein balance!*

MYTH NO. 3: A high-protein diet is healthful and the body requires about one gram of protein for each two pounds of body weight. Obviously the body needs only what it needs and can use no more than what it needs. This "just right" amount of protein has been determined to be about one gram for each five pounds of body weight for mature humans of normal disposition. The one gram for each two pounds of body weight is about what a baby requires for maintenance and rapid growth. Obviously adults do not require as much. The belief in a high-protein diet or that we cannot get too much of it is a source of highly pathological eating practices among Americans and other peoples of the world.

It is fitting that we have this little tome to set aright the attitude of those whom it touches in this most crucial aspect of human nutrition.

Article #2: How Much Protein? A Critique of the Complete Protein Theory by David Barouh

The natural food movement is not new, by any means, but as it happens in civilization today, individuals are exposed to it at different times in their lives, and often it is a completely new concept for them. It is strange that it should escape so many people for so long that what we eat has so much to do with our state of health. But very few ever really knew what was in all the ready-made food they bought from the stores, and that the motives of the manufacturers of these foods, which would contain such ingredients as processed sugar in large amounts, animal fats, bleached flour, and long lists of chemical compounds used as artificial flavoring, coloring, preservatives, and other purposes not even listed, were ruthless, profiteering, without any concern for the health of the people who would eat them.

For many of us, when we first learn of the concept of taking care of our diet, and avoiding the processed monstrosities of the commercial food business, its beautiful simplicity affects us like a spiritual truth, and we become very anxious to learn about this science of diet which we took for granted or ignored for most of our lives. Thus we look to the various nutritionists and the advocates of the natural food movement as our authorities on diet and health. They sometimes take on a certain saintliness in our eyes, because they are the heroes of our new cause. But we may find as we progress further in our studies that there is considerable disagreement concerning diet and health among nutritionists and diet advocates; to the point, in many cases, of diametrical opposition. And so we come to realize that we should avoid the tendency to believe and follow the first bit of instruction that comes our way. Many people become frustrated over this very point, and find that they don't really know who or what to believe. In fact, a considerable amount of intuition proves to be indispensible, because most of the literature on diet and health is nothing more than the most dogmatic of pronouncements such as that we must have this vitamin or that mineral, which are contained in such and such foods, because they are necessary for this or that body function, and that such a deficiency will cause this or that specific set of symptoms or illness. The reader has none but the most impractical means of determining the accuracy of such statements, as well as the reasonings from which such conclusions were drawn. Most people simply accept such statements, never doubting that they are based on nothing but the most infallible scientific experimentation and deduction.

We can illustrate this point by examining one of the most important and misunderstood issues in the field of diet and nutrition; the subject of protein. It is maintained by scientists that protein is the main substance of which living organisms are composed. The protein molecule is a large molecule made up of different arrangements of what are called amino acids, of which we are told there are 22. Most nutritionists warn us to make sure we get enough of this substance in the food we eat so that we can grow and replace worn-out tissue in our bodies. Much of the hunger in the world is blamed upon a lack of protein in the diet, and anyone who is a vegetarian has most probably been asked, "But where do you get your protein?" Nutritionists say that the foods which contain the most protein, and in the most acceptable form, are animal foods, such as flesh, eggs, milk, and cheese. Vegetarians will abstain from eating these foods, and thus are said to run the, risk of serious illness because of this.

Now how should we determine how much protein we should have in our diet? Let's answer by asking another question: Is a high-protein diet native to human physiology?

To answer this it would be good for us to discuss the position we humans occupy in the animal kingdom. Our biological position in that kingdom is as a part of the Primate order, which means that our closest animal relatives, from the point of view of our anatomy, are the anthropoid apes. The "anthropoid" means "man-like" or, "resembling man." This group of animals, which includes the gorillas, the monkeys, the chimpanzees, the orangutans, etc., are classified as frugivores, which means fruit-eaters, as opposed to the carnivores, which means flesh-eaters, or the herbivores, which means grass and vegetation-eaters.

Oddly enough, anthropologists have classified man as an omnivore, which means everything-eater, along with the pigs and the scavengers. This is because if we observe mankind, we will notice that he truly does eat everything from fruit to vegetables, to grains, to the milk of other animals, to eggs, and flesh. But if we compare the human digestive system to the rest of the primate order, or the frugivores, we find that they are identical. The intestines are 12 times the length of the trunk; the large intestines, or colon, is convoluted, slowing down the passage of food; the teeth are the same, the saliva is alkaline; and the skin has pores to aid in the elimination of wastes. The herbivores, such as the cows, the horses, the deer, etc., are similar but not the same. The length of their intestines are 10 times the length of their trunk.

The carnivores, on the other hand, are radically different, have intestines only 3 times the length of their trunk. Their colons are *smooth*, allowing wastes to slide right through and be eliminated quickly (an apparently wise provision, since the end products of protein digestion, in which their diet is high, is said to be the highly toxic uric acid, and urea). Their dental structure is designed to be used as weapons in killing their prey, quite unlike those of the frugivores. Their saliva is *acid*, and their skin has no pores.

The carnivores eat their prey raw; blood, bones, and all—something which would repulse most humans, who cook theirs, instead, which means they are literally eating dead matter, because that is what fire does to living tissue—it destroys it. When we pick a plant, it will retain its living form for many days after. When it finally wilts, we won't eat it. Cooked meat has little relation to the living flesh of an animal.

Now flesh is high-protein food, but fruit, which is the food of our closest animal relatives, and also, by the way, the only food that man was given to eat in the Garden of Eden story of the Bible, is a low-protein food. In fact, it is the lowest protein food.

Now let us consider one more thing. The first food that nature has designed for human infants is mother's milk. It is reasonable for us to assume that the composition of human milk can provide us with a good model for what the perfect human food should be, including its protein content, because it is on this food that the human infant must grow at a faster rate than it will ever grow again. And what do we find when we examine the chemist's report of the chemical composition of human milk? We find that it more closely resembles fruit than it does any other food. Its protein content is approximately 1 1/2%, which is roughly the same as fruits, and the lowest of all foods.

If we compare human milk with cows milk, which, unfortunately, is what many babies are fed these days, we find that cows milk is 3 times higher in protein. (The protein content of the carnivorous cat is almost six times higher than human milk.) We also find that the casein content of cows milk is 6 to 7 times that of human milk. It is the casein of cows milk that the Borden's company uses to make Elmer's glue! Most other foods have a much higher percentage of protein, with flesh reaching into the 20% category, and certain nuts, seeds, beans, and dried sea vegetables as much as 30% and higher.

It would seem natural from all of this to assume that humans are also frugivores, or fruitarians, and that the usual warnings that people receive who become vegetarians; that they must now make sure they find alternative sources of protein to replace the protein they will no longer be getting from flesh foods is a fallacy, based upon the notion that humans are naturally carnivorous beings, which we see we're not.

But, then, where does this notion come from? Why are we told by most nutritionists that almost all our sources of vegetable protein are inferior in quality to animal sources, such as flesh, eggs, milk, and cheese, and that we must eat these animal foods, or combine at one meal different sources of vegetable protein which laboratory tests tell us are complementary, so that we don't become protein deficient?

These ideas are, for the most part, a product of what is known as *The Complete Protein Theory.* We mentioned that protein molecules are made up of different arrangements of the 22 known amino acids.

Now, according to this theory, if any one of 14 of these amino acids is missing from the food we eat, the body can synthesize it from other elements in the system, and can then build the protein it needs; but, if any one of the other 8 amino acids are missing, then protein synthesis cannot take place. These 8 amino acids are called the "essential amino acids," and the only foods generally considered to contain all 8 essential amino acids in the quantities considered necessary are from animal sources—flesh, eggs, milk, and cheese. Vegetable protein is considered to be lacking in one or another of the 8 essential amino acids in the quantities necessary, and that is why we are advised to combine them according to the determination of laboratory tests.

We are told all this also in spite of the observed fact of nature that other vegetarian animals, such as gorillas, cows, elephants, hippos, rhinos, etc., grow to their enormous sizes without having to resort to a high-protein diet, but rather eat nothing but raw vegetation, and although it is true that humans aren't gorillas, cows, elephants, hippos, or rhinos, they do have more in common with *these* animals than with the carnivores, in terms of their digestive systems.

What, then, is the source of this discrepancy between what simple logic would tell us to eat, and what we are told to eat by nutritionists? It would be good for us to know how this complete protein theory was arrived at, since we are told that it is so, but we are never told why. If we search through enough biochemistry textbooks, we will discover references to a group of experiments conducted in the 1930s by the biochemist William C. Rose. The purpose was to see the effects of a lack of certain amino acids in the diet. His subjects were graduate students of his university, and for the experiments he fed them a diet consisting of a mixture of pure amino acids, corn starch, sugar, butter-fat, corn oil, cod liver oil, inorganic salts, centrifuged lemon juice, flour, and vitamins. He alternately eliminated one or another of the 22 amino acids to see if their bodies would synthesize them. The way he measured whether or not this synthesis was taking place was by checking to see if the amount of the element nitrogen (the main element in protein) that was being taken in through the diet was the same as the amount being excreted. If the amounts were the same, then protein synthesis was considered to be taking place. If the amount being excreted was *more* than the amount being taken in, then protein synthesis was considered not to be taking place.

Now, based upon these experiments Rose concluded that 8 amino acids could not be synthesized by the human body, which are today called the *essential amino acids*," *and* that one must have them in the diet, and all in one meal.

There are several factors which must be considered concerning these experiments. The subjects of the experiments were 1930s college students, and it is very likely that they were in the habit of eating the average American diet of flesh, white flour products, sugar, and the like, whose dangers are becoming more apparent every day. In fact, they were probably eating worse than the average, being away from home, and eating in the college cafeterias and in fast food places. They were also likely to be in the habit of smoking and drinking, which was "in" in those days. It doesn't seem as if their diets were controlled at all before the experiments, because the diet used for the experiments themselves, which consisted *totally* of processed, chemicalized, and completely artificial substances showed an incredible lack of understanding of the whole nature of diet and its effects on human health. And even if we are *incorrect* in assuming that the students' diets were as we said, the diet used in these experiments was by itself enough to render these subjects as unfit on which to base any dietary standard for the entire human race.

Then there was the way Rose chose to measure if protein synthesis was taking place. He didn't actually see protein synthesis take place; he only inferred it from the amount of nitrogen being excreted by the subjects. It would seem that what *that* means is a matter of interpretation. When the human body is overloaded with some element, it will usually try to eliminate it in some way, and it will often do so when the person stops taking that substance in. For instance, if you are in the habit of eating large amounts of dairy products, and you suddenly stop, you might find yourself expelling large quantities of mucus. You could say that this proves you need more dairy products in your diet, but a more correct interpretation would be that by decreasing the burden on your digestive system, your body is taking this opportunity to eliminate, in the form of mucus, the toxic wastes it has been storing all that time.

More than anything else, these experiments completely ignore the observed fact that people can fast for very long periods of time, and experience a profound rejuvenation by doing so. The length of time people have been known to fast would amaze most of us. Eighty days and more is not uncommon. In trying to be consistent with this protein theory, the medical profession will claim that when you fast, you feed on your own bodily waste, and that after you use up your wastes, you start feeding upon your own tissue, making fasting at this point very dangerous, an explanation which is inconsistent with simple reason as well as with the experience of people who have fasted. The human body does not feed on wastes, which are the end products of feeding. During a fast it eliminates stored up wastes.

And finally, further work in the field of biochemistry and the amino acids has not confirmed the work of Rose as one might have thought. Here are typical quotations from biochemistry textbooks:

From *Biochemistry of the Amino Acids, Vol. I*, by Alton Meister:

> "It is evident that an amino acid may be 'essential' or 'nonessential' depending upon the criterion employed ... the age of the animals, the presence in the diet of other factors (e.g., vitamins), and the existence of certain physiological and pathological conditions."

From *Certain Biochemical Findings in Man in Relation to Diet* by A. R. F. Walker, from the annals of the New York Academy of Sciences:

> "Absence ... of relevant clinical and pathological stigmata in people accustomed to 'deficient' intakes cannot but point to the strong probability that the particular recommended intakes are too high... the situation regarding animal protein calls for reexamination."

And from *Chemistry of the Amino Acids, Vol. I*, by Greenstein and Winitz:

> "In few areas of scientific description is the inadequacy of language so revealed as in the attempt to distinguish clearly the so-called nonessential amino acids from the essential ones, and this may well be due to the fact that growth has no standard of reference. The looseness of such phrases as 'optimal' or 'maximal' growth employed in these pages is obvious."

This last point is interesting, because we know that a high-protein diet stimulates the speed and size of growth. Now we can observe in nature that animals will live to about ten times the length of time it takes them to reach sexual maturity, but in the case of humans it is not even close to that, no doubt because of our unnatural ways. Accordingly the faster we mature, the shorter we can expect to live. Large size may be an advantage in some of our specialized sports events, but when we consider agility and endurance of body and mind, we find it is not an advantage, and, if anything, is a disadvantage.

In the face of all this, it is just not scientific to insist that human beings must eat flesh, eggs, milk, and cheese, or combine vegetable proteins according to the calculations of some laboratory. The scientific method is to account for observed facts, not to ignore them. If you encounter observed facts that contradict your theory, it is your theory which must be scrapped, or at least revised, not the fact. That is the scientific method. The physical sciences have had fantastic success in discovering the laws of the physical universe, and have demonstrated it by the technologies it has made possible, but the life sciences have not had such successes, in spite of the claims of medical science. The laws of biology have never been explained in terms of the laws of physics, and human potential remains unknown. In fact, for the most part, what are thought of as advances in the life sciences are really advances in applied physics; namely the ability to observe and experiment on cellular life. We can say that the life sciences have been failures because the conclusions drawn from these experiments and observations have led to some of the most brutal and barbaric medical practices imaginable, such as chemotherapy and radiation treatments for cancer, unbearably painful diagnostic techniques (as well as those that proved to be cancer-causing, such as mammography, which is meant to *detect* cancer) and the mass blood poisoning known as vaccination. Although still difficult for most people to accept, the failure of these practices are growing more and more apparent.

Said the famous scientist Alexis Carrel in his book *Man, the Unknown*, "In fact, our ignorance is profound," and most true scientists would still not disagree. Popular writers who convey the theories of technicians in the scientific field as certain facts cause mass misunderstanding. The public is still not well educated. It believes in the pronouncements of scientists with blind faith. The swine-flu disaster was a good example of what can happen with the public's attitude toward the scientific profession in general, and medical science in particular.

Concerning protein, Professor Arnold Ehret, in 1922, wrote the following:

> "The error of high-protein foods as a necessity of health ... is in its consequences and its effect just the opposite of what it should be; it is the most tragical phenomenon of western degeneration. It produced at the same time the most dangerous, most destructive habit of gluttony; it produced the greatest madness ever imposed upon mankind, that is, to endeavor to heal a disease by eating more, and especially, eating more high-protein foods. It is beyond possibility to express in words what the error of high-protein foods means."

What the greatest madness ever imposed upon humankind is, is a question one could kick around for a while. The madness of high-protein foods undoubtedly deserves a place among the candidates. This question aside, however, I think we can say that time has borne the ol' professor out. The day will yet come when the complete protein theory takes its place along side the rest of the theories of modern medicine, as an example of the kind of mad pseudo-science which still deludes and exploits humanity.

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Article #3: Proteins

Proteins are organic compounds composed of amino acids. There are hundreds of types of proteins, each being identified by a combination of amino acids which constitutes it.

Amino acids usually contain nitrogen, hydrogen, oxygen, carbon, and sometimes sulphur and are synthesized by the body cells from the air and water or derived from food which is eaten.

The word "protein" signifies "of first importance."

Proteins form the principal elements of the skin, hair, nails, connective tissue, and all other organs. They exist everywhere in the body in cells which make up all the tissues, bones, cartilage, muscle, fibers, glands, and organs.

Among the most important proteins are substances called enzymes which are catalysts which accelerate the vital biochemical processes enabling a cell to do in one minute what would otherwise require many years.

Most hormones are proteins or derivatives of amino acids.

Proteins are manufactured by cells.

Human proteins are different compounds than animal proteins and plant proteins. Thus it is necessary to break down (digest) proteins entering the body into fundamental amino acids which are then recombined into human proteins. Complex animal proteins require a much greater expenditure of effort by the human body cells in the breaking down process than do the more simple plant proteins.

At the same time, a great quantity of wastes, toxins, and poisons accompanies the animal proteins.

These foreign substances are very harmful to the human body and contribute to progressive deterioration of the health, thus it is strongly recommended that all animal protein be excluded from the diet of humans.

A *normal, healthy* adult body, living in obedience to the rules of health requires very little or no solid food protein to maintain superb health. Since all of the elements constituting amino acids (nitrogen, oxygen, hydrogen, carbon, sulfur) are present in the air we breathe and in the body's storehouse, there is no need to burden the body with large quantities of food in an effort to supply protein. The body's processes easily produce the amino acids and proteins it needs from the constant supply of basic elements available to it.

It is wise to avoid eating all animal protein or too much vegetable protein to insure good health.

EAT SPARINGLY OF PROTEIN FOODS!

Article #4: Protein Supplements by Hannah Allen

Protein supplements should never be used. Dried and crystallized tablets, or protein powders, or various protein concoctions, are even more dangerous than other food supplements, because the consequences of protein overconsumption, especially as an isolated food element, may be disastrous.

To quote Dr. Alec Burton, N.D., D.O., D.C., eminent professional Hygienist in Australia: "A food element is a part of a complex food which, in the living plant or animal, almost invariably, contains some, even if only in minute quantities, of all the various food elements—proteins, carbohydrates, fats, minerals, and vitamins... The body is adapted to the use of food as a complex mixture of food elements. We do not eat food elements or nutrients in isolation when we consume a natural food. When we eat these items out of their natural contexts with other nutrients, … the nutritional impact is different and can lead to unfavorable consequences."

The potential damage and artificial deficiencies that may be created through the use of protein supplements and other supplements are considerable. Just as an excess of nitrogen in the plant will create artificial deficiencies of other elements and prevent fruiting, so stimulation to the human organism produced by supplementation will disturb natural balance. This is the "Law of the Minimum": "The development of living beings is regulated by the supply of whichever element is least bountifully provided." (This has been long known in plant life.) Using supplements, by creating an overabundance of some elements, creates an artificial shortage of other elements, known and unknown, and the element in shortest supply determines our development.

A very fine dentist and his charming wife, who are staunch advocates of so-called "natural" supplementation, told me that they know that supplements are beneficial and necessary, because "if they don't take their supplements, they just drag around."

What better proof could there be of the *stimulating* effect and addictive nature of supplementation? A Hygienist can skip meals, or eat fruit only for several days, or eat his regular diet of fruits, vegetables, and nuts, and continue to be his vital, sparkling, indomitable self, with no crutches and no pills.

Manufactured concentrates are sold by commercial interests who are determined, for their profit, to maintain the position that substitute and compensatory substances can provide superior nutrition. Supplements are unnecessary, expensive, stimulating, addictive, and create artificial deficiencies and pathological changes in the human organism.

The richest sources of protein and all other food elements are in living food: raw nuts and seeds, fruits and vegetables, and it is here they are found in ideal combinations with other substances (known and unknown) essential to their full utilization. There is no better way: When you eat a variety of whole, raw foods, in accordance with Hygienic principles, you need not be concerned about amino acids or vitamins or minerals or anything else—everything will be adequately supplied.

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Lesson 86 - The Supplement Approach To Nutrition

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1. Introduction

One day in August, a thirty-three-year-old woman went to her doctor because she had a water retention problem. The family doctor advised the woman to take supplements of vitamin B-6 (also known as *pyridoxine*).

The doctor didn't say how much of the vitamin to take, so the woman started eating three or four vitamin tablets at each meal. "I started taking the vitamin in megadoses (large amounts)," she later told reporters. "I believed that was the way that vitamins are supposed to work. Taking large amounts seemed to be the in-thing for the 1980s."

After taking the B-6 supplements for two months, she still had a water retention problem. "My ankles were swelling, and I was still about twenty pounds overweight from all the water I was holding." So she returned to her doctor who told her to just start taking larger doses of the vitamin.

"I didn't bother to ask him how large a dose," the woman said, "I just started taking more." By late October, she was taking between six to twelve grams of the vitamin each day. The minimum daily requirement for B-6 is about two to four *milligrams* per day. This woman was taking 3,000 to 4,000 times the amount needed.

By December, she started having a constant tingling in her feet and difficulty walking. "I coudn't get down the steps to my business," she told the newspapers, "and my feet felt like there were 50-pound weights tied to them."

She still persisted in taking huge doses of vitamin B-6, convinced that her doctor must be right.

Four months later, she could not even hold a fork in her hand or sign her name. The megadoses of vitamin B-6 had so severely disrupted her nervous system that the woman was incapable of performing even the simplest routine task.

"The vitamin ruined my health," she said, "and it forced me to sell my second business."

One of the neurologists who treated the woman had this to say: "There is an excellent chance that the large doses of the vitamin had a causative role in her illness. We must assume that megadoses of B-6 can injure both motor and sensory nerves."

In the same newspaper that this story appeared in, there was also an advertisement for the vitamin by a health food chain. "Vitamin B-6," the ad stated, "has been used to treat schizophrenia, water retention problems, and to build muscles by athletes. Shouldn't you add this wonder vitamin to your regular diet-supplementation program?"

Vitamins. Supplements. Minerals, enzymes, amino acids, brewer's yeast, dolomite—all are extracted, artificial, and fragmented dietary additions, and they have no place in health-promoting nutrition.

Yet the appeal and lure of dietary supplements is strong—so strong that a number of nutritionists and spokesmen have created an entire dietary school and philosophy that prescribes the regular use of potentially dangerous and utterly worthless nutritional additives and aids.

This lesson discusses the dangers of the supplementary approach to nutrition and why such a fragmented view of health is doomed to failure.

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2. The Supplement Approach To Nutrition

Someone once said that there are as many approaches to nutrition as there are nutritionists. There is the "protein school" of nutrition which emphasizes a high-protein diet and protein foods over all else. One group tells us we must eat meat and drink milk; another group tells us we must base our diet on grains and seaweeds. There are vegetarians, fruitarians, sproutarians, and breatharians. There are nutritionists who defend junk foods and promote fast foods. Just about every conceivable approach to nutrition has its supporters and adherents.

This lesson is about one of the more bizarre cults of nutritionists: the supplementalists, or those who advocate powders, pills, capsules, and supplements of vitamins, minerals, and proteins. There have already been several lessons telling why we don't need nutritional supplements in the diet. You have already learned about the fallacies of using inorganic minerals, fragmented vitamins, and other worthless powders, pills and potions.

Yet the supplement approach to nutrition remains a trap for the unwary and uneducated. You need facts if you wish to educate your clients, friends, family, and patients about the folly of following the recommendations of the supplementalists. This lesson, then, focuses on the school of nutritional thought, and those spokesmen, that advocate the use of supplements as a normal part of a healthy diet.

2.1 The Supplement School and Its Beliefs

The supplementary approach to nutrition is based on these erroneous beliefs:

1. The human organism can utilize inorganic minerals, vitamins, amino acids, etc.
2. Elements of nutrition can be fragmented and employed in part instead of in total.
3. Nutritional needs have been accurately determined and totally analyzed.
4. More is better.

All of these beliefs are false. Let's briefly examine them one by one.

2.1.1 Fallacy #l: We Can Utilize Inorganic Minerals and Vitamins

When my grandfather was a young man, he plowed the clay fields each spring to prepare for planting cotton. He told me that every year one of the poor women who lived in the area would come to his fields with a spoon and a bucket. She would squat down near where he had plowed and start to spoon up some of the dark black clay into her bucket until it was full.

My grandfather thought that the woman was perhaps gathering clay from his particular field to use as a poultice, since the dirt in his fields was a darker color than other farms in the area. One day he noticed that the woman was putting spoonfuls of the clay into her mouth and chewing it up. One spoonful would go into the bucket, and the next spoonful would go into her mouth.

He took his lunch pail over to the woman squatting in the field and offered her his sandwich, thinking that maybe the, woman was crazed from hunger and had taken to eating dirt.

The woman looked at my grandfather in embarrassment and refused the offered food. "I'm not hungry," she told him, "f just have a craving for this kind of clay. My body wants the salts in it."

Dirt of clay-eating was, and still is, a common practice in some parts of the poor rural South. It even has a name—*pica*, or the craving for unnatural nonfood substances. Many times the diet in poor regions of the country consists of, polished rice, grits, lard, white flour, and other totally demineralized foods. In a bizarre effort to compensate for their mineral-poor diet, the poor people (usually nursing mothers or older women) would develop "cravings" for clay or dirt.

Of course dirt-eating did not improve the health of these physically-deranged people; they could no more get minerals from the soil than they could get calories from the air.

Yet today there are still people who want us to eat inorganic minerals for health. The only difference is that these people have extracted the minerals from the dirt and just put them into a nice clean pill or capsule. But the approach to nutrition is the same. It doesn't matter if you eat clay with a spoon or swallow a pill from a bottle, you are still making a futile effort to get your mineral needs from a totally inappropriate nonfood substance.

We cannot utilize minerals, vitamins, and other elements of nutrition that are inorganic in nature. Our bodies are not meant to process such nonfood items. Many of the minerals and other nutritional elements that are packed into a pill originally came from rocks (dolomite), industrial wastes (fluoride), and even scrap metal (iron)! There are people today who would never consider sticking a spoonful of dirt into their mouths, yet they gulp an inorganic food supplement each day that is little more than dirt and soil that has been "prettied up."

Our mineral needs, and other nutrient needs, can only be satisfied by *organic* elements as found in plants. We cannot process dirt or soil into usable elements, nor can we metabolize extracts of these soils or chemicals that make up the supplement pills. We must eat plants (fruits, vegetables, nuts, seeds, etc.) that have elaborated inorganic mineral compounds into organic compounds and chains if we want to obtain real nutrition. Plants take minerals and nutrients from the soil; we take minerals and nutrients from the plants. We cannot bypass this all-important step as the supplementalists would have us believe.

2.1.2 Fallacy #2: Nutritional elements can be used in their fragmented form instead of in total.

Every nutritional supplement, no matter how complete, exists in an unnatural and fragmented form. To make a mineral, vitamin, or protein pill, you must first destroy the natural food source it occurs in and then refine and extract a specific element from that food. By so doing, you destroy and remove all the natural co-existing elements of nutrition that accompany the extracted element. As an example, consider the mineral iron.

Iron is present in a number of high-grade fruits and vegetables, such as the cherry or apricot. Suppose a chemist wants to make an iron pill. He could take raw inorganic iron and just stuff it into a capsule, as was once done with surplus nails, or he could take some natural source of iron (such as the cherry) and chemically extract it.

The mineral iron that is present in a cherry, for example, is readily absorbed and used by the body because *the other necessary elements for the absorption of iron co-exist in the cherry or food itself.* For instance, ascorbic acid aids the absorption of iron in the body by helping to convert *ferric* to *ferrous* iron. The cherry has the needed ascorbic acid present with the ferric iron compounds. If you swallowed a pill that had the iron extracted from the cherry but not the accompanying ascorbic acid, then your body would simply not have the needed co-existing elements to use the iron.

Nature packages our vitamins, minerals, and other nutritional needs in complete foods. There is no chemist smarter than nature; there is no laboratory as complex as the human body. Fragmented forms of minerals, vitamins, and other nutritional elements can never be as efficiently used (if used at all) as the total, complete array of nutrients that are abundantly present in every natural, wholesome food.

2.1.3 Fallacy #3: All of our nutritional needs have been determined and are accurately known.

The supplementalists base their nutritional approach on such concepts as Minimum Daily Requirements, Recommended Daily Amounts, and Therapeutic Dosages. They believe that they can determine how much of a specific nutrient a person may need, and the best dose of that substance to give. For example, let's look at vitamin A:

The Recommended Daily Allowance (RDA) for vitamin A is 5,000 IU (international units). Of course the RDA for vitamin A, like most RDAs, is somewhat meaningless to begin with since it is based on averages, or a "typical" person. Vitamin A requirements increase or decrease depending upon the lifestyle we follow and the regular diet we follow. One of the nutritionsts who strongly believes in using vitamin supplements states that for improved health, we should take 10,000 IUs and if we need a therapeutic or megadose of the vitamin, then we should increase our vitamin A supplementation to 35,000 IUs per day.

He also warns us that 75,000 IUs of vitamin A produce toxicosis in the body and that 200,000 IUs of vitamin A daily over a period of time can result in death.

The truth is that there is no one constant, standard or safe amount of vitamin A to universally recommend. There has never been a way to experimentally determine the optimum dose of vitamin A a person should ingest each day. As long as you swallow pills containing vitamin A, you have little control or knowledge of how many IUs your body needs or can use. It is quite possible to take a continually excessive level of vitamin A for weeks or months before you realize the irreversible harm that has been done.

If you want extra vitamin A, why not play it safe and get the vitamin from natural foods that it occurs in, such as cantaloupes, peaches, carrots, apricots, or most fresh fruits and vegetables?

The supplementalists will tell you that they know exactly to the last milligram how much of any specific nutrient that you need. You should remember, however, that new vitamins, minerals, enzymes, and other co-nutrients are being discovered all the time. No one really knows the full range of nutrients that the body requires to maintain perfect health, and you can be certain that there is no pill or supplement that can contain all of these life-preserving elements.

We do know, however, that fresh wholesome foods do contain all the nutrients we need for superior health and well-being. This has been proven beyond a doubt because millions of people for thousands of years have prospered very well on such a diet without ever swallowing one pill or one supplement. No chemist, no laboratory, and no nutritionist can make such an unequivocal statement nor replicate such a convincing experiment.

To repeat: We do not yet know what nutrients we need, or in what amounts, to produce radiant health. We do know that wholesome unprocessed fruits and vegetables do contain all of these elements, *both known and unknown*, and we would do well to rely on these alone to supply all of our nutrient needs.

2.1.4 Fallacy #4: More is better.

The "more is better" school of nutrition has been in control since the nineteenth century. These people believe that since a little is good for you, then a lot must be better. It is surprising that intelligent people will fall for this ruse. Suppose you run five miles per day for exercise. This amount of vigorous activity is enough to keep you in good health and promote a healthy metabolism. Suppose, however, that you decided since running five miles is great, then running fifty miles per day would help you ten times as much.

If you could even attempt to run fifty miles every day, you would quickly discover that you are in fact tearing down the body and totally exhausting its resources and reserves. The same way with good food. Since we have been told that a *little* protein is needed for good health, we think that a *lot* of protein would automatically mean much better health.

It's simply not so, and any excess whether in diet, exercise, or even relaxation, will have negative effects on your health.

Vitamins, minerals, protein, or any nutrient taken in excess of the body's needs become toxic and either must be eliminated by the body or stored, which may result in a toxic overdose.

With nutrition, "more" is not "better." Enough is enough is enough, so why burden your body or empty your pocket book with needless nutritional overkill?

2.2 Who's to Blame?

Who are the people who are promoting the supplemental approach to nutrition and why are they so successful? The answer is that there is a willing, gullible public eager to take the easy way out when it comes to health and diet, and there are clever spokesmen and vested interests who do a superior job of selling hogwash to the people.

Let's see why the supplemental school of nutrition has such a strong appeal, and who its active supporters are.

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3. The Appeal Of The Supplement School

You may wish to try an interesting experiment, if you have a young child. When the child becomes hungry, offer him or her either a piece of fresh fruit or a large vitamin capsule to choose from. A silly experiment, right? Of course the child or any adult who is truly hungry will select the easily identifiable food or fruit and bypass the colorless, odorless and tasteless pill.

Yet Americans regularly gobble pills, capsules, and powders as a substitute for natural foods and wholesome nutrition. Why is that? Why would an adult put his faith and good health in an unidentifiable pill shaken out of a bottle? Why would anyone eat capsules, pills, vitamin supplements and mineral potions instead of fresh, delicious, succulent and sweet fruits and vegetables?

There are several reasons why the "pill school of nutrition" holds such a powerful fascination for today's adults. Let's look at the reasons that people are fooled into buying and swallowing pills for nutrition instead of good wholesome food.

3.1 Eat Anything You Want!

One morning I found myself in a breakfast doughnut shop near an elementary school. I was getting change for a morning newspaper when I looked over to a table where a mother had her two school children.

The mother was handing the boy and girl a cup of frozen orange juice and a big sticky sweet roll for their breakfast before she dropped them off at the nearby school. As the children ate the sugar-laden junk food for breakfast, the mother reached into her purse and carefully pulled out a piece of tissue paper that held two huge vitamin capsules.

In between bites of the doughnuts, she popped the pill into her son's and daughter's mouths. "Now swallow your vitamins so you'll be strong and healthy," she prompted. She absent-mindedly lit a cigarette and felt satisfied that she had discharged her motherly duties so well. In one fell swoop, she had neutralized the bad effects of a doughnut breakfast and assuaged her guilt by just sticking vitamin pills into her children's mouths.

Eat anything you like, but just take your magic vitamin pill and all is forgiven. All of your nutritional problems wiped out with just one swallow. Is there any wonder that there is such a strong appeal for a pill?

The public likes the "pill concept." It is a noncontroversial approach to nutrition that does not require any changes in diet or lifestyle. You can continue eating your favorite junk foods and you never have to question or face your bad living habits. Vitamin pills and dietary supplements are crutches for the nutritionally crippled. They are easy to standardize, profitable to promote, and give the appearance of effects without requiring any efforts.

Quite simply, the pill approach to nutrition is popular not because of what it does, but what it does not require us to do—change the poor eating and living habits that make us turn to supplements in the first place.

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4. The Supplementalists

The supplemental school of nutrition has three categories of supporters: 1) Vocal spokesmen who seek to attract a following; 2) Magazines and publications that cater to advertisers and the supplement industry; and 3) Health food stores and manufacturers of the supplements. While it is nonproductive to engage in name calling and finger pointing, you should be aware of the different approaches taken by these supporters of the supplement approach to good health.

4.1 Writers That Aren't Right

Every few years, a new spokesman for the supplement school of nutrition arrives at the newsstands with the same message for the masses: Swallow more pills for better health. The message may be worked differently; it may be couched in new seductive phrases such as "super-nutrition" or "therapeutic nutrients" or "meganutrition," but the point is always the same: Continue with your poor dietary habits, but take a magical supplement and your problems will disappear.

They write about "megavitamins," "magic minerals," and "longevity enzymes." They promise you salvation in a bottle and relief in a vitamin store. They quote miraculous cures effected by exotic nutritional additives and pills. And they make money selling their books and articles to an eager public that is nutritionally naive.

4.2 A Supplement Proponent

Perhaps no sadder testimony to the ineffectiveness and dangers of pill-gulping can be found than from the words of a woman known worldwide for her recommendations of daily supplements: Adelle Davis.

Mrs. Davis was a well-known and outspoken proponent of the supplemental school of nutrition. Her book *Let's Eat Right to Keep Fit* sold several million copies and it is full of recommendations for various supplements, pills, extracts, and other nonfood substances. When asked by an individual what her daily dietary routine is like, the woman responded:

"For years I have taken after breakfast a capsule containing 25,000 units of vitamin A and 2,500 units of vitamin D, both from fish-liver oil; 200 or 300 units of vitamin E or d-alpha tocopherol acetate distilled from soy oil; a tablet containing 5 milligrams of iodine taken daily, and 500 milligrams or more of vitamin C. With my other meals, I also take three tablets of calcium combined with magnesium, and sometimes another tablet of magnesium oxide alone to balance the calcium in the milk I drink. If I've eaten salty food, I add another three tablets or more of potassium chloride, 180 milligrams each. Besides yeast and liver, I also take with each meal two B-complex vitamins."

The woman was taking about 20 to 30 pills every day of her life. "People frequently asked me how long they should take supplements," Adelle Davis wrote. "I am tempted to tell them, 'Until you get tired of good health.'" The woman concluded her discussion of nutrition with the statement: "I expect to take supplements as long as I live, though I wish I might get all nutrients from foods."

Adelle Davis did indeed take supplements as long as she lived—until she died of cancer.

Adelle Davis was not alone; other active promoters and writers who have ballyhobed the marvelous effects to be gained from supplements, pills, and potions have also enjoyed poor health and premature death. Quite frankly, the success or failure of a nutritional school of thought should be gauged only by the health or sickness of its proponents and spokesmen. The supplement school of nutrition has had a dismal history in this respect.

4.3 A Catalog of Pills and Supplements

Today there are about a half dozen magazines and a score of popular periodicals that consistently promote the use of supplements in their pages. Their pages are so full of ads and come-ons for supplements that they appear to be nothing more than catalogs of wonder drugs. And these magazines exist for one reason:

Money. The majority of advertising in these "health" magazines comes from supplement and vitamin manufacturers. Do you expect to see an honest article that exposes the dangers and shortcomings of supplements in a magazine that is full of paid ads for these pills? Of course not. The truth is that for many of these health-oriented publications, their major financial support comes from companies who want to sell the public pills and capsules.

Quite often these magazines will publish articles that actively promote a specific nutrient, say zinc for example. You can be sure that in that same issue there will be full-page ads offering zinc supplements and pills. Could this be merely coincidence?

These magazines work hand in hand with the supplement industry. They create the perceived need for supplements, and the manufacturers offer you the promised cure-all—all in the same magazine and almost on the same page. If this doesn't strike you as a little too fortuitous, then you are indeed a great idealist.

4.4 The Pill Store

Have you been inside a typical '"health food" store lately? You'll probably see very little "food"' or indeed even "health," but you'll certainly get an eyeful of bottle after bottle of vitamins, minerals, supplements, and other exotic potions.

And that's not loo surprising at all, especially when you consider that 40 to 50% of a health food store's profits comes from the sale of supplements.

"Vitamins, minerals and other diet supplements are my bread and butter, an owner of a small health food store confided to me. "I can mark up each bottle about 250 to 300% over what I pay for it. They have an indefinite shelf life; they can't go bad like produce, and I can usually sell one person about $25 to $40 worth at one swoop."

"I can't really prescribe these pills and supplements to my customers—that's against the law—but I can tell them how Mrs. Such-and-Such bought a bottle and how it helped her. You know, that kind of thing. I act people coming in here all the time looking for some miracle vitamin that's going to cure all their ills. I don't sell supplements: I sell hope to sick people. Maybe they help, maybe they don't. I don't think they're any worse off."

But of course they are worse off. They've spent good money on useless products, and, even worse, they do nothing to change the conditions that brought about their health problems in the first place. Health food stores may not practice deception, but you could hardly call them a service to their customers who purchase the supplements and vitamin pills.

The health food stores are not the villains in this tale of supplements. The people who are really making money from the supplement scam are the manufacturers and suppliers of these pills and potions. Consider this: That $5.95 bottle of multiple vitamins that you bought probably has about 20 cents worth of chemicals in it. The huge profits from the sale of these pills are plowed back into advertising and promotion to get you to buy even more bottles of chemicals and supplements.

The supplement market operates on a tremendous profit margin and markup. The industry is unpoliced and relatively unregulated. For example, vitamins and mineral supplements marked "natural" and "organic" may legitimately contain only 10% of its elements from natural sources; the remaining 90% could be the selfsame chemicals sold in any other brand.

Be wary of any school of nutrition that promotes products for profit. You may be sold a false bill of goods.

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5. The Only Safe Source Of Nutrients

Dr. Herbert M. Shelton has studied the effects of food and nutrition on human health longer than almost anyone else in the world today. He has long detailed the dangers of depending upon supplements, pills, and powders for adequate nutrition. When asked about the use of nutritional supplements in the diet, Dr. Shelton replied with this list of four important facts:

1. We do not yet know how much of any food element the body needs.
2. We do not yet know all of the elements that are structural and functional constituents of the human body.
3. We do not know that all of the vitamins have been discovered.
4. We do not know that there are no other and hitherto unsuspected food factors in foods that are as

essential as those that are known."

Since our knowledge of nutriton can never be complete, it is impossible to construct a pill or supplement that can most assuredly supply us with all of our needs. "These things being so," writes Dr. Shelton, "there can be only *one* safe source of nutriment, and only one source that is capable of supplying us with all known and unknown food elements. *This source is natural foods*."

There can never be a pill or supplement that will furnish a human being with all of the nutritional elements required for superior health. Our physiology has developed over hundreds of thousands of years on fresh, wholesome fruits and vegetables. Our entire system is geared toward extracting elements of life from plant foods alone. We cannot survive on pills; we cannot thrive on supplements.

We require and need only fresh foods from the plant kingdom and nothing else.

5.1 One-a-Day Multiple Vitamins and Other Lies

Still, there are people who are fascinated by pills. "Just to be safe," such a person says, "I always take a good, all-around multiple vitamin and mineral tablet." "Just to be we," such a person will say, "I swallow a tablespoonful f iron supplement each morning."

These people are not buying good nutrition; they are seeking peace of mind in a pill or tablet. Yet if they knew that they were swallowing lies along with the pills, they might seek peace of mind elsewhere. Consider this newspaper report which appeared only this month: "Survey Finds Multivitamins Dangerous."

In a survey of the 41 most commonly-purchased multi-vitamin pills, it was discovered that many of them contain either *dangerously high or inadequate doses* of vitamins and minerals. According to a clinical nutrition researcher, "Most vitamin supplements we looked at exceeded the 200 percent mark for the Recommended Daily Allowance, which makes the vitamins perhaps dangerous." The researcher further stated that these supplements often contain excessive amounts of fat-soluble vitamins such as A, D, E, and K which can be harmful since these vitamins are *stored in the body* when taken in amounts greater than the body's needs.

There have been many cases where people were found suffering from vitamin toxicosis due to the abnormally large amounts they were taking and retaining through supplements and pills. Well, what about wholesome foods such as carrots, melons, etc., that are naturally high in vitamins; Does this mean that we can get too many vitamins from these natural sources?

5.2 Safety in Nature

If you are eating fresh foods in their natural state, you cannot overdose on vitamins. Why is this? For one thing, the sheer bulk of the food alone prevents you from eating amounts that would contain excessive vitamins. Of course if you juice all of your foods and drink quarts of carrot juice every day, then it might be possible to get too many natural vitamins. Yet even in these circumstances, there are built-in safeguards in natural foods.

For example, the vitamin A in plant foods comes from a compound called *carotene*. The carotene in these vegetable foods is converted to a form of vitamin A in the liver *only if there is a need for the vitamin in the body*. In other words, if you ate about ten large carrots, you could potentially be ingesting around 100,000 units of vitamin A. Yet if your body only needed say 20,000 units of vitamin A, then the carotene conversion to vitamin A would not occur for the other potential 80,000 vitamin A units.

The body has an innate wisdom and knowledge of its true needs. As long as we supply the body with its natural food and fuel, we need not fear the consequences. Any time vital elements are extracted from our foods and packaged as concentrated supplements and pills, then we are taking serious chances with our health. No scientist, no chemist, no nutritionist has the type of knowledge that the body possesses. No laboratory can duplicate the wonderous processes of the human body. No experiment can replicate the intricate life processes that occur during food digestion and assimilation. No pill or supplement can ever be labeled completely safe.

There is only one safe source for our nutritional needs: fresh, wholesome foods from the plant kingdom. All else is suspect and should be rigorously avoided.

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6. Questions & Answers

I recently heard that the only way you can meet your recommended daily amounts for vitamins and minerals is to take a good all-around supplement. Are you saying that we don't need pills no matter what we eat?

> What you are probably referring to is the recent study by a medical researcher who discovered this startling fact: Up to 80% of the typical American's diet consists almost entirely of products made up of sugar, fat, white flour, and alcohol. The study then stated that since so many calories are consumed in these nutritionally worthless foods, then we would have to take some type of pill to make up the difference if we don't want to increase our calorie intake. The researchers then speculated that if we tried to satisfy all of our nutritional needs from food alone hat we would have to nearly double our calorie intake. This is pure nonsense. Of course if you eat the typical junk food diet of most Americans, then your diet will most certainly be lacking in essential nutrients. The solution is not to eat more of the selfsame nutritionally worthless foods in order to get enough vitamins or minerals. And you already know that swallowing a few pills is not the right approach. Wouldn't it make more sense if these people would eliminate the 80% of their diet that furnishes no nutrition, and instead eat only wholesome, unprocessed foods that are packed with all of our essential nutrients? In this way, they would not have to increase their calorie intake; in fact, they would lower it because they would have eliminated all the high-calorie, low-nutrient foods that make up over half of their diet.

You can argue all you want to, but here's one thing that proves you wrong. When I feel run-down, I take a good overall vitamin and mineral supplement for five to seven days. I feel great and all charged up at the end of the week. Now tell me that supplements are worthless!

> Okay—supplements are worthless. Seriously, what you are experiencing is not at all uncommon. We have never said that supplements do not have an effect; we have only said that they cannot supply proper nutrition.
>
> Some people will feel better no matter what kind of pill they swallow. This is called the *placebo* effect and it has been well-documented. However, supplements can often have an effect that is simply not illusory. They can provide a strong stimulus to the body just as any toxin or foreign agent can. This stimulus that accompanies the supplement is often mistaken for a beneficial effect; instead, it is the body's response to an unnatural and inorganic presence. There are some additional materials at the end of this lesson that examine this false side-effect of taking supplements. Just because you are "stimulated" do not assume that you are being helped.

Article #1: The Great Supplement Hoax! by T.C. Fry

One has but to delve into a little biology, biochemistry and physiology to know that supplementation is not only impractical but a tragic commercially fostered hoax. There is no such thing as supplementation and there cannot be! There are foods and nonfoods. Supplements do not fill a single condition required of a food. That is the delusion of supplementation.

Under the "just to be safe" illusion we intoxicate our bodies with unusable substances. Fortunately, most supplements furnish only a placebo effect—their foremost benefit lies in the absurd belief that they will keep us from suffering deficiencies. But beliefs do not protect us from their ill effects. For instance, there are well authenticated cases of scurvy among supplement takers who were ingesting two or three grams of vitamin C daily, enough to suffice for a hundred days if it were usable.

Most supplements taken orally meet with a just fate-being indigestible (and therefore unabsorbed), they pass into the bowels. To the extent they are absorbed they create problems for the organism. As you'll discover in this issue there is no case for supplementation. There is a case against so-called supplementation. There is a case for eating whole ripe raw foods of our biological adaptation. That and only that is capable of furnishing our needs in a physiological manner.

For the most part supplements are synthetically derived, even if advertised as being of "organic" origin. This representation is an outright fraud, for a reading of the label will reveal that only a small percentage is from organic sources. Synthetic substances are neither digestible nor metabolizable. That's the best part about most supplements, for the body passes them through the intestinal tract. On the other hand, those parts that may be absorbed are treated like drugs, not nutrients. The body is stimulated by them just as if caffeine, nicotine, alcohol, or other drugs had been taken. That lends to the mistaken idea that vitamins give energy. That's false; If anything, they take body energy just as do other drugs. Only carbohydrates are raw materials for energy.

Mineral supplements are derived from inorganic sources. They are totally unusable. Though we have a heavy need for minerals, the very minerals we require are toxic if taken in an inorganic state. We need iron, selenium, iodine, fluorine, magnesium and a host of other minerals, but if taken in supplements as derived from rocks, soils, sea water or ores, they are unusable and poisonous. One of the foremost characteristics of poisons is that they stimulate, that is prick or goad the body into a frenzy. The body steps up energy expenditure to cope with a heavy eliminative situation. Because this makes us feel "hyper" we are likely to mistake this squandering of energy as being derived from the toxic substance ingested rather than a draft on our energy stores. It bears repeating that the body derives its energies from carbohydrates, not vitamins, minerals or supplements.

If you have any deficiencies, you can't make them good by supplementation. Only a few fractionated foods among the supplements can be appropriated. But, even so, eating refined fractionated foods is like taking refined sugar, refined white flour and so on. Almost anything derived by fractionating foods would be poor even if eaten in context with the whole food from which taken because the parent food is not of our biological adaptation. Many supplements are derived from bacterial and yeast fermentative and putrefactive processes. No matter how rich in nutrients, these substances are unusable. Taking these concentrated nutrients to supplement a depraved and deficient diet is like eating tobacco leaves for nutrients instead of fruits. The difference between eating fruits and deficient diets with supplements is fruits are something the body can use in a physiologic manner; and deficient diets including supplements are something the body expends its resources on needlessly for purposes of protection and excretion.

Eat whole foods to which you are biologically adapted, more specifically, fresh ripe fruits with dried fruits if an extraordinary requirements of caloric values exists. If this needs supplementing, and it doesn't for it is replete with more nutrients of every description than we require, then supplement it with super nutrient-rich vegetables like broccoli, lettuce, celery, cauliflower, carrots, etc.

Remove yourself from that army of victims of the commercial game called supplementation. You're wasting your money *and your health!* Wholesome foods suited to the human dietary are all that you need.

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Article #2: Vitamins: A Quarter Billion Dollar Humbug by Dr. Herbert M. Shelton

Perhaps nothing has done more to confuse the man on the street and, all too often, the doctor in his office, about what constitutes nutrition than the ballyhoo about vitamins. The trouble, be it understood, is not with vitamins, but with the commercial exploitation to which they and their imitations are being subjected. It is estimated that the American people are now spending a quarter of a billion dollars a year for "vitamins." That's a lot of money! America has become "vitamin conscious" and the gangsters who are responsible for thus duping the people are reaping rich harvests from the vitamin racket.

"Vitamins" are sold in the drugstores, department stores, grocery stores, five and ten cent stores, health food stores, and by mail. Every conceivable means of advertising them is employed and nobody seems to think that there can be any such thing as honesty in advertising. Anything goes in the advertising, if it sells "vitamins."

The medical profession is not alone to blame for the exaggerations that are being peddled about vitamins. The manufacturers of the so-called vitamin preparations are chiefly to blame, while many medical men of high standing have dared to lift their voices in warning about the vitamin cure-all now being offered to the public.

Chiropractors, osteopaths, naprapaths, physiotherapists, naturopaths, dietitians, "health" lecturers, and similar cure-mongers and the "health food" stores have all played a very big part in promoting this vitamin racket. Various types of doctors prescribe and sell these things to their patients. It seems to be easier to prescribe (and sell) vitamin pills (perhaps, it is almost more profitable) than it is to find and remove cause.

Health food stores reap a rich harvest off the sale of vitamins. The men and women who run these stores, though rarely possessed of any knowledge of human ills and the proper care of the sick, and never making a proper inquiry into the conditions for which they prescribe, do not hesitate to prescribe vitamins for all who come into their stores looking for cures. The health food stores no longer sell healthful foods; they sell cures.

Vitamins have been promoted as cold preventives. Extensive experience together with careful tests have combined to show that vitamins do not prevent colds. What is the difference between taking vitamins to prevent colds and ignoring cause and taking cold vaccines to prevent colds and ignoring cause?

Vitamins have been promoted as cures for chronic fatigue. Chronic fatigue may result from any one, or any combination of a number of, causes and any effort to cure the fatigue without removing its cause can only fail. This use of vitamins is identical in principle with the use of drugs.

Vitamins have been promoted as cures for arthritis. The hundreds of thousands of arthritis patients who have taken large quantities of vitamins and watched themselves grow worse are living testimonials of the failure of vitamins as a cure for arthritis. Vitamin D has especially been bally-hooed as a cure for arthritis. It has been used in huge doses. These have often given rise to toxic symptoms. This probably always makes the arthritis worse.

Vitamins have been promoted both as preventives and as cures for gray hair. They do neither. Those who have used them have been disappointed.

In a recent issue of the *Journal of the American Medical Association*, Dr. Julian M. Ruffin and David Cayer, of Duke University, record details of an investigation conducted to determine the value of adding vitamin supplements to the usual American diet.

I think it is significant that the "usual American diet," which is by no means an ideal diet, was used in this series of tests. Two hundred volunteer medical students and technicians were used in the tests. These volunteers were divided into five groups. They were all "in apparent good health" and were "consuming the usual American diet." The tests were run for thirty days "because that period is found sufficient for recovery under vitamin treatment" of patients actually ill from vitamin deficiency.

- One group was given vitamin tablets and liver extract tablets.
- A second group was given yeast extract tablets and vitamin pills.
- The third group was given vitamin pills and a sugar pill made to resemble the others.
- The fourth group was given vitamin pills only.
- The fifth group was given sugar pills only.

None of the volunteers were permitted to know what was in the pills they were taking.

Each man kept a daily record of his weight and of such symptoms as "gas" and indigestion, nausea, vomiting, abdominal pain and diarrhea. Also, he kept a daily record of his impressions of any effect on his appetite and on his "pep" or energy.

Ruffin and Cayer report that a "significant increase in diarrhea and a highly significant increase in abdominal pain and nausea and vomiting occurred in those receiving liver extract and yeast."

This effect of yeast is certainly no new find and I was not surprised that liver extract causes similar symptoms.

The experimenters at Duke University point out that "The use of vitamins is widespread throughout the country, not only in the treatment of disease, but also by apparently normal persons" and state, as a conclusion based on the results of their own and other tests: "It has been implied that even when no demonstrable deficiency exists, one's sense of well-being and ability to perform work can be improved greatly by the addition of vitamin supplements to the diet. There is at present no evidence to substantiate this point of view."

Medical men are, and long have been, prescribing vitamin preparations (cod-liver oil, yeast, etc.), vitamin extracts and synthetic vitamins in all types of conditions and standing around in groups and cursing because the expected results have not been forthcoming.

No one claims that present methods of determining vitamin deficiencies are sufficiently delicate to reveal the earliest stages of deficiency. There is no reason why correct use of real vitamins in these undetectable incipient stages will not result in definite improvement in health and increase in energy.

What, then, is the trouble? It is evident to the careful student of nutrition that the trouble is not simple or singular, but complex and multiple.

First; the "vitamins" are only imitations. They are not genuine. Only fools expect these synthetic make-believes to produce results.

Second; they are not properly used. Vitamins do not produce energy. They do not put on weight. They are enzymes that enable the body to utilize proteins, carbohydrates, fats and minerals. The "usual American diet" is especially deficient in minerals. To add vitamins to such a diet and not add quantities of the deficient elements, and expect results, it to expect vitamins to work in a vacuum.

Results may be obtained by using real vitamins, as these exist in natural foods, and taking them along with the other food elements, as these, too, are found in these same natural foods. Better nutrition requires better food, not merely the addition of vitamins.

Need I describe the "usual American diet" of white bread, denatured cereals, white sugar, refined syrups, canned fruits and vegetables, jellies, jams, preserves, cakes, pies, candies, embalmed meats, pasteurized milk, coffee, beer and cigarettes, taken by these "apparently normal students and technicians?" Only an ignoramus would expect vitamins, even if they were real, to do anything with a diet like that.

Vitamin salesmen, vitamin manufacturers, vitamin con men of all grades, types and sizes are encouraging people to buy and take vitamins. They do not encourage people to revolutionize their eating practices. "Science" in an illegitimate union with commercialism is responsible for flooding the world with the deluge of lies that bewilder, confuse and mislead the poor man on the street and the ignorant doctor in his office.

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Article #3: Are 90% or More of the Vitamins You Take Going Down the Drain? by T.C. Fry

The above headline is from an advertisement of, all things, a vitamin ad! It goes on as follows:

> THE PROBLEM WITH TODAY'S VITAMINS
>
> *"It is an undeniable fact that so-called 'natural' vitamins are not truly natural. Actually, they are made from coal tar (a 'natural' source) but are not extracted from foods as is widely believed. They are artificial and synthetic, regardless of what certain vitamin manufacturers claim.*
>
> *"Because so-called "natural" vitamins and minerals are synthetic chemicals rather than nutrients, they are biologically inactive or "dead." They can benefit you only if your body is capable of performing a little miracle, namely changing their molecular structure by complexing them with the essential absorption factors and nutrient carriers. If your body fails to do that, you will receive no benefit from the so-called 'natural' vitamins and minerals you take.*
>
> *"Nutrition scientists believe that your body actually rejects, excretes and wastes as much as 90% or more of the vitamin and mineral supplements you take, receiving little or no health benefits from them!"*

Now when a vitamin manufacturer tells the truth about the products of others you'd expect to get the truth about his product. Right? Well, I wouldn't tell you the truth in order to hook you on another commerical comeon, would I now? I'm an honest Joe. I want you to buy my product so I tell you the truth about your wasting money on your supplements. They're worthless—you're just feeding your bowels. Is that a way to waste your money?

What this vitamin company is advertising is a "historic breakthrough" with an exclusive formula that helps you absorb their vitamins.

Are their vitamins truly natural? Absolutely not. They're synthetic, too! But your body can absorb them. Is this a reason you should buy their vitamins? No! That's a better reason for NOT buying them. You're better off with the nonabsorbable vitamins, which go mostly into the kidneys and bowels.

Why should you be better off with vitamins and minerals that you don't absorb?

Because, if you do absorb these vitamins, you'll be poisoning yourself, not nourishing yourself! Whether the supplements you take are derived from coal tar, petroleum stocks, fungal and bacterial fermentation and putrefaction or from truly natural foods, you're not getting anything you can use! Only the vitamins contained in whole natural foods will not poison you.

That you can't use vitamin supplements, even if refined from natural sources, derives from one salutary fact: vitamins are proteins except for a very few. As such they are co-enzymes that make the food you eat more available you. Nature puts her vitamins and enzymes within the context of a food package. Break down the package, according to the famed nutrition researcher, Roger Williams, and you destroy the teamwork (synergism) that nourishes you. Hence, even if the vitamins and minerals were, indeed, from natural sources, by their lonesome selves the body cannot use them! The body uses foods, not delusions!

Why not use ONLY whole foods? The only vitamins and minerals you're getting and using are from that source only regardless of what you believe—regardless of the bill of goods you've been sold by the slick propaganda from the manufacturers and peddlers.

If you eat anything other than the nutritious raw foods to which we are biologically adapted, you're cheating yourself. Of course, some of them may be grown on deficient soils but that's still the best bet you have! If they extracted vitamins from natural foods where do you think they'd get them from? Why, from the very same foods grown on deficient soils. Where else?

You destroy not only your body faculties but deny yourself vitamins and minerals a hundred times more by cooking your food, by making it partially or wholly indigestible with seasonings and condiments, by eating it with preservatives, synthetic vitamin/mineral additives, by eating it wrongly combined so that it is incompatible in digestive chemistry and befouls your digestion rather than nourishes you, by taking foods with oils (which coat foods and make them largely unavailable and indigestible), and by consuming alcoholic drinks, vinegars, etc.

Our truly natural foods eaten in a natural manner (raw) is the thin margin most of us survive on as well as we do. The true "miracle" is eating totally raw only the foods that you relish raw. This will supply your body with all the vitamins and minerals you will ever need.

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Article #4: Resolving the Issue of Supplementation by Drs. Robert and Elizabeth McCarter

The best way to resolve the issue of the validity of supplementation of the diet with man-made supplements is to study the people who take them religiously. We see a constant parade of such people here at the ranch (the Bionomics Health Institute of Tucson). Almost every sick person who comes to us for help has been taking all manner of supplements for years, all the while watching their health fade away. Once they are taken off their drugs and supplements, detoxified and then taught how to live in a health-promoting manner, they are often amazed at how quickly their bodies respond; many coming to enjoy a state of health such as they have not known for 20, 30 or more years.

Just a few days ago a man and his wife stopped in to present us with a basket of freshly-picked peaches. They had arisen at five that morning and, along with another of our students, had driven to a peach orchard just outside of Tucson where they had picked the ripe fruit, luscious in its rich goodness. Their bodies were dripping with sweat from their labors but their faces were filled with joy as they gave us the fruit.

Why do we bring up this episode at this time? Because, by learning to live according to the laws of life these two remarkable people changed pain-wracked bodies into healthy bodies. For years pain was mirrored in their faces, now only joy. They are now living life as it should be lived—always in health. They have no need for pill or potion, for doctor or for surgeon. They are true Life Scientists relying for true nourishment on nature's food packages, many of which they grow themselves. They have learned well the secret of life.

When the dietary intake is correct according to human design, all of the organs will be properly and consistently nourished and perfectly capable of fulfilling their duties as required. However, the systemic mosaic of intertwining functions and structural activity can be disturbed, rendered less than fully effective, reduced perhaps by as much as one-half by an imbalance, by the presence of too much or too little of any one mineral or other nutrient because of the finely-tuned internal ecological relationships, the synergisms and interdependencies, that exist among all.

Like a baseball team must have the pitcher, the catcher and all other players present and in tip-top physical and mental condition to become a winner, so must the human body have all of its required nutrients ready and available for action in the proper proportion, in the correct amounts and at the proper time if the individual is to be a winner in the arena of life.

Otto Carque was one of the first scientists to warn against creating any imbalance within the body; he pointed out that an imbalance of minerals, for example, can lead to obesity, asthma, rheumatism and other serious disorders. Louis Kuhne, a Leipzig practitioner of great renown in his day, said it well, "Man is not a machine artificially put together by combining various pieces, like an automobile, but rather a living creature in the midst of a process of development." We are alive, not static; our bodies are constantly in a state of flux. Taking supplements can disrupt the flux by thrusting an unknown into the synergism, creating an imbalance which the body cannot tolerate.

It has not been determined to any exactness just how much of any one nutrient is required for maximum health, this undoubtedly being a variable from person to person and from time to time according to functional need as, for example, under great stress. A momentary stress in and of itself can create a temporary imbalance recognized only by the monitoring agencies within the system itself.

The blood and lymph cannot be cleansed and made to flow through the 70,000 and more miles of channels throughout the body by the taking of any "magic" pill. Organs grossly deformed and malfunctoning cannot possibly be restored to health by therapeutic dosing.

One is a real student of health when he understands this one absolute of life: foods have been prepared for man, but only certain foods; man's natural food contains all that he requires to keep him living always in full health provided his lifestyle and environment are also conducive to health. Dr. Shelton reminds us that "nature ... is the author and ruler of all health and happiness, not the physician."

Many of the technological advances of science in this century are superb but, nevertheless and in spite of them, mankind would be best served by building up a store of vital funds through careful attention to his dietary needs, these being more than adequately furnished in the foods designed both to satisfy visual and palate pleasure as well as systemic need. We should look to field and forest and be content for there we will find nature's best. As Dr. Ralph Cinque has so well said, supplements are nutritional shadows, not the real thing.

The life-building forces of health are gentle, they are slow, but they are sure. They are gathered together and reinforced by a daily adherence to the principles of life, not by taking a daily recommended dose of any one isolated man-made nutrient or, indeed, by downing a bucketful of assorted supplements. If we would have abiding health through all of life, we must stop pill-popping. We must begin to live according to the principles which are sound, sure and certain to give the desired results. Here lies the true elixir of life.

All supplementation is a "slap in the face to law and order," a crude attempt to treat and "cure" without removing the cause of the trouble in the first instance. Certainly common sense negates the whole idea. Supplementation is a practice instituted and promoted by self-serving interests which foster the idea that man knows better than Nature what is needed for the maintenance of life. It is a bold-faced attempt to convince a gullible public that supplements are a simple way to prevent disease and heal hurts without making any attempt to discover and remove cause. In other words, it is a simple way for these self-serving interests to make a lot of money off of you!

Article #5: The Minerals of Life by Dr. Herbert M. Shelton

It seems quite clear that the vital importance of the organic salts of foods was established by men who were outside the regular folds. The older physiologists and physiological chemists gave no attention to them. In the tables of food analysis they were regulated to the "ash" column and ignored.

At the present day their importance is everywhere recognized. It is no longer thought that only the "nutritive values"—proteins, carbohydrates, fats—are important.

Animals fed on foods deprived of their salts (minerals) soon die. In the same manner, they die if, to these demineralized foods, are added inorganic salts in the same quantities and proportions as are found in the ashes of milk. The salts are not used except in the presence of vitamins.

Berg has pointed out that there does not exist one single complete analysis, either of the human organism or its excretions or of our foodstuffs. Not everything is known about the function of minerals in the body and of some of them almost nothing is known. Some, such as zinc and nickel, apparently serve functions similar to those of vitamins. Prof E. V. McVollum showed that animals deprived of manganese lose the maternal instinct, refuse to suckle their young, do not build a nest for them, and even eat their young. Their mammary glands do not develop properly and they are unable to secrete proper milk for their young. Here are effects commonly attributed to vitamin deficiency.

This "ash" enters into the composition of every fluid and tissue in the plant and animal body and without even one of these minerals, life could not go on. They are of the utmost importance. They serve a number of purposes. They form an essential part of every tissue in the body and predominate in the harder structures such as bones, teeth, hair, nails, etc. The bones consist largely of calcium phosphate. They are the chief factors ill maintaining the normal alkalinity of the blood as well as its normal specific gravity. Salts are also abundant in the body's secretions, and a lack of them in the diet produces a lack of secretions. They are also used as detoxifying agents, by being combined with the acid waste from the cells. The wastes are thus neutralized and prepared for elimination. Their presence in the food eaten also aids in preventing it from decomposing. Acidosis produced by the fermentation of proteins and carbohydrates often comes because the mineral salts have been taken from the food, thus favoring fermentation.

In a simplified sense we may consider the blood and lymph as liquids in which solids are held in solution—much as salt is dissolved in water. The cells, which are bathed at all times in lymph, are also semi-fluid with dissolved matter in them. If the lymph outside the cells contain much dissolved solid, as compared to that within the cells, the cells shrink in size. If there is more dissolved solid within the cell than without, the cell expands and sometimes bursts. In either case the result is pathological.

If the amount of dissolved solids within and without the cell are equal, so that internal and external pressure are equalized, the cell remains normal. It falls very largely to the minerals of the food to maintain this state of osmotic equilibrium.

The waste formed in the body, due to its normal activities, is acid in reaction. The greater part of the work of neutralizing these acids is done by the mineral elements— the "ash."

These minerals enter into the composition of the secretions of the body. The hydrochloric acid in the gastric juice, for example, contains chlorine. Clotting of the blood does not take place without the aid of calcium or lime.

The mineral matters in food undergo no change in the process of digestion, prior to absorption, as do proteins, fats and carbohydrates. They are separated from these other elements in the process of digestion and pass directly into the blood.

If our foods do not contain enough of the right kinds of mineral salts we simply starve to death. It does not matter how much "good nourishing food," as this is commonly understood, that we consume; if these salts are not present in sufficient quantities, we suffer from slow starvation with glandular imbalance or disfunction, more disease and other evidences of decay. McCarrison showed, definitely, that foods and combinations of foods that are inadequate and unsatisfactory in feeding animals are equally as inadequate and unsatisfactory in feeding man.

Life and health are so directly related to these salts, of which little enough is known, that we can never have satisfactory health without an adequate supply of them. We may be sure that each salt has its own separate function to serve, while certain combinations of them have long been known to serve vital services in the body.

No drug salts can be made to take the place of those found in food, As Dr. William H. Hay, says: "Nature provides all her chemicals for restoration of the body in the form of colloids, organic forms, and man has for a long time sought to imitate her in this, but he has not been so very successful that we are now able to insure the recouping of the mineral losses of the body by any artificial means, arid must still depend on nature's colloids as found in plant and fruit." Well or sick, no compound of the chemist, druggist or "biochemist" can recoup your mineral losses.

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Lesson 87 - Chiropractic, Homeopathy, and Osteopathy

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1. Chiropractic

1.1 History

In 1877, a man by the name of Harvey Lillard became deaf. He was in a stooped, cramped position, he heard something "pop" in his neck and he was deaf for 18 years. One day in 1895, Dr. D. D. Palmer was called to examine Mr. Lillard. Upon examining the patient, he noticed a large visible bump. He reasoned that if the production of that bump produced deafness, reduction should restore hearing. He pushed the bump, three days in succession, the bump disappeared and hearing was restored.

The more Dr. Palmer examined spines, the more he continued to find abnormal bumps. Some bumps were found on spines of people who were deaf, but most were found on spines of people with other illnesses. When he reduced these bumps, some illnesses, such as heart trouble, stomach trouble, etc., were relieved. Dr. D. D. Palmer believed that spinal bumps were caused by malpositions of vertebrae, called subluxations. It was believed that the subluxated vertebra occluded the neurocanal, or intervertebral foramen, and impinged on the spinal cord or spinal nerves. Since the nervous system controlled all systems, it was believed that any interference in the nerve impulse was the cause of disease.

Disease originally meant "uneasy, uncomfortable or disturbed." As medical men began to classify these feelings into symptoms called an illness, disease became an entity, B. J. Palmer (Danial Palmer's son) liked the term disease. Dis-ease was used to mean "disorganized, or without organization," and Palmer believed that the cause had to be removed or corrected (adjusted). Chiropractic is defined by B. J. Palmer as follows: "Chiropractic is a philosophy, science and art of things natural; a system of adjusting the segments of the spinal column by hand only, for the correction of the cause of disease."

1.2 Chiropractic Philosophy

All parts of your body must work together properly to give you physical health. According to Chiropractic philosophy, the common denominator of life or health is proper transmission of nerve energy and the most damaging interference factors where nerve flow affects systems of organization must be corrected.

The primary system of organization is the nervous system. Our whole nervous system was developed to maintain our lives and make activity satisfyingly purposeful. Chiropractors reason that if we accept the premise that the nervous system causes organization, they draw a conclusion: any interference in the nervous system causes disorganization. They reason that any factor which abnormally adds or subtracts impulses to or from the nervous system acts as an interference and causes disorganization. Since the nervous system is so important to the survival of the human organism, they assume that the wisdom of adaptation provides good protection for it. To protect the most sensitive tissues (nerves), the hardest tissue of the body is used (bone).

1.3 Determine the True Cause

Chiropractic treatment is intended to eliminate the cause of a disorder. Upon correction, healing becomes easy. However, chiropractors take a rather narrow view of cause and effect. It is true that there are special cases where adjustments are necessary following injury or trauma. If nerves are being impinged upon due to abnormal pressures on the spinal column, chiropractic adjustments may be helpful.

Since disease is the result of an accumulation of toxins, chiropractic adjustments may bring temporary relief, but the underlying causes have not been corrected. If illness is caused by unhealthful living practices, then these habits must be corrected and a more healthful lifestyle must be implemented. A straight spine will not produce health if you are eating junk food, smoking cigarettes, not getting enough rest and sleep and doing other things that are wrong.

In some cases, Chiropractic treatment may be helpful, but such therapy will only result in health if all the conditions for health are provided simultaneously.

1.4 Subluxation

A subluxation is the condition of a vertebra that has lost its proper position with the one above or the one below or both. The chiropractor holds that a subluxation is the major nonpathological interference factor found in an unhealthy host that can be corrected by nonsurgical, nonmedical techniques, and is the most common cause of disorganization in the human body.

A rapidly increasing tendency on the part of the Chiropractic research and therapy is to seek the cause of disease in the spinal column and to correct that cause by correcting nerve interference. The spinal column, according to the chiropractor, is being recognized as the seat of more abnormalities than any other part of the body structure, and is being held accountable for an increasing number of manifestations of disease.

Dr. Andrew T. Still founded Osteopathy in 1874 based on the principle that disturbances of the musculoskeletal system may lead to disease and that the treatment of this problem should be manipulation. D. D. Palmer insisted that Chiropractic was different because the manipulation of the chiropractic method was a direct, specific thrust on the processes of the vertebrae for the purpose of correcting nerve interference.

Darald E. Bolin, D.C. states, "Neuromusculoskeletal conditions can be considered those disorders arising from the structural and/or functional alterations of the musculoskeletal connective tissues and their attendant neurological complications." The condition of a subluxation, he says, is a neuromusculoskeletal condition in itself. Strains or sprains almost always occur in the spinal column at the subluxations. He maintains that if the subluxation is preventing the natural healing of diseased conditions, the treatment of the subluxation is called for.

Chiropractic principle and practice is to adjust, to open occlusion, to release pressure, to restore normal quantity flow between brain and body, that innate intelligence can, does and will rebuild normal rhythmic energy wave flow to re-establish its normal rate of function, sensibility and cell activity, thus restoring a healthy level.

2. Homeopathy

2.1 History

In 1844, the first American Institute of Homeopathy was established. Homeopaths were much more popular than any other sect of the day during the epidemics of yellow fever and Asiatic cholera. Their practically drugless methods left the body comparatively unhampered in its healing efforts, while the drugging methods of the regular practitioners were destructive to health. Some other reasons for its wide popularity are that it attracted members of orthodox physicians, it appealed to middle and upper classes, and it offered a rationale for their practice—it was not purely empirical as were Thomsonian or Eclectic sects which preceded Homeopathy. In 1857, Homeopathy received strong public support, including that of Horace Greeley, editor of the *New York Tribune*.

Homeopathy was founded by Dr. Samuel C. F. Hahnemann. He stated that, if a physician is aware of the obstacles to recovery and how to remove them, then he understands how to treat judiciously, and is a true practitioner of the healing art. "He has become a preserver of health by knowing those things that derange health and cause disease; he knows how to keep a person in health."

Hahnemann always advocated prescribing the smallest possible dose necessary to help the patient. After the first dilution, one drop of a plant was diluted to 1/100 of its original strength; after the second, to 1/10,000 of its original strength; after the third to 1/100,000 of its original strength. This constituted the third dilution. Hahnemann recommended the thirtieth dilution.

He evolved a method of mixing, dilution and shaking which he called *succession*. The result of this was a preparation which, because of its powers, he named *potency.*

The resulting medicine could be administered in either of two ways, according to Hahnemann. A globule of sugar the size of a mustard seed could be moistened with the thirtieth dilution of the liquid and taken internally. Or, where the patient was "very weak and irritable, one smelling of it is safer and more serviceable than when it is taken in substance."

2.2 A Little Poison Is Better Than a Lot

It was found that the greater the degree of dilution, the more effective the medicine. And although chemical analysis revealed hardly a trace of the original drug in the suspension, the preparation was found to produce a "symptom picture" corresponding to the proving made on a healthy subject.

This is a very crucial point for it really demonstrates that the most powerful healing agent which exists is that resident within the human body. The higher the dilution, the more unhampered is the body in its restorative efforts, hence the "cure" is the most effective. Thus homeopathy is a happy delusion. The value of Hahnemann's practically drugless therapy is demonstrated in the successes that he achieved which were far greater than any of the other medical sects of his day.

2.3 Similia Similibus Curentur

The basis of Homeopathy is: the most successful drug for administering to the ill is that very drug which produces the same symptoms in someone who is well. Thus the similium, the most resembling drug, should be given—"Like should be treated by like."

Hahnemann found that he was sensitive to quinine. He found that after taking a dose of quinine he was soon suffering from the symptoms of an illness similar to those he had frequently seen as a medical student in the marshlands of lower Hungary. In short, except for the fever, he was experiencing the symptoms of malaria. It then occurred to him that if this drug could produce symptoms similar to those of malaria, it then, might be the "cure" for malaria. It is then that he first applied the words to his theory, *similia similibus curentur*—like will be cured by like.

What Hahnemann was experiencing was a normal reaction of the body in eliminating poisons, be they quinine or others, but he misinterpreted these symptoms.

2.4 Requisites of Life Recognized

Hahnemann accepted the medically-valid therapies of his time. He recommended the use of fresh air, bed rest, proper diet, sunshine, public hygiene, and numerous other beneficial measures at a time when many other physicians considered them of no value.

Hahnemann did not attribute his success to the real druglessness of his therapy, but to his homeopathic doses. But there is no doubt that the "cures" which came about were due to the body's intrinsic power to heal itself which were assisted by the above recommendations of fresh air, bed rest, proper diet, etc. Also, the body was not interfered with in its healing process by large doses of drugs, blistering, blood-letting, etc., which were then used by the regular physicians.

2.5 Vital Force

But Hahnemann recognized that in the body there is a self-preserving, self-balancing mechanism that kept it in health in spite of the stress and strain to which man is subject. He used the term "vital force" to describe the balancing mechanism in every living body which promotes, or at, least maintains, health. He wrote that this "vital force" was stimulated by internal and external disorders to build up a reaction to counteract the disorders. The result of them interaction between the "vital force" and the conditions which set it in motion produced various symptoms in the body revealing that an imbalance has occurred, according to his theory.

We know that this vital force is the only true remedial agent that we possess and that the body will heal and repair when the conditions for health are provided.

2.6 Nontherapy Is Best

Hahnemann expected that regular physicians would not greet his system enthusiastically. He called them the "allopathic" schools because they used remedies whose action was opposed to the symptoms caused by the illness, and described their practice by the maxim *contraria contraris*.

Hahnemann, despite the absurdity of his belief, really made one of the great discoveries of his time: he established that, given the existing state of medical knowledge, the absence of therapy was vastly superior to "heroic" therapy. The regular physicians' two basic objections to homeopathy was (1) that the doses prescribed by homeopaths were too small to have any physiological effect whatsoever; and (2) that the cures which homeopaths attributed to their drugs were actually brought about by the "recuperative effects of nature." Both of these statements were very true, and this is why Homeopathy was so successful. Regular physicians did admit that Homeopathy had produced a surprisingly large number of successes. In 1861, Dr. Oliver Wendell Holmes said, "Homeopathy has taught us a lesson of the healing faculty of Nature which was needed."

The homeopaths attacked the regular physicians' use of blood-letting, calomel, blisters, poisons, and the rest of "heroic" medicine as invalid, based on fallacies and speculative reasoning, and unsuccessful in treating illnesses. The regular physicians accused the homeopaths of chicanery in administering drugs which could have no possible therapeutic effects of any kind. From the point of view of the patient's well-being, it is easy to observe which was the superior system.

Homeopathy is still very popular today and widely practiced. However, we may conclude that if heavy use of drugs results in more illness and minute portions of drugs result in less illness, then no drugs at all result in health! It is thus demonstrated that nature is the most effective agent in the restoration of health.

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3. Osteopathy

3.1 History

Andrew Taylor Still, founder of Osteopathy, was born August 6, 1828. Dr. Still founded the first school of Osteopathy in the United States in 1874 and had apparently been developing ideas about the relation of certain diseases to disturbances of the vertebral column at least as far back as 1860.

Probably the first incident in the life of Dr. Still that had any bearing upon Osteopathy, was recorded on pages 31 and 32 of his autobiography.

> "One day, when about ten years old, I suffered from a headache, I made a swing of my father's plowline between two trees; but my head hurt too much to make swinging comfortable, so I let the rope down to about eight or ten inches off the ground and stretched on my back with my neck across the rope. Soon I became easy and went to sleep, got up in a little while with the headache all gone. As I knew nothing of anatomy, I took no thought of how a rope could stop headache and the sick stomach which accompanied it. After that discovery I roped my neck whenever I felt those spells coming on. I followed that treatment for twenty years before the wedge of reason reached my brain, and I could see that I had suspended the action of the great occipital nerves, and given harmony to the flow of the arterial blood to and through the veins, and ease was the effect, as the reader can see."

The power of nature (the body's intrinsic forces) began to be revealed to him and he devised a means by which nature would be permitted to exert her inherent powers. He considered nature as his laboratory. He said,

> "I, who had had some experience in alleviating pain, found medicines a failure. Since early life I had been a student of nature's books. In my early days in wind-swept Kansas, I had devoted my attention to the study of anatomy."

The practice of allopathy had convinced him that the drug theory was radically wrong, and from his own researches he thought he saw the dawn of a better system. He determined to get closer to nature and learn from her the exact truth.

The first conclusion which he made was that an "all-wise Creator" was the designer of our bodies as well as the author of our spirits, and that the human body is, therefore, a perfect machine.

The second conclusion was the fundamental idea of the importance of the arteries and other tubular structures through which the nutritive elements are carried to their destination and the waste materials of the body are carried away to be expelled.

The third conclusion was that of the influence of the nerves and the part it plays, especially in the control of the fluids of the body.

> "This year (1874) I began a more extended study of the drive-wheels, pinions, cups, arms, and shafts of life, with their forces and supplies, framework, attachments by ligaments, muscles, origin, and insertion. Nerves, origin and supplies, blood supply to and from the

> heart, and how and where the motor-nerves received their power and motion; how the sensory nerves acted in their function, their duties, the source of supplies and the work being done in health, in the obstructing parts, to perform their part of the functions of life; all awoke a new interest in me
>
> I believed that something abnormal could be found some place in some of the nerve divisions, which would tolerate a temporary or permanent suspension of the blood either in arteries or veins, which effect caused disease."

In the early years, Osteopathic practice consisted of (1) a physical examination to determine the condition of the mechanisms and function of all parts of the human body; (2) a specific manipulation to restore the normal mechanism and re-establish the normal functions; and, (3) the adoption of all hygienic measures conducive to the restoration and maintenance of health.

This method of practice laid stress upon correct diagnosis based upon a physical examination; removal of the supposed causes of disease through manipulation; and, as an important sequel, wholesome living. The Osteopaths differed markedly from the allopaths of their day by not prescribing drugs. They advocated removing causes of disease rather than treating symptoms. The early osteopaths reasoned that if a part is not doing its duty there must be a cause for it. They said that the cause may be a foreign substance, or a malposition, interfering with the free flow of fluids or the transmission of nerve force, interfering first with function and second with structure. The osteopath then proceeded at once to remove the supposed cause of the trouble, and in doing that set free all the forces of the body involved in combatting disease and maintaining health.

The early osteopaths did not use germicides or antibiotics to kill germs on the theory that germs do not thrive in live tissue, and that every organ within the body as well as all other parts are supplied with nerves that are necessary to keep them alive. Surround the affected area with healthy tissue and the bacteria will soon die for want of suitable nourishment.

Internal cleanliness was said to be essential, but impossible without a perfect distribution of nerve force, nutritious blood, a free circulation of all the fluids of the body, and unimpeded excretion. These are the lines along which osteopaths had proven themselves to be knowledgeable.

3.2 Modern Osteopathic Practice

The osteopath of the present day still relies mainly on manipulative treatment for most diseases, but also dispenses drugs and utilizes all the other therapies of the medical physicians, such as surgery, X rays, etc. Still's emphasis on treating the whole person, however, has remained an ideal of the profession.

There are now 15,000 doctors of Osteopathy in the United States and others who receive their education here are now located in other countries. The profession maintains nearly 300 hospitals with a total of more than 20,000 beds.

Modern osteopathic medicine is a system of medical practice that emphasizes the importance of the muscles and bones of the body and their connecting tendons and ligaments. Osteopathy maintains that the musculoskeletal system, which makes up 60 percent of the body, has important interrelationships with all other body systems. Despite this, present-day osteopathic physicians use all the medical, surgical, immunological, pharmacological, psychological, and other harmful procedures of modern medicine that we, as Natural Hygienists, condemn as destructive of health.

Osteopathic physicians hold that a disturbance in the musculoskeletal system can lead to three main conditions. (1) It can produce symptoms that occur only in the musculoskeletal system itself. (2) It can cause symptoms resembling those diseases that affect other body systems. (3) It can affect the functioning of other body systems connected to the musculoskeletal systems through nerves and the action of hormones. Osteopathic physicians are specially trained in the detection and treatment of musculoskeletal disturbances and they use massages and other types of osteopathic manipulation to treat those disturbances.

In removing these supposed immediate causes, the real underlying causes are neglected. Therefore, health cannot be achieved. The massage and osteopathic manipulations increase the flow of blood and lymph and thereby may help initiate healing, but the wrong-doing that resulted in the disturbances in the first place must be discontinued before true health can be realized.

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4. Naturopathy

4.1 History

As pointed out by Dr. J. M. Jassawalla, Naturopathy is not the invention of any one human mind. It does not place its origin at any given date, but is the accumulation of knowledge and practices pertaining to the natural methods of living and healing throughout the centuries.

The history of "Nature Cure" is as old as the origin of man. All living beings know and practice "Nature Cure" by instinct. A sick dog will automatically fast; cats and many other animals know the importance of a sun bath. Among aboriginal races there were very few diseases in comparison with the diseases found in civilized societies.

Through his work on the subject of diet, Dr. Tilden (in conjunction with such dietetic pioneers as Otto Carque, Dr. Kellogg, Dr. Lindlahr, Bernarr MacFadden and Alfred McCann) considered wrong feeding to be one of the main causes of disease, and wrote several books and pamphlets that are still very relevant today.

Dr. Henry Lindlahr was the first Naturopathic physician to combine in his practice various drugless methods in a systematic and scientific way. Now the school of "Nature Cure" covers not only the original basic philosophy and practice, but also includes other drugless therapies.

The first major development in Naturopathy came in the early nineteenth century in Europe with the pioneering work in hydrotherapy by Vincent Priessnitz and Father Sebastian Kneipp. Father Kneipp, a Bavarian who also went in for walking barefoot through the grass, is said to have cured many difficult cases by having patients bathe in fresh, cool "living water." Ideally, this was water in fast-flowing streams that had been irradiated by the sun. It was said that this water absorbed "curative solar energy." His water *cures* are still given in Woerishofen, Bavaria.

Then there was Louis Kuhne who advocated sun, steam baths, a vegetarian diet, and whole wheat bread. Heinrich Lahmann came along to stress no salt on foods and no water with meals, while Antonine Bechamp proposed the novel theory that it was disease conditions that occasioned bacterial presence and not the other way around. Dr. Benedict Lust called his health program "Nature's Path." In addition to being a naturopath he was also an M.D. and an osteopath. In the early 1900s he established health resorts and battled "the drug trusts." Some considered him the father of American Naturopathy.

One of the first American naturopaths was Dr. John H. Kellogg, a Seventh-Day Adventist. Adventists are a Protestant fundamentalist sect whose members follow a strict vegetarian diet. They adjure not only meat, but all stimulants, including liquor, wine, coffee, tea and tobacco. In 1866, the Adventists founded the Health Reform Institute in Battle Creek, Michigan. Ten years later, Kellogg reorganized the Institute into what was known as the Battle Creek Sanitorium.

Through the years the Adventists, who operate a number of hospitals and health institutions, have been in the forefront of nutritional research, particularly in the area of vegetarianism.

Henry Lindlahr is remembered for his convictions that disease did not represent an invasion of molecules, but the, body's way of healing something. In other words, he viewed symptoms as a positive physiological response—proof that the body is correcting whatever is wrong. Accordingly, a fever is a "healthy" sign and one should let it be.

The next naturopath after Kellogg was Bernarr MacFadden, the physical culturist who built a magazine-publishing empire. (His first magazine was *Physical Culture* founded in 1898.) He advocated exercise and fresh vegetables.

4.2 Present-Day Naturopaths

Today, naturopaths are licensed in seventeen states to diagnose, treat, and prescribe for any human ailment through the use of air, light, heat, herbs, nutrition, electrotherapy, physiotherapy, manipulations, and minor surgery. At present, one can earn a D.N. degree at the National College of Naturopathic Medicine in Seattle and Emporia, Kansas, or the new North American Naturopathic Institute in North Arlington, New Jersey. (There is also a school in Montreal, Canada.) The four-year curriculum covers many standard medical courses—anatomy, bacteriology, urology, pathology, physiology, x-ray reading, etc., but also includes botanical medicine, hydrotherapy, electrotherapy and manipulative technique.

The basic philosophy of naturopaths and Natural Hygienists/Life Scientists are very similar, but differ in that Natural Hygiene offers no cures or therapies. Life Science teaches that only the body can heal and does not endorse the use of herbs, manipulations, surgeries, or other therapies advocated by many naturopaths.

But Naturopathy also holds that the organism will heal itself, regardless of ailment, if given a chance to purge itself of the toxic materials that are the basis of the ailment. This is done by a detoxifying fast and correct life practices after that.

4.3 Naturopathic Views on Health and Disease

Naturopathic treatment aims at eliminating the symptom's, regardless of their diverse appearance, by total cleansing of the body from the inside out. All the different expressions of the body's efforts to expel uneliminated wastes or toxic materials, called symptoms, are encouraged and utilized by Naturopathy. Diarrhea is seen as "nature's enemas," and enemas are considered an important part of body cleansing. This is another variance with Life Science philosophy. We do not advocate the use of enemas because they are enervating and usually result in weakening of the muscle wall of the colon due to stretched and detached musculature.

Sneezing and coughing are reflex reactions by the body to foreign materials or irritation, and are regarded as inconvenient but desirable. A runny nose or a rash is a sign that the body is ridding itself of waste. Since Naturopathy allows all of these symptoms to run, their course, it is not as comfortable at first as medical treatments which occasion immediate relief. Nature's course', however, is thoroughgoing and permanent if causes are discontinued.

According to naturopathic philosophy, the body is not an opponent to be battled against with drugs, but is an intelligent, immeasurably complex living system that will eek its own best good automatically. Given the conditions, your body will automatically heal itself. This is a fundamental of nature-cure. All naturopathic treatments are said to be designed to help the body, to give it the chance to heal itself. However, electrotherapy, hydrotherapy, manipulations, etc., are not natural and interfere with, rather than promote, healing.

Naturopaths hold that the healing power of nature is behind all *cures*, whether with the aid of natural therapies or in spite of medical ones. Your body will heal itself; again, this is the first rule of *nature-cure*.

Another principle of nature-cure, according to naturopath, Dr. Andrew W. Saul, is that all disease, all sickness, all illnesses are differing expressions of one root cause of disease which is termed systemic toxemia. (This is in line with Life Science doctrine.) *Systemic toxemia*, according to Dr. Saul, means a "polluted body." The underlying factor, the common origin of sickness, is a body filled with wastes, chemicals, and poisons. Such a toxic body may express its plight as this disease or that illness, each with its particular set of symptoms according to the body's predilection. These are desperate measures on the part of the organism to throw off the accumulated wastes and toxins, or to cope with its impairing conditions. Toxic conditions result from wrong living, meaning eating wring foods or taking medicinal drugs and chemicals among other things. Over a period of time, often many years, the body's strength is sapped and its natural defenses weakened such at it no longer seems capable of healing itself. The last thing that the organism needs is more pollutants and chemicals added to its toxic burden when it's attempting to cleanse itself. Naturopaths assert they assist the body in its cleansing and rebuilding work with rest, baths, mineral and vitamin therapy and whole, unprocessed foods. A complete fast is used first to give the body the condition to clean house totally. Life Science agrees with the value of fasting, rest and proper diet. However, vitamin and mineral therapy have a drug effect and therefore are deplored.

4.4 Germ Theory Denied

Naturopaths see germs as scavengers assisting in cleaning up wastes. With this in mind, they have confidence that nature heals and that the body will cleanse itself of the cause of illness. If your body is clean and healthy, they say, germs are irrelevant for "susceptibility" does not exist. Germs are not considered causes of disease.

Naturopathic treatment offers the following approach: first build health, and illness will automatically decrease. To let the body cleanse itself is to let the body cure itself. Dr. Andrew Saul defines Naturopathy as "a system of therapy in which the patient is treated without the use of medical remedies of any sort, but with correct dieting, exercises, baths, fasting, manipulations, etc." Dr. Saul states that the first and- most fundamental principle of *Nature Cure* (Naturopathy) is that all forms of disease are due to the same cause, namely the accumulation in the system of uneliminated body wastes and toxic ingesta. The second principle of Nature Cure, he says, is that the body is always striving for its good no matter how ill-treated; and that all acute diseases are nothing more than self-initiated attempts on the part of the body to throw off the accumulations of impairing substances which interfere with its proper functioning; and that all chronic diseases are really the results of continued causes and suppression of acute diseases by devitalizing drugging and therapies.

The third principle of *Nature Cure*, according to Dr. Saul, is that the body contains within itself the power to bring about a return to a normal condition of well-being known as health, providing the right methods are employed to enable it to do so.

British naturopath Harry Benjamin, N.D. writes:

> "Germs take part in all disease phenomena because these are processes requiring the breaking down or disintegration of accumulated refuse and toxic matter within the body which the system is endeavoring to throw off. But to assume, as our medical scientists do, that merely because the germs are present and active in all the decomposition processes connected with all dead organic matter, they are the cause of the death of the organic matter, is in question. Germs are part of the results of the disease, not its cause."

4.5 A Healthful Lifestyle Advocated

The view of naturopaths throughout the world is that we are the product of our dietary and lifestyle, that our ailments have basic causes, and that the way to eliminate disease is to establish the conditions of health. Fundamental causation of illness cannot be blamed on germs, bacteria, the weather, or even unsatisfactory medical treatment. We must look to ourselves for the reason—therein lie the causes of illness. We must look to ourselves for the answer to the problem.

Hunza people eat largely natural foods and are healthy. We eat largely unnatural foods and are not.

Naturopathy holds that a natural whole foods diet is of the highest importance in the maintenance and improvement of health, and that a scientifically-prescribed diet is of the proven method to *cure* disease. The scope of Naturopathy includes the total investigation and utilization of all Nature's vitamins and materials to promote health. They say that if your nutrition and lifestyle are truly natural, then illness will not be a part of your life. Sickness does not occur in a healthy body.

4.6 Bach's Flower Remedies and Schuessler Cell Salts

Bach's flower remedies are used by some naturopaths. Dr. Edward Bach was an English medical doctor and bacteriologist who left his practice to devote himself to studying the supposed healing properties of flowers. He claimed that flowers contain energies, which, when suitably prepared, appeared to heal an individual's disease on the level of the individual's temperament, attitude, and disposition. Dr. Bach was convinced that all disease ultimately stems from a person's wrong states of mind. If someone is chronically unhappy, or always worried, or constantly afraid, etc., then these states give rise to physical illness. According to Dr. Bach, by using a dilute flower extract, the person's temperament or attitude is healed, and therefore healing of the body follows.

There are 38 flower remedies, each prepared by floating the blossoms in spring water while exposed to sunlight for a few hours. The resulting solution is then extracted with alcohol and bottled. The extract is diluted again with pure water for use, and a few drops taken in a glass of water. The remedy is also taken dropped on the tongue or lips. This is reminiscent of homeopathic practices in many aspects.

Schuessler cell salts are also administered by some naturopaths. Twelve cell salts were recognized and categorized by a German biochemist, Dr. William H. Schuessler in 1873. He found that there are certain essential minerals that the body requires, in proper balance, in all of its cells. An imbalance or a lack of any of these minerals may lead to disease in the tissues so lacking. Providing the missing minerals to the tissues corrects that imbalance, it is said, to eliminate the illness.

Most Schuessler cell salts are in a homeopathic potency, which uses minute quantities of a substance. Schuessler remedies are commonly in a "6x" homeopathic potency.

The twelve Schuessler cell salts are as follows: Calcium Fluoride, Calcium Phosphate, Calcium Sulphate, Ferrum Phosphate, Potassium Chloride, Potassium Phosphate, Potassium Sulphate, Magnesium Phosphate, Sodium Chloride, Sodium Phosphate, Sodium Sulphate, and Silica.

Both the "flower remedies" and "cell salts" are only "valuable" in that they do relatively little harm when taken in such small homeopathic doses and they may give the patient a psychological "lift." They cannot, however, have any power to heal. Their only potential is harm for they do not attempt to remove causes—they fail to recognize real causes. Further, inorganic minerals are toxic in themselves.

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5. Illusion And Disillusion

Many of the methods of treatment which were often advocated by physicians during the19th century and before are today considered useless, and, in fact, life-threatening. But the physicians during that time persisted in such practices as bleeding, blistering, purging and the use of heavy metals because they witnessed patients "recover" following such treatment. This, however, was an illusion. If the patient recovered at all, it was in spite of the treatment and certainly not because of it. Many people did die because of their treatment, but physicians did not recognize that the treatment itself was the direct cause of these deaths, attributing that to the disease. However, doubters soon began sounding objections, and the theories of the regular school began to crumble. Physicians fell victim to their delusion. Learned men of science and respected people in the community were practicing under the illusion that such "heroic" treatment would cure. Out of this illusion came disillusion to many, and thus there were cries of objection and new healing sects sprang up out of desperation.

The urge to make new discoveries along with preconceived ideas and autosuggestion, together with the desire to break new ground, drives men to make certain conclusions from observations which are deceiving. An example of such deceiving observations may lie in the supposed "healing power" of the homeopath's drugs, or the neuropath's Schuessler salts, or the manipulations of the osteopaths and chiropractors. General good reason tells us that there is no magic power in any homeopathic drug that could cure arthritis, or eliminate kidney stones, or heal a wound. We know that only our own body can do this by the methods described in earlier lessons. If we observe an individual being restored to health after a manipulative treatment, we must not be so quick to accept this illusion. One must investigate further into the history of the illness and the mode of treatment, and the conditions favoring restoration. If the patient was first taken off of medical drugs, placed on a better diet, and provided other requirements for health, and then given a treatment or cell salts, we must not immediately credit the treatment or cell salts for the cure. The fact that the homeopathic cell salts were far less harmful than the previous drugs that were taken and the fact that the conditions for healing were provided, gives the body an opportunity to heal itself. Keeping this in mind, the illusion becomes obvious.

Harm comes when people become so convinced of these illusions that a more rational approach is not sought. You must, therefore, strive to become independent thinkers. You must begin to question "cures" that do not sound reasonable to you and then seek the truth by seeing things from the rational perspective of Life Science.

If a certain drug is found by the medical community to be harmful and is taken off the market, you are told that you should not doubt the effectiveness of all of these agents. However, you should not allow yourselves to be deceived by them. You may feel better for awhile after taking one of these symptom-suppressing agents, but your so-called "cure" is a deception. Your "cure" will not last. You must be alert to these deceptions and illusions.

Re-education is the key for recognizing misleading illusions. By constantly seeking the truth we will be led to he true cause of disease, and from this we may know how to maintain health.

Any violation of biological law, that is, physiological law, always results in impaired health. This would include any violation against sleep requirements, proper foods, air, water, sunshine, exercise, etc. The body's ability to adapt is remarkable, but health is a delusion when you attempt to produce it by drugs. Under such circumstances, the body will inevitably become exhausted and chronic illnesses will ensue.

Human conduct is affected by environmental factors which may be psychological or social as well as biological factors. Many types of mental deficiencies are considered congenital. Although such diathesis may be inherited, they will not necessarily develop, providing all the conditions for health—both physical and mental—are provided to the child.

The child's physical and mental health tendencies are implanted in his genes at the moment of conception. During the next nine months, the child's environment consists of the mother's womb. Here, the child may be affected by different influences and it is imperative that the health and living habits of the mother be correct. We should not fool ourselves into believing that nothing can be done about hereditary traits because something can be done. But it must begin before conception and involve healthful living practices of both parents.

Alcoholism, drugs, X rays, wrong foods, etc., affect the fetus. It would be an error to dismiss any of these factors in the role of mental and physical health. You must not allow the delusion of these agents to affect your decision to utilize them, especially when the health of a future human being depends on your decision.

It is very easy to be deceived today concerning our health and well-being. The public media is flooded with advertising campaigns which involve a host of health-robbing agents. This would include coffee, alcohol, cigarettes, and "junk foods."

Our weapon against this misleading information is education so that we may learn the truth; so that we may eschew those things which destroy our health. Your health is your most valuable asset. In the world today, health is a commodity which requires a conscious effort to keep, but superior health is well within the grasp of every living being as long as they obey the "Laws of Life."

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6. Questions & Answers

How can I eliminate my backache if I do not receive chiropractic adjustments?

In most cases, pain in the back is due to toxic accumulations. The most rational mode of action would be to fast, thus freeing the energies needed for detoxification, and then go on a normal Hygienic diet. When you feel better, begin a good exercise program and your back will mend.

Why do some naturopaths employ the use of herbs, electrotherapy, physiotherapy, manipulations, vitamins, minerals, etc.?

Many naturopaths are looking for "cures" to sell just as are the medical doctors. They do not fully realize that the so-called "disease" is the cure and it is the body's way of eliminating toxins and initiating healing. If left alone, the disease will terminate itself.

How do you explain the success of the homeopaths and their popularity today?

The homeopaths prescribe drugs in such minute doses that the body can eliminate these poisons much easier than those prescribed in the regular large doses of the medical doctor. Therefore, the body is relatively unhampered in its healing efforts. So, it is still the body that heals and effects the "cure"—not any drug. The homeopaths would be even more successful if they prescribed no drugs at all and addressed themselves to removal of causes.

Is Osteopathy similar to that of regular medical practice?

Present-day osteopathic practices are similar to regular medical practices. Osteopaths prescribe drugs and all the other therapies used by the dominant school of medicine. The major difference is that the osteopath also uses manipulative therapy and the medical practitioners do not.

Article #1: What Is Naturopathy? by Dr. Herbert M. Shelton

Will the wonders never cease? Will the inventive ingenuity of the therapeutic dabblers never run out? Will the naturopaths ever "return to nature" and cease running after false gods?

Recently a four-page circular was deposited in our box at the Post Office. It was sent to us by the leading lay Naturopathic journal in the U.S. The first page is an ad for the magazine. The fourth page carries an ad of two Chiropractors in Missouri who say: "Natural methods approved by leading drugless doctors throughout the world are used in this office."

It is no secret to the readers of this magazine that chiropractors no longer believe in Chiropractic and are employing everything under the sun that any of the other schools of miscalled "healing" are employing. There are probably not more than three Chiropractic schools left in the world, although there are several that still call themselves schools or colleges of Chiropractic. Every "Chiropractic" magazine that comes to our desk is devoted more to physiotherapy, endocrine therapy and "diet" than to Chiropractic.

It is unfortunate that when chiropractors abandoned Chiropractic they did not go forward to something better instead of following popular commercial trends into something worse.

But I did not set out to write this article for the benefit of the Chiropractic profession. I want to discuss the inventive ingenuity of the naturopaths. Naturopathy, as defined by its leaders and its schools, is being practiced, under one name or another, by practically the whole drugless world. Ninety-five percent of the chiropractors are practicing Naturopathy. And this reminds us that D. D. Palmer, alleged discoverer of Chiropractic, was a life member of he American Naturopathic Association; also, that here in Texas a large group of chiropractors have formed a Naturopathic Association and are seeking a law to license them as naturopaths.

On page three of the circular that "inspired" this article is an ad of a "health-building specialist and foot correctionist: Graduate Naturopathist, Masseur and Physiotherapist" of Iowa. He offers to the people of B. J. Palmer's home town, the following cures:

- Complete Drugless Health Service
- Swedish Massage and Movements
- Vapor Baths and Hydrotherapy
- Ultra Violet Ray and Infra Red
- Short-Wave Radio Therapy
- Arch Supports Built to Fit
- Personalized Notes on Health Building and Feet

Hereafter if anybody dies in Davenport, Iowa, it will be their own fault. This man certainly has enough machinery that he can push an electric button or turn a switch or he can "use his hands" and get everybody well.

Why do so many naturopaths and chiropractors still advertise themselves as "foot correctionists"? Do they not know that Dr. Locke is dead and that his fake cure died before he did? Why not try twisting ears for a while? I guarantee that twisting the ears will cure as many diseases as twisting the feet.

Turning to page two of the circular I see an ad for 'Topeka's (Kansas) Naturopathic Physician." While he uses "no drugs, no serums, no surgery" he "is now using OCTOZONE OXYGEN, the new European treatment."

"OCTOZONE is an active form of pure oxygen—a natural element of the air discovered by Eugene Royer, the French physicist. A powerful germicide and detoxifying agent, it charges the red blood cells with oxygen, revitalizes the cells and tissues, and produces energy by strong oxidation. The function of oxygen in the blood is to convert nutrition into energy. These properties make OCTOZONE a valuable treatment in a wide variety of conditions and many cases receive benefit not otherwise obtainable.

"Arthritis, neuritis, sinusitus, colitis, sclerosis, catarrhal deafness, pelvic infections, and other conditions of infectious origin have responded to this treatment and in some cases have been astonishingly rapid. (It is not clear here whether it is the "condition" or the "treatment" that has been "astonishingly rapid." Ed.)

"Anyone sick and discouraged should investigate Dr. ...'s SYSTEM OF HEALTH BUILDING, which in addition to OCTOZONE includes all acceptable (acceptable to whom? Ed.) drugless and natural methods, such as short-wave diathermy, cold quartz ultraviolet rays, specific light waves, galvanism, colonic irrigation, natural foods, manipulative therapy, and personalized notes on health building."

Surely, here is a combination of machines and "use of ands" that will *cure* almost, if not quite, all the diseases in Topeka and the surrounding country.

There are plenty of naturopaths in the country who denounce these machine-shop methods and declare that they have no place in Naturopathy. There are plenty of naturopaths who scoff at these push-button doctors and refuse to recognise them as naturopaths. But how are we to decide what methods are Naturopathy and who are the real naturopaths?

The founder of Naturopathy defines it as "organized drugless healing." The above methods resemble chaos and do not seem to us to be very well organized, but they are drugless. As the naturopathic schools (the few that are left), are teaching these methods, hundreds of naturopaths are using them and the naturopathic journals carry articles about them, and ads urging them upon the practitioner and patient. I think we are safe in assuming that the new naturopath (neo-naturopathy) is a machine-shop operator. I assume that now that we have machines to give us "an active form of pure oxygen" we will no longer need our lungs and respiratory muscles. We can dispense with breathing and let the machine charge our red blood cells with oxygen, which we are surprised to learn, "is a natural element of the air."

But now that we have octozone and octozone machines, what are we going to do with our old stand-by, ozone and the ozone generators? What is to become of terpezone and the terpezone chambers? It will surely be heart-rending to have to discard those older loves for a new one.

I often wonder what the feeling of a patient must be when, upon first entering the office of a neo-naturopath, he sees there a vanload of Goldbergian gadgets designed to manufacture health. He hears the purr of the motors and the hum of the machinery; sees the vari-colored lights as these flash on and off and smells the odors of ozone, terpezone, octozone, and of other smelly things. Looking around on the shelves he sees various-size boxes and bottles wearing fancy labels and wrapped in cellophane, containing vitamin pills, food concentrates, gland extracts, laxatives and various herb "remedies."

With credulous awe he must think to himself as he begins to disrobe for the ceremonials he is about to go through: "Surely now, I have found the right 'doctor.' This man certainly has enough machinery to manufacture all the health I need."

Some of the larger and better stocked of these machine shops have gone in for mass production. Health is turned out on the line like automobiles. They advertise that they treat three hundred patients a day —"each patient receives my personal attention."

It may amuse my readers; it may disgust them; they may react in various ways; but it is a curious fact that these push-button doctors all insist that their gadget-treatments are natural and that they are practicing "nature cure." Even their vitamin pills (often so-called synthetic "vitamins") and their food concentrates are "natural foods." Their thinking is as artificial as their methods: the machine age has run away with their feeble minds.

If Naturopathy did not change so much, so often and so rapidly, we might be able to find out what it is, but with its rapid kaleidoscopic changes it defies definition.

Reprinted from Dr. Shelton's Hygienic Review June 1942.

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Article #2: Hygiene Vs. the Cures by Dr. Herbert M. Shelton

The medical dictionary defines cure to mean: "The course of treatment of any disease, or of a special case. The successful treatment of a disease or wound. A system of treating disease. A medicine effective in treating disease." Thus do meanings of words change. From the Latin, *cura*, which is synonymous with our word *care*, *cure* was originally applied to the care of the healthy individual, then to the care of the sick; now it is defined as a method or means of treating disease or as a medicine effective in treating a disease. Once it also had the significance of a reinstatement of health in an organism that was recently sick, but even then, in both common and professional acceptance, it had reference to the means whereby this was supposed to be accomplished.

A drug was said to be a "cough cure," or a cure for constipation, or for some other disease. The present definition that it is "a medicine effective in treating disease" is ambiguous, in that it fails to define what the "medicine" is effective in doing. Few of medicine's "effective medicines" are claimed to do more than provide a little evanescent and doubtful palliation. Be this as it may, the sick would hardly be said to be *cured*, however perfect the recovery, without the employment of some drug or treatment. *Cure* is wrought by some foreign or external aid.

The sick are treated as they are clothed and physicked (drugged) as they are fed, in the confident assurance that, in either case, they are being fitted and burnished for new services. Hence it is that *cure* has reference to external rather than to an internal recourse. Call it a medicine or a course of treatment, the *cure* is the work of something outside the living organism, not the result of the body's own healing work.

Living things alone are subjects of the *curative* efforts of those who profess to be able to heal and it is the different estimates relatively that are credited to the vital, organic or recuperative forces, and the part that treatment plays, that serves as the basis of the different views entertained of the subject. Apparently most members of the various schools of healing deem that disease is a destructive something that will inevitably consummate its malevolent work unless opposed by some counteracting and neutralizing power, the forces of life being little more than a spectator on the sidelines, until the disease is either vanquished, accepting the victory wrought in their behalf, or the patient dies. There are among these various practitioners, those (relatively few) who award some credit to the processes of life, if these forces are *stimulated* or goaded by measures capable of exciting or arousing their actions defensively.

Outside the schools of *curing*, there are those who place no dependence on any other means than those of organic recuperation and reconstruction, or in those all-efficient processes and means that continue the vital or organic changes in the healthy state. These hold that healing is a biological process, as much an activity of life as nutrition, respiration, excretion, etc., and that it requires no goads to action.

All the many schools of *curing* that have existed in the past and that exist now, with all their many and opposing theories, and their many and conflicting practices, have existed and acted under the assumption that all desirable ends in cases of disease have been and are affected by medical treatment.

Scarcely any reliance has been placed upon the intrinsic vital capacities. At all times the big question in medical investigations and actions has revolved about the matter of the qualities, quantities and times in which medicines are useful.

Obviously there has been a mountain of error in all this theorizing and empirical practice. Schools of medicine and modes of treatment have followed each other into oblivion in a melancholy succession, leaving scarcely a trace behind. It has been assumed that what we call symptoms of disease are necessarily and invariably evidences of a destructive process; that a great variety of substances known to be inimical to health, are yet, also, antagonistic to disease; that on special occasions such substances may constitute special vivifying means, differing from those usually necessary, performing on local structures *curative* acts that differ from the ordinary nutritive and reproductive processes.

Writing in November 1954, George H. Taylor, M.D., said that the Hygienic or Physiological School "endeavors to show that these assumptions are to be taken, if at all, with many qualifications, and that the present state of science fails to warrant, or absolutely repudiates them." On this occasion he also pointed out that the Hygienic school "seeks to guide those liable to suffer from disease to a true knowledge of themselves, and to the probable causes of their physical miseries," and finds redemption "in the discipline and correction of faulty and perverted functional habits."

Taylor said that the Hygienic school abjures entirely the empirical or experimental practices of the *curing* schools, and refuses to admit, as untrustworthy, the ambiguous evidence in favor of such practices. Admitting that, even with the same data upon which to reason, there would be differences in judgement, he asserted that "life and its invariable phenomena, rather than medicine and its uses, should furnish the proper field of inquiry." From such a study is to be gained a knowledge of how the living organism behaves under different circumstances; we would learn what life ordinarily does, and how it will act under constraint and compulsion, and what are the proper conditions for its ascendency over the causes of disease.

As he pointed out on the occasion, we can never weigh or measure the vital principle, but we may observe the circumstances that attend its operations, its work, its invariable conditions, its laws, what it does, and that on our understanding of these we must base our actions in reference to it, both in health and in disease. All of this simply means that, whatever may be the essential nature of life, our behavior towards the body, whether well or sick, must be, if it is not to be harmful, consonant with human physiology.

A living organism grows, reproduces and multiplies its parts and, by this repetition extends itself. To do this, it selects from its environment such materials as it has the capacity to make into parts of its own structure, and as promptly rejects and refuses all other substances. These are necessary conditions to the maintenance of its vital integrity. In the one-celled organism, in the higher plant or animal, wherever we see life, selection and appropriation of food, assimilation and growth, and refusal and rejection are constant actions, and the energy of these actions must gear a constant relation to each other, for the living organism seeks its own welfare in all acts. As the constitution of the living unit is uniform and invariable, it necessarily follows that all external substances must be of three kinds, namely:

1. Materials that are identical with or are susceptible to being transformed into the same form as that of the living structure and are related to the organism as *nutriment*.
2. Substances that may be described as *indifferent* giving rise to no change upon contact, but may serve as a needed medium, for example, water.
3. Substances that cannot be transformed into cell substance, but the relation of which, to the vital structure, is one of antagonism, and in varying degrees of intensity, is destructive of the integrity of the vital organism, and are properly classed as *poison*.

We may properly think of water as belonging, essentially, to the first classification, as it is essential to all vital actions and vital syntheses. Viewing matter in this light, then, all substances with which the living organism comes into contact are either food materials or poisons. The class which we call poisons is very numerous and composed of a number of subdivisions—indeed, this class is almost as various as the number of elements and chemical compounds, after we have subtracted nutriments.

When nonusable substances are brought into contact with the cells, they must be resisted, rejected, expelled. The actions by which these poisons are resisted and expelled have long been mistaken for actions of the poisons. In sober fact, the so-called actions of drugs (poisons) are actions of the living body. These actions are but phases of the primordial activities of the living organism in rejecting and casting off materials that cannot be normally appropriated into living structures.

Animal organisms are made up of parts and each of these parts is composed of lesser elements, each of which has a quasi-independent existence and exercises its own peculiar powers of action, and is capable of its own peculiar affections, hence the application of foreign substances to the general organism, through the circulation, gives rise to local effects in keeping with the characteristics of the parts affected, all of which are disturbances of the normal functions of the various parts, and this tends to impair and degrade and not to elevate the local function.

All this results inevitably from the *invariableness* that characterizes the constitution of living organisms as much as it does inanimate things. The same constituent elements and the same conditions of warmth, heat, activity, etc., are employed in the composition of each individual of each species, wherever produced or reproduced; the same laws ruling that are observed to rule other individuals. In the whole evolution of an organism and its activities, effects change in relation to changing conditions, but the laws governing these operations never vary.

Because of this *invariableness*, all attempts to impose materials or conditions upon the organism other than those that normally and naturally belong to it, are met with determined resistance, and can result only in a waste of its formative elements and actuating energies. The constant and orderly development of forms with which the forces of life are connected, and on which the functions and activities of life depend, is thus retarded and even perverted.

The broad page of nature, with its infinite diversity, is but a statement of these principles. Organization, whether we regard it as something apart from the ordinary chemical and physical forms and forces or a special application of physical and chemical forces, is no less subject to fixed principles and invariable laws. Its almost infinite variety of manifestations are expressions of the values of the forces that inhere in particular organisms under special conditions. Matter itself undergoes no change in its intrinsic qualities.

All the importance that attaches to the effort to manage health and recovery by drugs, arises out of a failure to recognize the foregoing principles. They arise out of a mistake in the essential nature of the actions occasioned in the vital organism by the administration of drugs. The very liberality of man's constitutional endowments makes possible the great number and variety of actions that are and have been mistaken for the actions of "remedies."

Considering the nature of man, and his many constitutional capabilities, it should be evident that the variations in his health and the multitude of symptoms which occur, arise out of his complexity of structure and function as much as do the many actions that have, been mistaken for drug actions. It is the human organism, and not simple lifeless chemical substances, that is capable of such a wide variety of behavior patterns. Rightly considered, these many capacities for action are evidences of man's superiority, not of his defect.

Dr. Taylor thought that "the utmost reach of power demands the utmost freedom of its exercise," and pointed out, in this connection, that, the ends of man's intellectual existence "could not be attained by confining him to a fixed point of temperature, or locality, and a consequent uniform subsistence." To meet the requirements of his intellect, man requires a highly complex and plastic organism. The human organism is capable of accommodating itself to a great variety of circumstances, making use, in so doing, of a variety of means of adjustment and adaptation.

Man is possessed of organs and systems of organs that, in their normal functions, act reciprocally to secrete and excrete, adopt and exclude, to the end that physiological equilibrium be maintained. With such marvelous means of adjustment at his command, man evolves no disease, so long as his needs (supplies) are filled and waste is rejected. Only when he has reduced his functioning powers so that waste is incompletely expelled, nutrition is impaired, secretion is checked and vital processes are hampered does he become sick, i.e., his body embarks on an emergency course of liberation and restoration.

If we exclude those "diseases" that result from poisoning by drugs or similar toxic substances taken in from without, disease is the result of impairments or imperfections in the functions of the body which permit the accumulation of endogeneously generated toxin, the imperfection of function growing out of reduced functioning power (enervation) which, in turn, results from the dissipation of the energies of life. This is to say, disease is autogenerated. It is not an attack upon the body by an outside foe, but a consequence of violations of the conditions of a healthy existence.

Since the principles and conditions of vital as well as of chemical actions are fixed and do not change because the organism is sick, it becomes plain that the professionally-induced "medicinal" disease cannot possess the intelligence or power to restore health. Recuperation and recovery are never the results of so-called medicines, but are always the results of the operation of the organic forces and of the conditions that usually maintain health. Health is to be restored, as it is to be preserved, by conforming to the healthful conditions laid down by nature.

This will be met with the assertion that good effects are seen to follow the administration of drugs; we will even be assured that drugs can and often do save life. The record of experience will be appealed to, to substantiate this position. Case histories and case records will be paraded in evidence. Such "evidence" takes no account of the self-healing powers and activities of the organism and, at the same time, assumes that the drug effect is additional to that of the healing work of the sick body. True, there is additional action—the activity needed to resist and expel the drug. The vital actions are changed, not helped.

Any benefit accruing to health must come, either through the ordinary physiological processes or through some temporary, even, perhaps dramatic modification of these to meet special occasions, and these can work only with the normal things of life: food instead of poison, rest instead of *stimulation*, sleep instead of *narcosis*, air instead of drug fumes, warmth instead of mustard plasters, etc., etc.

Those substances that the living structure cannot, appropriate and use, but must reject in a state of health are equally nonusable and must be rejected in a state of disease when the powers of life are lowered.

Drugs can only further impair and depress vital powers. Drugs morbidly occasion the diversion of the very functions and processes upon which the body must rely for purgation and healing. This may so devitalize the body that it must suspend its healing efforts—symptoms are suppressed .

Finally, it must be observed that, in treating the sick with drugs, no lesson is taught, no discipline is enforced, and no condition is instituted that is of any value in health or in a subsequent state of illness. The intellect of the patient is left a blank, his body a scene of devastation. The patient does not know why he was sick, nor how he recovered, and he does not know how to avoid becoming sick again.

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Lesson 89 - Introducing Clients To The Need For A Lifestyle Change

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1. What Do You Mean By "Change In Lifestyle?"

In the context of this lesson we will understand the concept of change in lifestyle to include those changes in both living and eating habits which are deemed by the practitioner as being essential for the restoration and maintenance of whatever level of health the present condition of the client will allow.

The client, guided by a knowledgeable practitioner, will be encouraged to leave the old ways that have failed him in the past and embark upon a new path, one designed especially for him but one which is based upon the known laws of life, so that he can more fully realize his birth potential.

The client must be given to understand that he will be required to make some changes; that he will have to discard many of his former familiar, but false, beliefs and habits which cumulatively and progressively were responsible for his present unfortunate condition, whatever these may have been; that he will now be required to adopt more scientifically accurate, biologically appropriate (but, perhaps to him, somewhat strange) ways of eating and living.

It is important at the very beginning of a new relationship with a client to establish the fact that superb health is normal and that any deviation therefrom is totally and perhaps even inexcusably abnormal, being the result of certain errors in living and eating. He should be given to understand that some changes will necessarily have to be made abruptly and quickly; others perhaps less so, depending on what degree of health he wishes to achieve, and how fast.

The client must be brought to an understanding that superb health is a possible goal, but one that can be achieved only as certain changes are made to meet the structural and functional needs of the living body, sick or well, these being dictated solely by the nature of the human body, the way it is put together; by its ability to adapt slowly or rapidly, to change; and by the fact that the present condition of the client, whatever that may be, is the result of how well, or how poorly, these needs have been met during his lifetime.

The client must develop an understanding that superb health is a possible goal, one that he can achieve just as surely as hundreds of thousands of persons equally ill have done in the past and are presently doing, once they came to realize that they had to make certain biologically approved changes and then proceeded, always with careful guidance, to make them as and when required and as rapidly as individual circumstances warranted.

We must be able to convince our clients that we have either ourselves witnessed and/or learned about people just like them, through our research, who left the old ways of eating and living, the old ways of sickness, fatigue and premature death, and embarked on a new adventure which required certain adjustments on their part, new ways of thinking, definitive changes, some difficult to make but most actually quite easy and, in the doing, found to their great joy and personal satisfaction, that they had accomplished exactly what they had set out to do: they had attained their personal goal, they had even improved their health to an extent far beyond their earlier hopes.

Many began as physical wrecks and without hope but, before long, they had become eager participants in a manner of living and eating that they were now convinced, because of their happy results, would bring them full recuperation and regeneration of body, mind and spirit. And, given sufficient time, they fulfilled their dream.

Those who intelligently recognized the need to make the necessary changes and then subsequently followed through in the doing, successfully overcame arthritis, depression, obesity, acne, breast tumors, asthma and a whole dictionary of affections, many deemed by the "authorities" as being "incurable."

1.1 False Ideas Restrain

False ideas, old health-destroying habits, the disorders of life, drugs of all kinds, and all excess, these must all be cast aside in favor of new ways, new habits, new foods that encourage body building. Order and restraint must enter and become incorporated into the life plan, but there must come, also, a sense of adventure, of excitement, an awareness of one's living body, a deep inner conviction that, as the ways of health replace the ways of disease, suffering and death, superb health will follow as naturally as the stars come out at night to glow and grace the darkened sky after the day has been spent.

1.2 Where Life Exists, Possibility Is

The professional practitioner must remember and convey to his most seriously-ill clients that where life exists, possibility is and will remain. This attitude must place the despair that so often pervades the mind and restrains progress. Tell your clients, in advance, if need be, that it is possible to foretell or predict what an individual body is capable of achieving when it is provided with the necessary wherewithal of life. Change in attitude may well be the most important change the more seriously-ill person needs to make. So many have had all hope taken away£ from them by one person or another or by one defeat after another, and the future looks dark. Just as the carpenter requires the tools of his trade to build a worthy structure, so must they receive the necessary nutrients of life to restore them to health and, thereafter, to maintain it in full capacity. It must be made clear to all clients that, in order to reach that longed-for goal of full health, change must become a part of their daily living, and not a once-in-a-while thing.

The changes of which we speak are, of course, by the very nature of the life process, all based singly and separately on the basic requisites of organic existence already delineated in this course. Each and every one, without exception, must be incorporated into the lifestyle of the sick and the well, as need and capacity so indicate. These requisites should be set forth by the practitioner in a pattern for performance that is deemed appropriate for each client as his individual capacity to accept and utilize may warrant at the time, and adjusted as forward progress is made.

We must convey to the client that the body is a unitized whole and that we cannot neglect any single aspect of living unless we either completely destroy or limit the whole and that only as *all* the requisites of life, known and unknown, are incorporated into the life script in amounts appropriate to each individual, depending upon his present state of health, will wellness of one cell and all cells together, the totality, be achieved.

2. The Need To Inspire The Client

2.1 Establishing the Goals

In order to obtain maximum cooperation and subsequent performance, to say nothing of reaping the rewards of correct eating and living on the part of the client, it will be necessary for the practitioner to convince the client that following the regimen that you recommend to him will benefit him in ways which are, to a certain extent, predictable well in advance and, to a certain extent, with a fair degree of accuracy.

Predictability is so because we humans are basically the same. We possess gross details that are quite similar, it is only in the minor ones that we differ. Therefore, when we behave in a manner contrary to our fundamental needs, we can predict with surety that the health of the totality will diminish and in an exactly equal amount. But, the opposite is true, also for when we answer our body's fundamental needs, and do so in all respects, the body responds by discarding the old in favor of the new; in other words, like the contractor called to make repairs on a dilapidated building who must first tear down before he can rebuild with new and better materials so, too, must sick persons discard, before *they* can rebuild!

2.2 Attitudes Are Contagious

Attitudes are contagious, so it is important for the practitioner to present the possible benefits which can accrue to the client in an enthusiastic and convincing manner. In other words, as practitioners we should avoid the "pie in the sky" approach in favor of more reasonable immediate goals, ones attainable, in most instances, fairly easily and within a comparatively short time.

These goals can range from the physical (the elimination of certain rather minor digestive troubles, for example), the cosmetic (losing that look of utter fatigue that so many of our clients wear on their first visit), and even economic (no longer required to buy this or that drug or prosthetic gadget).

The list of possible benefits, of course, could be extensive, but several, comparatively easily attainable, immediate goals can and should be established initially and, then, others advanced from time to time as the need for further encouragement may arise.

2.3 Keeping on Target

Sometimes clients require being reminded of where they have been, where they are now, and where they are going; kept on target, as it were. Presenting the little goals, the "baby steps" we so often talk about, can usually convey to the client sufficient inspiration to keep him following the straight path to complete freedom from disease and suffering.

The client should be told that you, the teacher, will provide him with the necessary training to enable him eventually to "go it alone," and this, too, in a relatively short period of time; that he will be able to overcome whatever problem is troubling him on his own without having recourse to his former "run-to-the-doctor syndrome."

It will be necessary from time to time to discuss with the client the importance of his becoming so knowledgeable about the science of life (Natural Hygiene) that he will feel confident to "go it alone," to take charge of his own Self. This concept, of course, should be discussed preferably before he experiences his first healing crisis, or else he may become completely confused or even disillusioned.

2.4 Veras's Story

The case of Vera illustrates this last point beautifully. Vera, a woman in her early 50s, was suffering from a very bad bronchial disorder which had troubled her for well over 15 years. In addition to the lung involvement, she experienced angina "attacks" from time to time. The doctor had told her she had a severely weakened heart muscle and must be careful not to "overdo."

Vera's medications consisted of nitroglycerine tablets, antibiotics, steroids from time to time (prednisone), and digoxin, all of which she took from time to time as directed by the family physician. Additionally, on her own, she took a multitude of vitamins and had done so for years. In spite of all her "treatments" and the various medications, prescription and nonprescription, her energy level remained dangerously low and her ankles and legs remained swollen with edema. Vera was a very discouraged woman.

Vera had been referred to us by a pastoral counselor in whom she had much confidence and, since she was already seemingly convinced that the medical "treatments" offered had failed her in the past and were certainly not helping her now, she had agreed to "try" Natural Hygiene.

At our initial meeting, we reviewed Vera's eating diary which, as suggested, she had kept for the previous two weeks. It was obvious, of course, that most of this client's troubles were the result of a lifetime of incorrect feeding habits, and that a primary need was to detoxify her body.

However, we learned that her husband, Joe, was suffering from severe mental depression, caused no doubt from worry about his wife's condition. He had been forced to take a temporary leave of absence from his work. Under the circumstances, Vera felt that it would be inadvisable for her to go to a fasting retreat at this time.

Therefore, it was necessary to move in another direction. Accordingly, we explained to our client that we had no doubts that she could improve her health status and to a considerable extent by making some, at first rather simple, changes, these to be followed at a future time by other changes, as warranted from time to time. We sensed that Vera did not feel inclined to make any radical changes for fear of upsetting her already concerned husband and driving him, perhaps, into an even deeper depression. We emphasized, however, that doing it this way, making small changes slowly, would require considerably more time than it would if fasting had been the program of choice. Vera agreed that this was the way she must take. She would see what the future would bring.

We introduced our client to the seven stages in the biological evolution of pathology. She immediately saw the sequence of events as they had transpired in her own and in her husband's lives. She recounted for us some of her own past symptoms and history and we discussed how they seemed to suggest this or that stage. She enthusiastically grasped the concept that it was possible for her to retrace the various stages in this biological evolution and that, in so doing, her energy and general health would gradually improve.

In passing, we commented that, during the retracement, it is often possible for certain persons to relive the past; that is, they may be called upon to experience some of their earlier symptoms as hidden pockets of poison are flushed out of their hiding places from time to time. Vera indicated that she understood this possibility and thought this might reasonably be expected.

However, apparently we failed to make a deep enough impression on Vera at this initial presentation and the subject did not immediately come up again. Things went along exceptionally well for some time. Vera was able consistently to reduce her drug intake, the nitroglycerine being completely set aside and the antibiotics, also. No steroids were now used and the digoxin was considerably reduced. As for the vitamins, they became a thing of memory only.

The coughing up of mucus became less troublesome, her vitality level grew enabling her to participate in the activities of her beloved church, the digestive upsets that had plagued her for many years were all but forgotten and, all in all, both Vera and we were well pleased with ourselves.

Then it happened! A violent attack of coughing. Mucus poured out of Vera's throat gagging and choking her. She gasped for breath. She panicked. Dr. Ralph Cinque, in a lecture on June 27, 1979, reminded us that "The asthmatic often becomes terrified because of his wheezing and gasping for breath, sometimes feeling as though his life is at stake which naturally alarms anyone concerned. However, only occasionally is a person's respiratory obstruction so great that this is the case. Most of the time the attack is not nearly so bad as the victim might think." [From *Overcoming Asthma* by Beth Snodgrass. Available from Life Science.]

We had not prewarned Vera of this possibility. So, the "run-to-the-doctor syndrome" grasped ahold of Vera's mind and, almost instinctively, like a well-trained animal obeys its master, Vera trotted off to the very doctor who had failed her for over fifteen years!

She was immediately placed in the hospital where she was given a variety of tests, including X rays and scans, and plied with all manner of drugs.

The cough went away and the mucus dried up, just as they had throughout the years past. The drugs accomplished their purpose: the nerves were narcotized, the symptoms suppressed. Vera remained in the hospital for nine days and then returned home, weak and spent. The "attack" had cost her well over $11,000!

Some time later, a wan and weary Vera presented herself in our office once again. She recounted her story, exclaiming at the end, "What a fool I was!" She had finally remembered our telling her about what might occur as she retraced the former stages in the evolution of pathology on her journey back to health. She stated the events and the confirmation of knowledge simply. The conviction of truth was reflected both in her manner and in her eyes as she exclaimed, "I was just having a healing crisis, wasn't I?

Vera, you see, had not failed. We, her practitioners, had failed. We had failed to explain in simple terms BEFORE THE EVENT, and often from time to time as a reminder of what might possibly happen as retracement begins and accelerates.

There were other healing crises to follow, but now Vera was able to take them each in stride because she now fully understood the nature of a healing crisis and what, except in very exceptional circumstances, she could do on her own to remedy the situation. She understood now that her body was always in a state of flux, of change, and was so more now than ever before; that when a healing crisis came, she should keep warm and just stand aside and let the wisdom resident within her own body take charge and get on with the healing of hurting cells while she watched and waited and rested, confident in the final outcome.

We saw Vera not too long ago. She is still too thin but both she and Joe are on a clear path, a Hygiene path, that will lead them together to a life of great joy and boundless energy for living and extended and purposeful life. Vera and Joe are now "going it on their own." It has been some years now since Vera made her last trip to any doctor's office and she is confident now that she will never have to enter another hospital, unless compelled to do so by some unforeseen accidental injury that may require perhaps the services of an orthopedic surgeon. Changes were required in Vera's lifestyle and she has successfully made all adjustments in philosophy and in practice. We are certain now that Vera will not panic again.

3. The Practitioner Presents The Plan

Clients must be convinced that the practitioner in charge is designing a program specifically tailored to meet their precise needs, one that will enable them to assume full responsibility for their own care and well-being, thus removing them from all necessity to depend any longer on the medical establishment for pills and potions that serve only to poison.

The capable practitioner must teach clients Natural Hygiene's rules of life and convince them that, by following the simple Hygienic ways of eating and living, they will gradually find their own aches and pains either considerably diminished or even no longer existent; that their impaired and troubled digestive and other afflictions will soon become but a memory. They must come to an understanding, by presentation of or the experiencing of evidential results, that it is possible for them to see their own energy levels soar to heights perhaps unknown since earliest childhood; that they may even experience once again the joy of sleeping undisturbed the whole night through and being able to awaken at dawn with vigor renewed, ready to meet the challenges and problems of each new day. But, for all this to happen, change is not only suggested, but mandatory.

4. The Client Must Be In Charge

Clients must be responsible for making all changes. It must and should be made clear to them that they will be in charge of their own lives and that they will thus be designing their own future. Before they sought relief, but they gained no health. Now, they must make changes because they have a new goal, the attainment of a higher level of health. They must be brought to an understanding of the most important reality of life: that they can FREE THEMSELVES of all their sick cares and concerns as well as from the financial burden that being sick imposed upon them, a burden which kept them from enjoying many of the simpler pleasures of life; and that all this wonderful new world can be theirs by making some simple changes in their manner of eating and living, changes which have proved in the past throughout all of history to be health-building, changes which will replace their former health-destroying habits, changes which will soon bring them an abundantly rich life instead of their present half-life of sickness and suffering, one filled with the spectre of premature death.

As a specialist in Life Science, this is what you have to offer and what they have to gain: a life without pain and complete freedom from all sickness and disease. But, they must be made to understand that the new trip is not free, that no one can accomplish these promised and highly fortuitous results FOR them, that they must do it ALL ON THEIR OWN and that many changes may be required of them.

Furthermore, just as walking the sickness road can be a very lonely walk, indeed, just so, travelling the road to health must necessarily often cause one to desert the herd and be somewhat lonely, too. But, and this is what must be emphasized, WITH A HAPPY DIFFERENCE!

The sickness road is one filled with pain and suffering. It is a downward trek that" leads to more involved pathology and eventually, more often than not, to a life filled with untold agony and unpredictable pathologies. In contrast, the Hygienic life script unfolds like a happy drama and opens up a joy-filled road where there is no pain, no suffering. It is an upward path that can expand the mind, ripen the senses, open new doors, impart an expanded spiritual awareness of the meaning of life, and often provide an opportunity to help others to know the joys of living the Hygienic way. In other words, by proving himself amenable to change by the doing, the client can find a new purpose for living and, as always, with purpose comes performance and with performance in the arena of life, as contrasted with the lonely life of pain, all loneliness leaves, never to return.

Lastly, our clients must also comprehend that it has taken time and many mistakes, both known and unknown, to change the potential they possessed at birth to whatever state of diminished health they are presently experiencing, and that it will also take time to achieve whatever level of health is now possible considering the client's age, his present condition, his residual vitality and how well he follows the Hygienic road, and that sometimes the amount of time required will be more than we either like or anticipate.

However, clients should be assured, and this from time to time, that with each improvement, the speed of recovery will begin to accelerate, the healing crises will become less frequent and less severe, until finally they are no more. The ultimate goal will then have been reached and the, improved health level thereafter need only be maintained. The changes will, at that point, no longer be necessary, because they have become a part of one's natural life plan.

4.1 Millie's Story

Millie learned all of the foregoing the hard way. She came to us originally with a severely-impacted colon, diagnosed as a spastic colon. It had been years since she had had a normal movement. Enemas and cathartics, headaches and extreme lassitude were all a way of life with Millie.

She hated her life. She hated the constant fatigue that prevented her from doing so many of the things she wanted to do. A divorcee, she said that the constant enema-taking and the fatigue kept her from having any fun! She was only 42 years of age.

We explained to Millie that the enemas and the cathartics were her "crutches" and that, so long as she continued to use her crutches, she would never be able to "go it alone." She would always, forever after, require her crutches. The pills and potions were not removing the cause(s) of her trouble and, indeed, only served to add to them. These substances were all chemical poisons and, by using them, she was simply adding more poison to all the poisons resident within her own body. It was this poison that had caused and was continuing to cause her problems. Adding poison to poison would only serve further to kill more cells and to reduce even more the tone of the muscles of her digestive tract. If she continued their use, she might well never again be able to have a normal bowel movement. We told her that it would be necessary for her to make some changes in her manner of eating and living, that she must now, as one of our students from Kentucky recently remarked, "make getting the finest food her most important priority."

Like so many others, some successful, some not, Millie agreed to "try" Natural Hygiene. We explained why she should restrict her diet choices to the finest of natural raw foods, why she should now begin a regular and vigorous exercise program, why she should increase her rest and sleep periods, why she must now drink distilled water and when. In fact, we laid out a precise program for our client to follow, a step-by-step plan of action.

Millie took over and did extremely well. She followed the regimen laid out for her, making few mistakes. As a matter of fact, Millie became so imbued with enthusiasm about her program and her progress that she began to preach Natural Hygiene to all and sundry who would listen.

As her reward, within three months, Millie was having a natural bowel movement (bm) two and three times a week! This was like a miracle to her. After a year, all the digestive disorders of the past had practically disappeared; the heaviness, the excess gas, the occasional nausea and belching, these were no longer any concern. Millie was once again going here and there, having the "good time" she had so yearned for. Rarely now did she have to have recourse to an enema.

At the end of the second year, the bms were coming almost every day. Once in a great while, but only rarely, Millie would have one of her former trying headaches. But, she wasn't satisfied, she wanted it all and NOW! She felt she needed two or more bms every single day and felt annoyed when such did not happen. She wanted to be rid of her headaches once and for all and forever. She wanted someone to wave the magic wand!

Without consulting us, Millie went to another practitioner, not a Hygienist, and enrolled in a "course of treatments" which were to take away all her cares in one magic moment. The cost of this series of muscle and bone adjustments, as we learned later, was $1,500.00!

Well, a short time ago, Millie came back. The practitioner, at her request, provided us with his assessment of her progress. To Millie's chagrin and astonishment, the erstwhile waver of the magic wand was not $1,500.00 richer but, sadly, "disappointed" in Millie's "lack of progress." The "treatments" had failed.

We reminded a rather chastened Millie once again that there *is* no magic wand, that healing takes time; that not we, but our bodies are in charge. It is our inner wisdom, not we, that must be in control. We humans make too many mistakes when left on our own to be in charge of such responsibility. Our inner wisdom is so designed that it does not make mistakes and cannot just be diverted from its tasks by our whims and wishes. Just so long as we cooperate with that inner wisdom by supplying the correct tools, as and when required and in the proper amounts, meaningful progress will be made. Health *will* happen. Unhealthful ways of living always demand a toll of disease but abundant health follows in the wake of correct practices.

On its own, our inner wisdom will establish the necessary priorities, determine how these may best be addressed, lay out the plan, the ways and means, with exact directions and specifications; and then address each in its own manner and at the appropriate time. We are required only to provide the tools, then step aside and watch the magic within unfold.

Millie sat quietly, deep in thought as we quietly reminded her of this wisdom of the ages. She didn't have much to say, but we knew that Millie had learned a valuable lesson. Millie will wait now for time to bring its miracle.

Encouraging words help clients when the way gets tough. Knowledge and understanding can inspire the necessary changes both in practice and thinking. Clients must grasp the concept that health is, for them, indeed, a possible goal; that Natural Hygiene (Life Science) provides the ways and means of achieving superb health. We need to impart to our clients the confidence that you, as a practitioner, will teach the client how to live according to the laws of life and how to provide the tools for always living in health.

If we can cause our clients to believe that they can be in complete charge of their own lives and that they can work this miracle, then we will be instrumental in bringing about the required changes. And, then, too if we can bring to them full understanding of the fact that their former dependence on the medical community was not only totally nonproductive, but actually destructive of life, then we are to be commended for that is the first important change.

A client must realize, and deeply, that it will take time to accomplish the healing and to restore whatever level of health s/he is presently capable of achieving and that the results will depend on how well s/he follows directions. All diseased persons differ only in the degree of involvement and the site. All can respond favorably to health-building ways, but they must not wait beyond the physiological point of no return. In other words, there is a limit beyond which full recovery is impossible. This, too, is a change in thinking because, for so long, they have depended on that "magic" pill or, if that fails, upon some fantastic operation that they believe will remedy the hurt.

5. What Kinds Of Changes Are Required

The kinds of changes which must be identified for the client will, of course, vary from individual to individual but, surprisingly, they almost always fall into the following categories:

1. Doing away with certain outmoded beliefs and superstitions that can only serve to hamper maintenance of full health or perhaps even to destroy it, if it is now present.
2. Causing a change in attitude through knowledge about the kinds of habits and practices in eating and lifestyle that are recognized as being destructive to health.
3. Developing a deep conviction about the need for the changes recommended by the practitioner, this obtained through knowledge of what is believed to be essential to health maintenance.
4. The introduction of positive action through practice, gradually or abruptly, as individual situations and conditions warrant, eliminating all destructive habits and replacing them with Hygienic, truly scientific, practices known to be instrumental in building health, not disease.

6. Outmoded Beliefs And Superstitions

Most people today are mere puppets dangling at the end of strings, skillfully manipulated by self-serving corporate interests.

For example, there are few Americans today who are not complete and willing serfs to the medico-drug-insurance complex. As we look around at our own friends, relatives and neighbors, we find that every one, almost without exception, goes regularly to a physician for a check-up, even though many physicians openly acknowledge that this is worthless. We recall years ago reading an article in the Long Beach newspaper, an article written by various physicians, which said, in effect, that such trips were a waste of money and meaningless, that nobody was perfect and that they were simply a means to an end, getting people to come on a regular basis to the physician of choice; and it did help to pay the rent!

Most people we know dutifully swallow their prescribed pills, submit to X rays at the slightest suggestion of "their" doctor, would never fail to keep their medical lifeline (their insurance policies) up to date, and grasp at the medical man every time they have the slightest ache or pain. Each one seems to be content with his "allergies" and his pills, having full confidence that somehow, in some way, "the doctors will find a 'cure' for whatever happens to ail him and the rest of suffering humankind."

Just last week a friend sat in our family room and told how he had gladly and willingly volunteered himself as a guinea-pig for a mass experiment to test certain drugs proposed as a possible "cure" for diabetes. The group sponsoring this mass experiment with other people's lives had apparently just received a multi-million dollar grant.

We gasped in horror at his news. There he sat at least 50 pounds overweight, highly flushed of face, wheezing and coughing as he talked—a prime candidate for a stroke, the mark of the needle plainly visible on his forearm. We inquired as to the nature of the injected drug. He didn't know, other than that it was some NEW drug that "they" hoped would soon prove its merit.

We asked our friend, "Why?" Why had he let himself be injected by any chemical, to say nothing of permitting an unknown and untried substance, about which he knew nothing, to be introduced into his bloodstream? Did he not realize that introducing any foreign substance into the blood could, almost instantaneously, lead to anaphylactic shock, with instant death a distinct possibility? Our friend nodded his head. He agreed that Yes, all that could happen but, "You see," he thoughtfully went on to say, "Unless all of us help these doctors, they never will find the cures for all these diseases." Like a puppet on a string he had responded to the siren call of "Cure!"

Hygienists know that all this is pure hum-bug, anti-health and anti-scientific nonsense. They also know that this trust in the medical community and in their drugs dies hard. In the back of the head of almost every new client who comes to you for help will remain the thought that if *THIS* (meaning you) fails, he can always hurry back to the known and familiar ways of medicine.

Thus, the Hygienist must point his client in a new direction. He must prove that all drugs are anti-health. He must remind his clients, when the issue arises, as it will, that the medical community has had over 30 centuries to prove that drugs and their methods are instrumental in curing disease and that, in every instance, they have failed. Drugs and surgery cure nothing.

Clients must change their minds and, accordingly, their practices in this respect. All drugs are anti-health and so acknowledged by the very persons who prescribe them. They are known to damage the nervous structure and actually to destroy cells. Drugs suppress symptoms, but remove no cause. Clients must further understand that surgery removes an effect, but not the cause and unless, and until, the cause or causes are removed, the effect, the disease, will not only remain, even though temporarily abated, but will worsen. This, too, is an important change in thinking that every client must make before he can expect to improve his health.

It is true that most of the people who seek the help of a Life Scientist will be somewhat, if not totally, disillusioned about the effectiveness of medicines, at least in their case, even before they seek our help.

But, we should be aware of the fact that most of them know nothing whatsoever, or perhaps only a very little, about natural ways of healing. What you suggest to them is all foreign territory, a vast unknown, and like pioneers setting out for a new land, they have hope, but little else, because they presently lack knowledge.

It is the practitioner's job, if s/he, can, to drive the nail into the coffin, to bury all faith in medicines and surgery as the way to health. We must get across to our clients the relationship between cause and effect. Our clients must be brought by us into an understanding of the scientific sense of removing cause before they can reasonably expect once again to know health. They must be convinced by your attitude and by how you look and by what you say that YOU, the Hygienic practitioner, possess knowledge of what they must do to accomplish their objective.

Another false belief that grasps the American mind like the tentacles of an octopus holds fast to a tasty morsel is the need for enormous amounts of protein, this belief, of course, having been promoted now for almost a century, as Life Scientist well know, by the meat and dairy and other self-serving interests, particularly and knowingly or unknowingly, by the recipients of large research grants indebted to corporate interests for their research monies.

"But, where do you get your protein?" becomes the plaintive cry of almost every new client when first faced by their new diets, so brainwashed have they been in this regard. One of our students in Sweden recently wrote us that "every adult male needs 250 grams of protein every day!" Where had he gotten this piece of information? Well, he had read it somewhere, he told us!

If a client has this or some similar idea etched in his mind, he must be deprogrammed. One can accomplish the required deprogramming only by substituting knowledge, an understanding of the scientific fact,' for example, that the primary need of the human body is NOT for protein, but for single molecule carbohydrates, the kind abundantly supplied in fresh raw fruits. He must be instructed in the ways of catalysis and how the body recycles its discarded protein; about how the body, in fact, can change one kind of protein into another kind of protein as may be required for metabolic purposes; (that the body cannot and does not use protein, only amino acids, and that these are contained in fresh fruits which, when eaten, save the person who eats fruits all the energy wasted in processing concentrated protein and complex carbohydrates, energy which can then be diverted to more constructive tasks. Unless true Hygienic knowledge becomes incorporated into the client's subconscious, unless full perception on his part becomes a reality, all the doubt—the uneasiness which so limits progress—will remain.

Thousands of people, indeed millions, believe that herbs will restore a sick person to health. Health food stores stock their shelves with a wide variety of herbs. In fact, herb sales represent a major part of their income. Clients will surely ask you about this herb and that herb and why you do not recommend herbs? Or vitamins? Or brewer's yeast? Or a host of other magic substances. As a student of Life Science, of Natural Hygiene, you have learned about all these things, or will learn about them. This information has all been carefully documented and planned for your enrichment, to arm you well so that you will be enabled to meet the needs of clients for new knowledge to replace the old beliefs and superstitions. Without confidence in your knowledge and in the program proposed to a client by you, that client will make only limited progress, if any.

The horror of fasting is a prime example of beliefs that die hard. The average person, particularly here in America, the land of *Surfeit Plus*, is firmly convinced that missing a, single meal will cause him extreme anguish. School children MUST be "fortified with a good breakfast!" This is gospel truth, not open to debate. Fasting is what starving people do! He knows from watching the boob tube what starving can do to a person. You can't talk *him* into going without food!

Clients, therefore, must be given understanding of what the difference between fasting and starving is. Your new client will not understand that fasting, even for a short time, will allow the body to achieve a higher level of health and that prolonged fasting may well be the single most important way to be restored to a level of health such as s/he has not been privileged to know in an entire lifetime.

Clients must be disabused of their antipathy, even horror, of fasting, and this can only be accomplished when one imparts to the client the known facts about fasting, that it is a biologically well-accepted modality which provides the physiological rest required for healing to happen and to happen with the fastest possible speed.

6.1 Mike's Story

Mike's story illustrates just how difficult it can be sometimes to remove from the subconscious mind this fear of fasting. Mike, age 56, has had rheumatoid arthritis for some 15 years. He had been referred to us by a former client. We were told that he would be unable to come to our office because he could not negotiate steps and also, because of his condition, if he did come, he would have to stand during the entire consultation. We agreed, therefore, to make a house call.

We were deeply moved at our first meeting with Mike. There he stood, emaciated, tall, and straight as an arrow, propped up on crutches, his face wreathed in smiles. You see, he had been given hope by his friend.

We immediately know that Mike was in the advanced, final stages of rheumatoid arthritis. He had to be suffering great pain. His fingers were twisted and curved. He could barely move his head, one are was completely motionless. With his one moveable arm, Mike gestured for us to be seated and then he swung over to his chair, one especially designed for arthritics. It lowered him slowly and gently to a sitting position. The smile remained fixed on Mike's face.

We knew that the only help for this man lay in fasting but Mike knew nothing of Life Science. His housekeeper, herself terribly obese and obviously diseased, provided him for breakfast boxed cereals and milk, sometimes followed by two eggs. Occasionally, he told us, he also had a glass of canned orange juice and always several cups of coffee. Luncheon was a sandwich, usually made of white bread spread with either canned tuna and mayonnaise or with peanut butter and jelly. At this meal he also had coffee. His evening meal was provided by "Meals for Millions" and consisted of some combination of the four basic groups. At this meal, he drank either milk or coffee.

Mike lived alone except for his housekeeper. He was a veteran living on his veteran's pension. The housekeeper worked for room and board. She did the shopping, kept the premises reasonably clean and prepared two meals. It was obvious that Mike could not afford to go to a fasting institution, if he had been able to get there in his condition. After discussing the matter with him, it was obvious, too, that he wouldn't have gone if he had been the wealthiest man in the world! Fasting, to Mike, was for those persons abandoned on a raft somewhere in mid-ocean, or for primitives living in some remote corner of far off India or Africa, certainly not for him.

Obviously, here was a crying need for change, so how did we accomplish it? We took baby steps, making small changes count. The first important change we suggested to Mike was to forego his usual breakfast in favor of a fruit breakfast. He agreed that he could do this. Then, we suggested that he reduce his coffee intake. Mike was quite enthusiastic about our suggested changes.

We remained with Mike about an hour and then left, promising to return in two weeks. We left him with the first lesson in our Applied Nutrition Course, the one that recounts the stages in the evolution of pathology. We felt this was probably a good way to begin Mike's deprogramming and to establish in his mind the concept of change as it might apply to him, the idea that he might be able to retrace his own life script and some day return to health.

Before the two weeks were up, Mike was on the telephone. He had a special telephone hook-up which enabled him to talk into a speaker and thus did not have to hold a telephone. Otherwise he would have had no way to communicate with the outside world. He complained of extreme weakness and said that he had felt it necessary to resume having his two eggs for breakfast, eating them after he finished his fruit.

We felt it was time to go back for another visit. This time we went armed with Lesson Two which explains, in simple terms, some basic information about carbohydrates, fats and proteins. We reviewed again with Mike the biological evolution of pathology and he said he understood about where he was presently in the evolution, that he had some real tough sledding ahead but he was confident he could make it. We felt that Mike had progressed extremely well. He had changed from a man filled with doubts into a possibility thinker; one filled, indeed, with "Positivities." Now, he was to acquire even more knowledge to fortify his conviction that change was possible. Old ideas and superstitions seem to fade and eventually disappear when replaced by knowledge and truth!

Within four months, Mike was eating two fruit meals a day, no longer ate his eggs every morning and was down to a single cup of coffee per meal. Of course, lacking his former stimulants, he became extremely weak, resting all day for the most part in his elevated bed. His bed was raised just high enough to permit Mike to slide out. You see, he cannot bend his legs, the knee joints have long since been removed surgically.

The housekeeper left to be replaced by a university student from mainland China, a fine young man who sets out sufficient fruit for two meals. He keeps the premises spotless. However, his school schedule leaves Mike alone all day.

By, this time, Mike had also eliminated all his vitamins, the steroids, and reduced his aspirin intake (or Tylenol) to 10 per day. Sometimes he had to grit his teeth to bear the pain, hut he did it. There was no need to suggest hot baths to relieve his agony. He was unable to get down into a tub. Then, Mike made a major decision. He was going to fast for one day. This was a banner day. We felt like firing the cannon and running up the flag of victory. Our man was to be wonderfully surprised. On his fast day, Mike found, to his amazement, that he had very little pain! However he felt dizzy and even weaker, a rather scary experience for someone who had to remain all day in bed and alone.

Several weeks ago, we went on our monthly visit to Mike. As usual, he was in bed and, also as usual, smiling. He recounted for us how well he was doing. He was able now to walk 15 times every day back and forth down the long hall to the living room. He could now move his head more and, perhaps most wonderful of all, he had so much more energy than just a few weeks ago. Mike announced that he had decided to take still another step forward. He would now have his two fruit meals per day and, for his evening meal, a salad plus a baked potato and avocado! Mike would no longer now be dependent on "Meals for Millions," certainly a most worthy and commendable effort but one, unfortunately, which knows nothing about Natural Hygiene. Mike said he was convinced now that the principles of Natural Hygiene were correct principles which had already proved their worth to him. We encouraged him to go forward, that now his progress would accelerate. Mike's eyes shone!

Just a few days ago, Mike telephoned. He had made up his mind. On his own, he was planning to fast—this time for 36 hours. He said he felt wonderful and had reduced the pain pills down now to only four pills a day. Mike wants it all now. He has discarded the old ideas, the old superstitions. He is well on the road to better health. He is still studying about Natural Hygiene, the study lessons propped up before him. Knowledge, even though imparted slowly, has wrought the miracle of change in Mike. It has brought conviction. He now knows that there is only one possible way to improve one's health and that is by living healthfully.

6.2 Other Superstitions

Another superstition that is really hard to remove from the minds of clients is that in our meal planning, we have to adhere to the four basic food groups. My how some clients will argue about this totally erroneous concept. With such clients, it is well to be fortified with some good solid knowledge about how the human digestive system works. We always have ready a quart bottle, some vinegar and some baking soda. We put some water in the bottle and then add a little vinegar followed by a teaspoonful or so of the baking soda and *Voila! It fizzes!* Most of our clients have experienced this fizzing in their own stomachs often enough to see the connection. They receive a study lesson on the digestive system and they soon become disenchanted with the four basic groups concept, convinced that their own digestive disaster scene has been caused by incorrect food combinations. Understanding the digestive scene makes the idea of simple meals more understandable to them because, perhaps for the first time in their lives, they comprehend that the digestive process is a chemical, mechanical and electrical, very involved, process and that the more we add to the confusion by eating heterogeneous masses of foods, the less real nutrition will result. Why pay out all that money for food that never reaches the *REAL you, the world of the cells!*

Understanding how the digestive organs work, at least understanding this in gross terms, disabuses most clients of the idea that they can eat anything and everything, as and when they feel like eating, and still enjoy full health. It helps them to appreciate the scientifically-demonstrable fact that fruits are the foods to which we, by virtue of the structure and function of our digestive equipment, are best adapted and from which we humans will receive the finest nourishment. Making this adjustment in their thinking can change sick people into sturdy, strong, miraculously well people.

Clients must also disabuse their minds of the popular delusion, as Dr. Herbert M. Shelton terms it, that eating great quantities of food is necessary to health and strength. We used to believe that ourselves! We used to believe that it was necessary to provide great variety in order to enjoy our meals. Brandy, our collie, disabused us of that idea. Every morning, Brandy gets his dried figs and every evening his baked corn meal cakes, his pinto beans, lettuce and his egg. Every evening, he starts to drool at the same time. He doesn't need a clock! Every evening, he eats that same meal and then licks the bowl until it shines. Very rarely is his meal changed. Oh! Occasionally, we will substitute a piece of avocado for the egg, or a bit of cheese, but that is all. You see, Brandy doesn't even want variety!

We notice that our birds eat certain things at just about the same hour every day, as do the rabbits and the moles and the desert squirrels. The beans fall from the mesquite trees and soon are all gone, hidden in burrows for sustenance during the winter months. Humans don't require so much variety. They don't need so much food. They sicken on complex meals. Yes! Sometimes necessity forces change upon us.

Another popular idea that is around these days is the concept that our bodies are crying for protein, for enormous amounts of protein. Clients find that change here is vital. Again knowledge of body happenings is the only way to bring about such change. They must learn that simple molecule carbohydrates are our primary need and that when these are in short supply, as happens on the usual protein-starch-fat-sugar diet of the average person in America today, energy levels fall, nerves become deranged and health fails.

Our clients are victims of their own transgressions, transgressions fostered by superstitions, beliefs and the mores of the times in which all of us live. The list of possible erroneous ideas held by individual clients would probably fill a library. Many are of modern origin, inculcated in the minds of the average person by direct and subliminal advertising; others have their origins in cultural mores which have been handed down from one generation to the next, perhaps for thousands of years. Many false ideas have also been inculcated in the minds of the very teachers who are presently instructing our children today, when they themselves sat as little children in the classrooms of their time. The "need" to be vaccinated against this or that virus or germ is a classic example of this last superstition.

It is the happy task of the informed practitioner to impart the knowledge which will light the lamp of conviction, that will bring about changes in thinking and changes in doing; the kind of changes required to make sick people well again.

Probably the most health-destroying of all superstitions is the one that has been around the longest: the idea that drugs can be instrumental in "curing" this or that ailment. Hygienists marvel that humans can be so stupid as to believe that taking more poisons into an already poisoned body will restore health to a sick person when strong men, in the prime of life, can be felled by the very same poison as surely as if penetrated in a vital organ by a well-aimed bullet!

But, that seems to be the perverseness of mankind. It is one of the great mysteries of the ages. Otherwise highly-intelligent men and women, all over the world, dutifully swallow their pills—Paul Erlich's "magic bullets!" And all because their "doctor" tells them to!

Our clients do not possess our knowledge. Natural Hygiene is a totally strange concept to them, one about which they have grave doubts. They must be motivated by us to learn that health must be built; that it follows change; that we cannot poison ourselves into health, only into the grave!

To accomplish whatever changes are desirable in a client's thinking and especially about the effectiveness of drugs in restoring health, we practitioners have to produce results! Our clients have to be shown by whatever means at our command that poisons kill, they do not and cannot become the instrument of health. We must show our clients that, when they continue to indulge the causes of disease, disease will happen; but when they choose to seek after health-promoting ways, then they will be enabled to stand aside in awe and watch their troubling disease replaced by health. This kind of change can only be brought about by education and, as Hygienists, we well know that it *must* come or health will remain an elusive impossibility.

6.3 The Case of Rev. Kim

The Rev. Kim case illustrates how changing one's confidence in magic bullets into an understanding of the importance of living healthfully, of obtaining every day a full quota of all the biodynamic requisites of life, can also change sickness into health and even bind married couples together into an even closer relationship.

The Rev. had some kind of obscure disease that had been variously diagnosed. Nobody knew for sure what ailed him but, nevertheless, he had been prescribed numerous drugs, including a tranquilizing mood-altering drug. His condition had forced him to give up his pastoral duties and to go on a disability allowance. His wife had to work to support the two of them. There were several married children who lived out of state, so they were more or less on their own.

The Rev., it seems, was so depressed and frustrated by his inability to continue with his church work that he had actually become physically abusive as well as mentally so. In fact, his behavior and his treatment of his wife had become distinctly non-Christian!

Fortunately, someone called the Rev.'s attention to a course in Natural Hygiene that we were offering and both he and his wife enrolled. To this day, they say they don't know why they enrolled, just that they must have been "led."

This couple were both on drugs. In fact, they were swallowing pills "by the carload." At this time, obviously, the only thing they had going for them was hope.

As they progressed in their learning, studying their lessons together, they began to make some simple changes. It wasn't too long before they became private students and shortly thereafter the wife, and then the Rev., stopped taking their pills and adopted more Hygienic ways of eating and living. We will never forget how excited the Rev. was when he told us how "super" he felt on his daily breakfast of two bananas and 10 or 12 dates!

Well, to make a long story short, the Rev. now has his church back and his wife is now in an executive position with an important company. She confided to Dr. Elizabeth not too long ago that the Rev. is now more loving than ever. Two of their married children, after observing the transformation wrought in their parents, are now also "into" Natural Hygiene. Change can, indeed, be wonderful—and contagious!

7. I Can!

Applied nutrition represents the "I CAN" philosophy of living, a subtle psychological approach, using the psyche positively, which gradually does away with the old erroneous and negative concepts and ideas which limit and constrain the thinking of most clients on first meeting and replaces them with a sense of being in tune with the positive.

Once our clients are fortified with knowledge and provided with a well-marked road to follow, one furnished the start by the practitioner, then, more often than not, they come to see a bright light beckoning to them at the end of the tunnel of darkness and fear which formerly surrounded them.

Through knowledge comes conviction and once a person becomes convinced in his mind of the Tightness of what you teach, more often than not, the doubter becomes the positive thinker. He verbalizes to himself, "Yes I CAN do it! I can bring about these changes! I CAN live in such a way that health MUST happen. This is a way of life. I CAN be, healthier than I now am. I CAN change. I REALLY CAN.

It is so important for clients to understand that, with you to guide them, they will be in charge of their own lives and no longer dependent upon a dispenser of pills nor will they, in their old age, require nurses to burp them and to change their diapers, so to speak. They begin to appreciate the immensity of the possible. They will no longer be required to take pills to elevate or to depress their vacillating moods because they understand that when health replaces sickness, they will feel euphoric with a natural high. They will no longer have to have recourse to hormones to make them into what they should not be.

Instead, the possible is theirs for the doing, for the changing. Through learning the ways of life and understanding the rules of life, they can find their own way, they can take charge of Self.

Understanding the potential behind the I CAN! will often make performers out of the helpless ones who are so because their cells are sick. The mind and the body are one and when the mind contains positive thoughts—thoughts that are capable, ready-to-go thoughts—then these thoughts replace the emotions of fear, anxiety and worry so miracles can indeed happen!

Clients must be given to understand that when we have problems, physical or otherwise, we must find solutions. If we do not, we simply cheat ourselves. If our problem is one of sickness and we do not find a solution, we can cheat ourselves out of life!

We have said elsewhere that attitudes are contagious, both the attitude that we, as practitioners display to the world, and the attitude cultivated in or by our students. We have an outer and an inner attitude. If our inner attitude is a conviction that we CAN attain better health, we WILL because our attitude strengthens our subconscious power and this power pervades the entire body, generating power in our endocrine glands, in our heart, in our brain stem and servicing nerves, in all organs, including our organs of digestion.

This is important, vitally so, for remember all that we are is dependent upon nerve power and upon the efficiency of our digestive powers.

If you believe you can, you will act. This is one of the great, not-well-understood laws of life.

If your inner self is powered by fear, it will soon pervade your being, too. If you fear that health will continue to elude you, fear that life will soon depart from you, you will remain in the sickness rut and more and more pain and suffering will be your unhappy lot simply because your inner fear-packed YOU will slowly, or rapidly, dissipate its power as it fears. Fear and worry are negative attitudes that steal away body power.

Far too many among us think and say, "if only." If only, I had this or that, I could be rich. If only I could find the right doctor, I could be well!"

Charles M. Simmons reminded us that we need to change that attitude to "if I do this, I will get what I want" attitude. This is a positive attitude which means you have a plan of action and that you will work your plan. When the plan is sound and we go into action, we will fulfill our every dream.

That's what the I CAN! concept is all about. The Hygienic practitioner who can get this philosophy across to his client and who gives him a workable plan to start him on his road to becoming a self-performer will be the successful practitioner. His clients will change from timid, doubtful, unhappy souls lacking power, souls filled with negative forces that are doomed to cheat and "to fail, into forward-looking, power-filled persons whose positive attitudes cannot help but bring to them the longed-for successful conclusion: the euphoria of superb health.

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8. Questions & Answers

You maintain that health is normal and that being sick is abnormal. How can this be? Doesn't everyone have something wrong with him, even though it may be very minor?

> You are correct when you say that I believe health to be our normal (natural) heritage. People become sick when they do not adequately answer the needs of their bodies, either through ignorance or because of other circumstances. Many people are sick today simply because they do not have knowledge of what these needs are. They simply follow the herd and do just as everybody else does. This is, of course, especially true when it comes to eating. We WANT to eat like everybody else, eats but the laws of life decree that eating that way is probably the most usual cause of disease. Therefore, if we desire health, we must eat foods to which we are biologically best adapted.

Scientists and dietitians have proved by laboratory experiments that we all need a variety of different kinds of food. Why do you claim that this idea is all wrong and that fruits are a perfect food?

It was determined many years ago by a Yale researcher, by the name of Pottenger, that with cats, it takes three to four generations to prove the adequacy or inadequacy of a particular diet. I suspect that this is true with humans, also, and perhaps even many more generations since humans take far longer than cats do to mature. Laboratory research is more often than not unreliable when it comes to feeding humans. We are not static test tubes, we are nutritive process which is ongoing and extremely complicated. Furthermore, many feeding experiments are performed on test animals who are biologically quite different from humans. We cannot, as true scientists, make a direct correlation as to compared results with two biologically different beings. That is not scientific. We have far more reliable evidence and that is the evidence observed in certain tribes and peoples who have lived in a certain manner and eaten certain foods for thousands of years. The health of the Hunzas and of many others who live on a largely fruitarian diet is incontrovertible proof of the correctness of their diet. In contrast, we see the short, pain-filled lives of the vast majority of those who eat in ways contrary to human physiological and biological requirements. We can eat a variety of fruits, if need be. We can eat vegetables, fruits and nuts, if we crave variety. What we don't need is food and ideas concocted in a laboratory setting. We are feeding MAN, not a test tube or some other animal.

Your I CAN! concept sounds like a good plan in theory, but how do you know if it will work?

We have seen it work! Even in our own lives. When Dr. Elizabeth was so ill and wracked by rheumatic pains, she felt trapped. At holiday times she would say to herself, "I must make this an especially happy occasion because I probably won't be here next year!" This is negative thinking. This is the kind of thinking that destroys. She kept getting worse. It really wasn't until we went to Europe and saw that people DID recover from many different kinds of illnesses when they learned what and how to eat that we and especially she, began to have the beginning of more positive thoughts. And when she first read Dr. Shelton's book, *"Orthotrophy," Volume II* of *The Hygienic System*, it was like magic. She KNEW she could get better and from then on it was clear sailing. I don't mean to imply that there were not healing crises. There were plenty of them, but she faced up to them and got over them because she continued doing what she knew was right to do! This is generally the case once people understand that nature not only revenges wrong doing but also rewards correct practices. Their whole attitude changes. They become filled with "Positivities!"

Does a person always have to change abruptly, immediately? I can see where this might be very difficult for some people.

No. A person does not always have to change abruptly. Of course nothing is to be gained by putting off making all the required changes and doing so immediately. Delay can sometimes make full recovery more difficult and prolonged. But, bear in mind that any change for the better is health-promoting, even though it be but minor. With certain timid souls, radical change is scary and with such people, we encourage them initially to take "baby steps." As they succeed in conquering little goals, they can then move on to larger ones until, suddenly, they realize they have gone the distance, ran the mile, as it were. They have been successful. Then, usually, there's no stopping them!

Article #1: The Great Awakener by Dr. Herbert M. Shelton

Understanding has been defined as "the power to make experience more intelligible by analyzing it in the light of valid and appropriate general concepts."

The man who analyzes and understands may accept or reject on a basis of intelligence. He carefully considers and weighs all the facts and principles involved in a proposition and arrives at a decision.

Snap judgments and emotional acceptances or rejections do not grow out of a process of this kind. When we accept or reject a new idea or a new practice only because it disagrees or agrees or appears to disagree or agree with our prepossessions and preconceptions, we are guided, not by intelligence, but by prejudice and emotion.

Analysis is the sole guide for intelligent selection of alternative courses of action. If we lack sufficient data to make a full analysis, we do not accept or reject, but suspend judgment until more data can be obtained.

Mass media, so popular today, not alone with advertisers, but also with propagandists and pseudo-educators, make use of a form of hypnotic technique in their efforts to sway the popular mind.

By the constantly reiterated slogan, by frequent repetition of words and gestures, by holding the same image always before the minds of their intended victims, they seek to create a state of semi-somnambulism in which the poor victims of the mass media processes do exactly as they are told.

The people are said to be "conditioned" by such processes. Not merely the obvious, but also the hidden, persuaders are employed in this mass conditioning of the minds of the people.

Hitler's use of the "big lie" was made effective by the same process. In advertising and in much of the propaganda of various groups in our culture, the same effective use of the "big lie" is seen. No better example of this can be offered than the constant stream of false medical propaganda that pours from the presses.

Among a people who have been conditioned to "think" in slogans and to follow the crowd in all things, truth has rough sledding. When a revolutionary new truth that seems likely to disturb the status quo is presented to the herd mind, the owner is likely to quote some popular slogan and swing off into the jitterbug line.

In our mass conditioned culture none of us are ourselves: We are faithful copies of what our masters want us to be.

Often arguing heatedly for or against this or that, we suffer a myopic inability to peer beneath the surface and discern the reality that lies below. We almost always miss tie fact that our acceptances and our rejections, as well as the receptors and rejectors, are all part of a very complex, persuasive cultural process.

It is disheartening to listen to the discussion of contemporary acceptances by the robot minds that constitute the product of our overworked mass media. But the case is not as hopeless as it seems.

Truth has a way of awakening sleepwalkers and clearing the conditioned cobwebs from their minds.

No man armed with the truth is ever welcome in any culture. He is spat upon and discredited by the masters of the culture and their robot underlings, in proportion to the extent that he is feared. But he never fails to dehypnotize many of the victims of the mass-cultural process.

Today we witness the gratifying sight of many sleepwalkers awakening from their fever-dream as a result of coming in contact with Hygienic truth.

We must bring this truth to more and more of the sleepers, that they also may awaken.

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Article #2: Overcoming Compulsive Habits by Stanley Bass, D.C.

Habits determine success or failure. I don't care what you want to achieve in life, you can train yourself to be a success or you can train yourself to be a failure. If you allow yourself to swim in bad habits, you are going to be trapped. Walker, one of the great early Hygienists had the ability to inspire people to right living, as did other early Hygienists. It seems that since the early days of the 1920's somehow the writers of Natural Hygiene took out the inspirational, the spiritual aspects of it. We were living in a scientific age and everyone wanted to be scientific and Hygienic doctors did not want to be thought of as quacks or mystics or strange people so they left out the inspirational part, but I have come to the conclusion that the only thing that makes people change is inspiration. You can give them all the facts in the world and convince them in black and white that this is the right way but that doesn't mean they will do it. The only way they will do it is if you get them emotionally excited.

Habits determine success or failure. If you are willing to go through these changes we have been talking about and get rid of the bad habits, reintroduce some new habits, you can do anything you want to do with your life. I don't care what you have done. As I mentioned before, for 15 years I failed. I tried to fast to the finish. I fasted 10 days, 12 days, 14 days, 17 days and I would get caught with the wrong thought and I'd be pulled off. All my friends said to me, "Stanley, forget it; it can't be done." But I didn't give up; I kept doing it until I succeeded. The only failure, mark one thing well, is if you try to do something 1,000 times and you fail, then you quit trying. You are not a failure until you stop trying, and if you stop trying you are going to be a failure for sure. If you keep trying, eventually you're going to do it. So the only failure is the person who stops trying, not the one who tries 1,000 times and doesn't do it. Remember that and don't get discouraged. Every time you fall back, remember this is normal in learning any new habits. Don't let it discourage you; keep going; never give up!

You shouldn't condemn yourself for failure. Some people have a bad habit of saying, when they try something and they don't succeed, "What a damn fool I am, what a louse." They start criticizing themselves and they tell all their friends about how stupid they are. "I'm so stupid, how could I do this?" They want everyone to know about it and by the time they get through they have lost all their energy and they can't do anything. They condemn themselves to the point that they lose all their drive. Don't do it, don't condemn yourself. You're divine. Everyone in this world is God-like but doesn't know it. Let it come out. Don't condemn yourself. Remember you can start all over again. Keep going.

Now, I must talk about procrastination. It's the worst thing you can do. It's the most vicious technique devised by the human brain since the beginning of time. That was my chief failing for a long time, so I am familiar with it and know all the tricks of it. What is procrastination? Procrastination is saying to yourself, "Oh, today is not a good day for me to do this; I'll start tomorrow." I'm a Natural Hygienist. When I opened up my institution a few summers ago in Woodridge, four out of five persons who checked in said, "I'm a Natural Hygienist." Do you know what they are doing? Two of them were bugging me for meat and chicken. I saw them eating bread, cake and candy bars. When they left, we had to turn the mattresses over and found chewing gum wrappers and candy bar wrappers. They called themselves Natural Hygienists. What they mean by that is that they are procrastinators. They are telling themselves, "I ate well on Sunday. I'm really a Natural Hygienist, but today I'm under a lot of stress. It is not a good day for me, I'll start tomorrow." Then when tomorrow comes, "Oh! Gee I've got this problem. It's not good, I'll have to start next week. It will be easier. It's snowing out, or I have to meet people."

You know the mind can rationalize anything. The mind is beautiful.

Hitler felt that he was a good man. Do you know that "Two-Gun" Crowley killed two policemen right before they sent him to the electric chair? He felt that he was a good man and a benefactor to humanity. You know people rationalize anything, even murder. If you can rationalize murder, if the greatest murderers that ever lived, the most famous ones felt that they were good human beings, what about a Natural Hygienist who is going to start tomorrow? How easy it is for him to rationalize if "Two-Gun" Crowley could do it. The mind will, rationalize anything you want, but don't play that game, because its too easy. I did that for 18 years.

What is procrastination? It's telling yourself that you are going to start tomorrow; that you are really doing what you think you are doing, but for some reason it is inconvenient. It's lying to yourself and saying you are going to postpone something. You don't say you're not going to do this, you say you're going to postpone it. "I'm really this but I'll start tomorrow." So you see, you want to fool yourself.

I know a man who takes long fasts, lasting 30 days or more. After the fast he says, "Gee, I really purified my body so well." Then he starts with foods that are borderline and says, "Well, with a 30-day fast, I must have cleaned out six months of wrong living." Then he eats more and more garbage and before a few weeks go by he is eating the worst garbage in the world and he rationalizes that too. He says, "Well, I can eat meat and candy bars because the fasts will eliminate anything." So he eats worse than the average person who is afraid to do that. He seesaws between fasting and bingeing. I know one man who has been doing it for 30 years. I did it for 18. I know how easy it is. So don't play the game of procrastination. It is the most insidious of all. It's a liar's game. It's a fool's game, and it is a failing game. Face up to it. If you are going to do something, do it this second. There is no tomorrow; only the present is real; the past is a memory, the future a hope. Only this second is real. If you are not doing it now, you are playing a game with yourself.

The law of vital accommodation needs a balance wheel. You can poison yourself but there is no true adaptation to these poisons. Your body only tolerates them. I explained that. It's stimulation first, then depression. All bad habits and addictions are expressed in stimulation and depression. You introduce poisons and you get "high." Then the body throws you down into a state of recuperation which is interpreted by the brain as depression, because the metabolism slows down to recuperate.

Why are bad habits hard to break? It's because they are stimulating, and the more stimulating the habit, the harder is to break because the lower down you go in depression to recuperate. That's ,all; that's the secret of habits explained. If you study all the addicts around you, you will find this true. The worse the habit, the more poisonous it is, the more difficult it is to break because of the greater "down" you go through when you try to stop it. But if you know that stopping it puts you into the recuperation phase, and when you are feeling "down," the body is trying to balance matters and rebuild to make you over again, and if you are willing to face it, you can give up any habit you desire. That is how I gave up tobacco. I took the depression "cure." I stayed in bed and slept through all the downs until my energy was recharged.

You see, energy comes, not from the thing that makes you feel good—that stimulated you—you can get high on fruit. If you get up in the morning feeling pretty good, and you start eating fruit and you eat more sugar and then more sugar, this will stimulate you and you will get your high. If you overeat fruit it may make you nervous, even restless, and if you eat enough of it, you are going to go down, because you overstimulated your pancreas, and your pancreas is burning up this deadly enemy of extra sugar and in so doing, it produces a temporary state of low blood sugar, which is interpreted as depression. The body intends for you to be depressed so you can recuperate. It can only do it by reducing your blood sugar to the point at it stops the excitation and allows you to recuperate. So you see, there is a rationale in all of nature. Whenever you go down, it is because you have to go down to become normal again. If you know that, and you don't care—you're not afraid of being "depressed"—you can break any habit and then some.

Now I want to bring up the secret of changing anything in a second. This took me 30 years to learn through trial and error and suffering. When I discovered it, I could do anything I wanted to at any moment. I could give up anything, any object or any possessive attachments of a person if I had to. This is a secret of learning to do without anything and changing anything.

The only suffering we can experience is due to the emotions. We experience suffering due to emotions and feelings and this comes from identification, from locking into something. In other words, if you are watching a movie and you see this little child and the child falls down and gets hurt, you may cry. You are identifying with the child—you are becoming the child—you are experiencing the child's problems so you are suffering. You're crying. If your broker calls and tells you that your $30,000 in A.T.&T. stock has collapsed and hit the skids and you are now worth $10.00, you either decide whether you want to continue living at that point, or try to get out of this somehow. You have just lost a fortune in the market, but then when you go to sleep there is no suffering. There is no stock market once you dream, and after your dream you go into a dreamless state of sleep and there is no suffering—there is no stockmarket—there are no more family problems—there are no problems—there is no more crime in the streets, there is nothing but peace. So you see, suffering is related to identification with and idea.

At the time I was studying Yoga, there was something in a book that triggered me off. The author said, "Nothing exists that thinking makes it so" or "I, think, therefore I am," or "nothing exists but our thoughts." In other words, it doesn't mean that if you are unconscious that the world, has no reality, it means that for you, if you are not thinking, there's no suffering for you. If you're asleep, there's no suffering for you because you're not in a state of identification with the object which evokes an emotion. So I said to myself, "If that's the story, that's why I failed."

You see, everytime I tried to fast and I didn't lose my appetite, I'd look at the food and I'd smell it and I'd think of how good it smelled and how good it would taste going down and then before I realized it, I would get emotionally worked up. My juices began flowing and then I couldn't turn back anymore, I was finished. I had to eat and I'd wrestle or fight with anyone who'd try to stop me. Since I never lost my appetite, I knew that I had to master myself mentally. The average person loses his appetite after a few days of fasting. So there is no struggle—no problem. I didn't lose my appetite so I had to win the battle in the mental realm somewhere. I said, "It's got to be done on the battleground of thought."

At that time I had finished college and I was called to go into town on a job. I was part of a band in a place that had a smorgasbord. Every day they put the food in front of the band. People would march up and down for hours and eat. I was on a fast and I fasted for 38 days and I looked at the food and I said, "Ah ha, you're the culprit, you trapped me before and you are not going to trap me again." I looked at that food and refused to smell it, and I refused to see it. So, here I was, walking and playing, and the aromas were permeating my body, but I refused to acknowledge the existence of the food so there was no suffering. Even though I never lost my appetite and fasted for 38 days. I couldn't believe how easy it was. There was no pain at all. There was the secret of learning how to do anything immediately.

That's it. I wrote extensively on that in a book "Achieving Supreme Nutrition by Several Progressive Weekly Diets." You have to go through everything. Determine your goal. Expect to practice. These are long term concepts but the immediate battleground is in the territory of thought. If you know that you are dealing with a thought and you decide who is going to be the boss, you can succeed. The secret is, when you get the desire or the temptation, at that moment you must not consider it at all, but simply move your mind to another subject. Transpose your thoughts at that point. You have got to move fast because it only takes a few second of emotions to get into the picture and the emotions are very strong. They are stronger than the intellect, and if you allow yourself to get emotionally involved, you can easily lose. So you must win the battle before that happens. You have a couple of seconds to win the battle, and if you understand how thought works, you will win every time. You'll be in control.

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Article #3: The Negative Power of "If" by Charles M. Simmons

There are many proven laws that govern the human relations and personal management of one's life. There are laws that govern negative effects as well as positive effects, but all of them are based on the actions of "cause and effect." When certain conscious thoughts and subconscious attitudes cause a person to do certain things a certain way, the end result will always be the same. In fact, the result can be predicted, even before the action starts. This "cause and effect" action in human living is inevitable.

The presence of the word "if," when applied negatively in your life, is an example of the power of such laws. When you say, "If I had certain abilities ..." or, "If I could be a certain kind of person ..." or, "If I could do what I want to ...," you are telling the world that you have a daydream with no plan for making it a reality. You are automatically letting a negative law affect you. A dream with no plan for action means that nothing will happen. Nothing can happen because you block out action through the power of a negative attitude. "If," when used this way, means "No," "Never," "Can't."

However, "If" can be changed from a black, gloomy word to a bright red-letter word by coupling it with the words, "I do." This puts you under the influence of a positive law. When you say, "If I do certain things, I will get what I want," you are expressing both a "dream" and a plan for making it come true.

Excerpt from Stop Cheating Yourself.

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Article #4: Excerpt from "In Tune With the Infinite" by Ralph Waldo Trine

It is the people who have come into realization of their own true selves who carry this power with them and who radiate it wherever they go—they have, as we say, found their center. And in all the great universe there is but one center—the Infinite Power that is working in and through all. The ones who then have found a center are the ones who have come into the realization of their oneness with the Infinite Power, the ones who recognize themselves as spiritual beings, for the Infinite is spirit.

Such is the person of power. Centered in the Infinite, you have thereby, so to speak, connected yourself with, you have attached your belts to, the great powerhouse of the universe. You are constantly drawing power to yourself from all sources. For, thus centered, knowing yourself, conscious of your own power, the thoughts that go from your mind are thoughts of strength; and by virtue of the law that like attracts like, you by your thoughts are continually attracting to yourself from all quarters the aid of all whose thoughts are thoughts of strength, and in this way you are linking yourself with this order of thought in the universe.

And so to those that have, to those shall be given. This is simply the working of a natural law. Your strong, positive and hence constructive thought is continually working success for you along all lines and continually bringing to you help from all directions. The things that you see, that you create in the ideal, are through the agency of this strong constructive thought continually clothing themselves, taking form, manifesting themselves in the material. Silent, unseen forces are at work that eventually manifest in the visible.

Fear and all thought of failure never suggest themselves to you when you are such a person; or if they do, your mind expels them at once so you aren't influenced by, and don't attract to you, this type of thought from without; you're in another current of thought. So, the weakening, failure-bringing thoughts of the fearing, vascillating or pessimistic about you have no influence on you. The one who is of the negative, fearing kind not only has his energies and his physical agents weakened or even paralyzed through the influence of this kind of thought that is born within him, but he also in this way connects himself with this order of thought in the world about him. And in the degree that he does this he becomes a victim to the weak, fearing, negative minds all around him. Instead of growing in power, he increases in weakness. He is in the same order of thought with those of, whom it is true, "and even that which they have shall be taken from them." This again is simply the working of a natural law, the same as is its opposite. Fearing lest I lose even what I have I hide it away in a napkin. Very well. I must then pay the price of my "fearing lest I lose."

Thoughts of strength both build strength from within and attract it from without. Thoughts of weakness actualize weakness from within and attract it from without. Courage begets strength, fear begets weakness. And so courage begets success, fear begets failure. It is the man or the woman of faith, and hence of courage, who is the master of circumstances and who makes his or her power felt in the world. It is the man or the woman who lacks faith and who as a consequence is weakened and crippled by fears and forebodings who is the creature of all passing occurrences.

Within each one lies the cause of whatever comes to him. Each has it in his own hands to determine what comes. Everything in the visible, material world has its origin in the unseen, the spiritual, the thought world. This is the world of cause, the former is the world of effect. The nature of the effect is always in accordance with the nature of the cause. What one lives in his invisible thought world, he is continually actualizing in his visible material world. If he would have any conditions different in the latter, he must make the necessary change in the former. A clear realization of this great fact would bring success to thousands of men and women who all about us are now in the depths of despair. It would bring health, abounding health and strength to thousands now diseased and suffering. It would bring peace and joy to thousands now unhappy and ill at ease.

And oh, the thousands all about us who are continually living in the slavery of fear. The spirits within that should be strong and powerful, are rendered weak and impotent. Their energies are crippled, their efforts are paralyzed. Fear is everywhere—fear of want, fear of starvation, fear public opinion, fear of private opinion, fear that what we own today may not be ours tomorrow, fear of sickness, fear of death. Fear has become with millions a fixed habit. The thought is everywhere. The thought is thrown upon us from every direction ... To live in continual dread, continual cringing, continual fear of anything, be it loss of love, loss of money, loss of position or situation, is to take the readiest means to lose what we fear we shall."

By fear nothing is to be gained but, on the contrary, everything is to be lost. "I know this is true," says one, "but I am given to fear; it's natural to me and I can't help it." Can't help it! In saying this you indicate one great reason for your fear by showing that you do not even know yourself as yet. You must know yourself in order to know your powers, and not until you know them can you use them wisely and fully. Don't say you can't help it. If you think you can't, the chances are that you can't. If you think you can, and act in accordance with this thought, then not only are the chances that you can, but if you act fully in accordance with it, that you can and that you will is an absolute certainty. It was Virgil who in describing the crew which in his mind would win the race, said of them, "They can because they think they can." In other words, this very attitude of mind on their part will infuse a spiritual power into their bodies that will give them the strength and endurance which will enable them to win.

Then take the thought that you *CAN*—take it merely as a seed thought, if need be; plant it in your consciousness, tend it, cultivate it and it will gradually reach out and gather strength from all quarters. It will focus and make positive and active the spiritual force within you that is now scattered and of little avail. It will draw to itself force from without. It will draw to your aid, the influence of other minds of its own nature, minds that are fearless, strong, courageous. You will thus draw to yourself and connect yourself with this order of thought. If you are earnest and faithful, the time will soon come when all fear will loose its hold; and instead of being an embodiment of weakness and a creature of circumstances, you will find yourself a tower of strength and a master of circumstances.

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Lesson 90 - Psychology And Practical Aspects Involved In Making A Change In Lifestyle

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1. Introduction

Before we explore the psychology of the mind in this lesson, please review Lesson 16: Nutrition, Mind and the Emotions, and refresh your memory on "a sound mind in a sound body."

Other lessons suggested for review are:

Lesson 21 — Symptoms that Occur in Lifestyle Transition
Lesson 38 — Sociological Benefits and Economic Ramifications of the Avoidance of Junk Foods
Lesson 63 — Nutriton and the Hair - The McCarter Extended Detoxification Regimen
Lesson 69 — Nutritional Approach to Overcoming Addictions

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2. The Psychology Of Making A Lifestyle Change

2.1 The Psychology of Being

2.1.1 Nutrition and Mental Health

Usually when we think of the word psychology, a vision appears of couches and a "specialist" who collects impressive fees for talking to you about your life. Somehow the Indians in Mexico and fishermen in small Greek seaside villages, all struggling as we do to survive day by day, manage to get by in life without these "counsellors." In our rush to discover the space age, once again we have overlooked the wisdom of simplicity. Intuition and common sense help us to better understand the realms of our minds, just as they tell us how to care for our bodies. It is this common sense that tells us not to entrust our minds to a "professional" who includes all manner of drugs (from mood elevators to tranquilizers—all with their negative side effects—to shock treatment) in his treatment of patients. This "expert" seldom considers the obvious link between nutrition and mental health, and will look instead for more esoteric causes for a person's mental state, all appropriately labelled and tagged with intellectual-sounding psychological terms to create an aura of mystique, terms such as parental upbringing, peer pressure and so on, all of which have their place, but none of which is so basic and all-encompassing as the person's everyday diet and regime.

Often the same people who run to doctors to ask them what is happening with their own bodies are the same types who run to an "analyst" to ask what is happening in their minds. These people apparently don't place much trust in their own faculties. We have seen time and time again in our studies of Natural Hygiene that our bodies have incredible self-healing powers, given the proper conditions for healing to take place. It is the same with the mind. People learn to work out their lives by solving each problem as it arises, so "people on the street" surely know as much about real life as the psychiatrist/psychologist with his framed university degrees. If not more. If ever we feel confused, we'll do better to look inward and find out why, and see what we can do to change. In some cases talking it out is the best form of help around—we can talk to friends or counsellors who don't prescribe drugs.

2.1.2 We Are What We Eat, Digest, Assimilate; and Think

Let's leave the psychology books on the, shelf for the moment and get straight to the point: we are what we digest and assimilate of what we eat, and we are what we think (our thoughts determine our actions and our lives) and these processes are totally interlinked. Health is threefold: physical, mental and of the spirit.

In the words of the poet/philosopher Kahlil Gibran:

"And tell me, people of Orphalese, what have you in these houses? And what is it you guard with fastened doors?

"Have you peace?

"Or have you only comfort, and the lust for comfort, that enters the house a guest, and then becomes a master?

Ay, and it becomes a tamer, and makes puppets of your larger desires

"And though its hands are silken, its heart is of iron. It lulls you to sleep. Verily the lust for comfort murders the passion of the soul, and then walks grinning in the funeral."

2.2 Collective Consciousness—The Universal Mind

Since infancy most people in this society have been more or less preoccupied with themselves. Now that they have discovered that they should "know themselves," they are more determined than ever to understand their minds. Where *do* all their thoughts come from? Sometimes they are self-originated, and others just seem to pop in from "nowhere in particular." There is also a universal mind, a collective consciousness, of which we are all a part. In an era where people are becoming increasingly self-aware, they realize that they do not exist completely separate from other human beings—we are all interdependent and part of a huge "aquarium" or microcosm in the sky: our planet earth. What we do and even what we *think* will leave its imprint someplace. Even if we feel "lonely" at times, we are never really *alone*.

Like children, we adults often continue to associate eating with gratification/satisfaction (Lesson 16). If ever there's a twinge of anxiety, whether it stems from this loneliness or general boredom, we tend to think of eating to bring us some form of "relief." If only we could fill the vague, cloudy, empty areas in our existence with something. *Our goal is to find out just what to do with this energy.* We create our reality, but just as we'd prefer to blame some mysterious "germs" for illness, rather than see that our lifestyle produces our state of health, we'd rather believe that "things just happen to us at random," with no control from within. That way we are relieved of any responsibility. Nothing could be further from the actuality.

Our normal, physiological functions take place on the subconscious level, without the conscious attention of the mind. We may or may not be aware of these processes, depending upon our sensitivity. Our conscious thoughts are woven with our subconscious mind in a blend that determines our existence. One may wonder at science fiction that likens our minds to computers—indeed, some do resemble busy information gathering and storage centers that work day and night. Perhaps some minds still resemble rivers, wherein the person can become fluid, relax, and "go with the flow," yet our compulsion for labels and categories in this day and age seems to grow. People want labels for disease, labels for their thoughts—they are constantly searching for *data*. When will they see that life is more than the bits and pieces? It is the *whole*. Every time people seek to define something, the something will change, as does every other thing on the planet, from instant to instant. Yet we insist on definitions, facts, labels and data, and on *externalizing* what happens to us as being caused by coincidences or outside influences beyond our control. We're caught by the whirlwind propaganda of our times: *be somebody*. How can we be somebody and at the same time not take ourselves too seriously? I guess we have to see that we must drink the water, but our lips don't have to touch the cup!

Life enjoys setting us up for learning these lessons. The more we learn, the sooner we'll be surprised at how few things are just happening to us at random.

Sometimes we'll find that the harder we work at something, the more progress we make in realizing our goal. At other times, mysteriously, it seems to be just the opposite. Sometimes the harder we want something and more attached we are to our particular desire, the less we succeed, and the farther we are from our goal. How can this be? This is especially hard for a work- and goal-oriented society like ours to grasp. At times the conscious mind can interfere with the natural flow of events. When we stay only in the conscious mind and chatter on busily to ourselves, we may be missing intuitive subconscious messages trying to get through, just as it is difficult to listen *and* speak at the same time.

Let's look at an example. I once noticed that I often found something I had lost just at the point where I was about to give up looking, i.e., my conscious mind would detach itself from the search for a moment, maybe even just due to a momentary distraction. Somehow at the precise moment the conscious mind ceased to work, the subconscious mind would take over and I'd have an intuition to look under a particular book or in a drawer, and lo and behold, there was the missing object. It took me awhile to realize what principles were at work here: the conscious mind *can* "block" the subconscious.

Some people are almost completely unaware of their subconscious minds, just as some people are unaware of their body's innate capacity for self-healing and repair. They define the whole of their existence in terms of their *conscious* thoughts. This is very limiting, like trying to define the ocean in terms of the contents of a few of its drops of water.

Just as we can't watch two channels on TV at once, most of us can't tune in to both our conscious and subconscious minds at the same time. It can be done, just as one can juggle and watch a distant object instead of the balls, but it takes some effort at first. Usually we spend most, if not all, of our waking time in our conscious minds, entertaining ourselves with various fantasies, plans and ideas, or tormenting ourselves with worries and what-if's, depending upon our moods. Often we don't slip into our subconscious minds until we are asleep.

Just where *is* this subconscious mind? Well, most of us can think of instances where we've been aware of two types of knowing—we may know something because we were told, or we read it in a book or saw it with our own eyes. Or we may say that we know something "by intuition." There is a fine line dividing these two types of knowledge, but most of us have had experiences of this "sixth sense." As evolution of human beings goes forward, more and more people are discovering heightened sensitivity. Many people consider it an upsurge of "spirituality"—not necessarily in the religious sense (though when some people are awakened they choose to define it as such). No matter what the name, it is clear that peoples' minds are expanding at an increasing rate to include more and more dimensions. The universal mind also expands and increases with every moment. There are thousands of books and words to fill our minds; we try to sort out the truth. Many things in the universe remain unexplained. We often hear of "paranormal" events or the ability to receive information from the universal mind. If we are tempted to be skeptical, we should wonder if people a thousand years ago would have laughed at someone who spoke of vehicles that could fly in the air. Before the invention of the microscope, no one would have imagined that there were thousands of tiny living creatures moving around in a piece of fingernail scrapings, but there are. People are notorious for believing "only what they can see," but obviously a lot exists whether they see it or not. The mind has more potential than we can, at this point in our evolution, know.

Some people receive messages or information from the universal mind when they are dreaming. I myself have dreamed dozens of times of people (some who'd been gone for months), and then seen them that day, enough times to finally realize that I was somehow *knowing* in my dream and subconscious mind that I would see them—I had no *conscious* clue that they'd be coming. Many people have these types of dreams. Some see a person in a dream and later find out they died; some have seen houses on fire or other events that later came to pass, or were happening at the time of, or before, the dream. The only explanation for such occurrences is that there is information accessible to people who can "tap into it," by whatever means may best suit their consciousness, whether in a waking or a sleeping state. (For some people, whose minds are always busily centered in the conscious when awake, the sleeping state is the time in which they can best "submerge" into their subconscious minds, with no interference from the conscious stream of thoughts usually present.) Dreams *also* seem to be a type of "re-sorting" of information and events of the day, or the past, and some seem to reflect (or "work out") our fears or anxieties, so we can't just classify all dreams into one category. There are different stages of consciousness even in sleep, because there are varying depths of sleep; so not all dreams are the "precognitive" type mentioned. After awhile you'll be able to differentiate between your different types of dreams and whether they have any further significance for you. We shouldn't become unnecessarily preoccupied with our "average" dreams, any more than we would with any other part of our past. But we should learn to recognize any signals or any other information given to us if we feel intuitively that they are being given to us for a reason.

When thinking about knowledge, consider this. If you were to look at the ocean from a boat, you'd see the surface waves, but how would you ever imagine all the millions of fish under the water, and the ocean floor teeming with life, if you'd never been down there or known anyone who had? How would you then describe the sea, in terms of what you could *see*"! Your description would be a part of the truth, not the whole.

So, when talking about the subconscious mind, let's imagine a crystal clear pool of water, so clear that you can see the bottom of the pool *and* even the reflection of yourself and the sky behind you. When the pond is still, you are seeing *both* sides, the inside and the outside, above and below the surface, into both dimensions. When you stop thinking and mind goes quiet, it becomes clear like the crystal pool, and you perceive more than one dimension, the subconscious as well. But if you drop a stone into the pond, the surface is broken and both images, above and below are distorted. Your thoughts are like the stones.

When the mind is clear and quiet, we may call this a state of meditation. The inner voice can be heard; this is somewhat different from the voice of regular conscious thought, but you can distinguish between the two if you are sensitive enough. Knowledge thus comes from the inside as well as the outside, from a place we cannot see or measure, and yet we know it is there. Inner space is, after all, as *infinitely deep* as outer space!

We must not forget to look inward in this busy outward world. There is much knowledge to be found there, and we must learn how to "*let go*" in order to open the channels in the mind. Constant thinking blocks intuition and saps our energy—the mind needs rest just as the body needs rest.

As we go toward a lighter diet of fresh, raw fruits, vegetables, nuts and seeds, we will notice changes in our thoughts. We may find ourselves going through mental purgation as well as physical cleansing. Soon the mind will settle and become calm with the new healthy lifestyle, but whenever you feel an abundance of scattered thoughts, just let them go on by, don't repress them. Just as people suppress their cleansing symptoms with drugs and interfere with the body's natural healing process, so too do they sometimes hold in their real feelings. The result is a parallel to what happens when toxins are held in the body, only this time, wrong thoughts, attitudes, prejudices, etc., are the toxins: mental toxins.

2.3 Emotions—Releasing Mental and Emotional Toxins

Ever wonder why some people hold in their emotions? Some men are determined not to cry, for example. Women have traditionally been given more freedom in this area, fortunately for them. Children cry easily until they get the "message" to "grow up." Stop and ask yourself why we even have tears, tear ducts and emotions, if not for a reason? Some people plaster their pores shut with, underarm deodorants to "stop the wetness," somehow riot ' bothering to realize that the body's natural eliminative sweat glands are there for a reason in the first place, to refrigerate the area and get toxins out. Who, in the name of wetness or dryness, wants to keep these toxins in their body? Who wants to keep others in their minds?

Those who have reached and kept to a 100% raw food diet say that they have gained health, peace of mind and serenity of soul that are literally indescribable. Our purpose in life is spiritual unfoldment (again, we use the term spiritual in speaking of the spirit, not in the purely "religious" sense). The body is a tool you use to work with, to carry you towards your goals in life. The better nourished the body is, the more clear the mind is, and the more beautiful the character becomes. The purer the body is, the more expansion of consciousness will take place. A *live* food diet of our biologically-correct foods will bring spiritual awareness and heightened powers of intellect and sensitivity.

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3. Practical Aspects Involved In A Change In Lifestyle—Part I

3.1 Honesty with Ourselves

Why does change come so easily for some people and so slowly for others? It all comes back to truth and honesty. How honest we are with ourselves determines the strength of our willpower. People who see the truth like a shining light and know a natural lifestyle is best for them, lose their false appetite for foodless foods, and change is easy. Other people choose to ignore the truth. Some of us find ourselves somewhere in between the two, and see the truth even though we give in to our temptations at times. We have our excuses, but are we not also choosing to ignore the truth and look the other way?

Obviously the easiest way to lose all the "cravings" is to undergo a lengthy fast, after which a person will desire foods that are good for him instead. Some people say they don't have *time* to fast. Everyone has time for short fasts, one day a week, for example. Hopefully everyone has time, if they really look for it, for a longer one! How can they afford *not* to? We must find time for our health and well-being, for no one else is going to do it for us.

3.2 Habits—Breaking the Chain

"Humans are creatures of habits. Habits are conditioned responses—repeated performance of an action creates a mental pattern. We spend many years from infanthood in learning responses to many thousands of situations and circumstances. With set response patterns we don't have to go through time loss and trouble in solving problems anew every time we face them—once we have solved a problem, we develop a solution as a fixed, automatic response—a habit. When situations occur, we unconsciously use our habit patterns. We have more "conditioned responses" to carry us through more complexities than any other creatures in existence. However, sometimes these habits lock us into wrong conceptual frameworks, distorted outlooks, unwholesome practices, etc. Fortunately, like computers, we can be reprogrammed for better performance!" (T.C. Fry, *How To Reprogram Yourself for Superlative Well-Being*.)

Habits are made stronger by repetition, and many habits are self-perpetuating. Like the pendulum that swings to one extreme, the other extreme is the inevitable next swing. Some people live out the path of the pendulum quite literally in their lives, "awakening" in the morning with coffee and "relaxing" in the evening with alcohol. The law of dual effects states that stimulation is always followed by an equal amount of depression, and vice versa. People who are constantly altering their moods are swinging back and forth on the pendulum. Physical and mental balance and harmony must be restored to the body.

The following drugs and habits enervate the body with stimulation/depression cycles. At first the altered state seems "enjoyable"—once it becomes addictive, we crave its repetition more and more often.

hard drugs:
amphetamines, barbituates, morphine, heroin, etc.

soft drugs:
coffee, tea, tobacco, marijuana, caffeinated carbonated beverages, sugar, chocolate, non-caffeinated carbonated beverages (full of chemicals, etc.), strong spices, vinegar, salt

stimulating food:
animal food such as meat, poultry and fish, preserved foods, concentrated sweets and starches.

For example, meats stimulate the body; then a subsequent depression occurs that "requires" further stimulation. We must learn how to recognize and break bad patterns. Food addiction is every bit as overwhelming, potent and destructive of the human organism as a heroin addiction, when you look at its awesome short- and long-term effects.

Yet many people cling to their culinary traditions in the face of all logic and reason, with mounting evidence (Hygienists have already been long-convinced) that many of their "favorite" habits are self-destructive. Why do they allow themselves to become puppets of fleeting desires, ignoring warning signs and playing a sort of Russian roulette with their health? There is an old expression that says "if you want to dance, you have to pay the fiddler." Some people speak of karma: what goes around comes around. Others say you reap what you sow or you are what you eat.

People have become brainwashed by the media. Commercials show steaming portions of spicy, heavy meals at dinner time, to the tune of "are you hungry?" How often do we see a commercial for fresh, raw fruits or vegetables? Probably never! We must wonder about the mental health of a nation that runs on cereals, milk, meat, sugar, caffeinated beverages, snacks and processed foods, that washes off its natural skin layer with soaps and detergents, smothers itself in creams, lotions, perfumes, and as we said before, won't even *sweat*. Some people's eating habits are even regulated by time: they eat in a hurry and/or always eat at certain times, according to "convenience" rather than true hunger.

Are people truly becoming robots and prisoners of mechanical actions? What are they looking for in food? In Lesson 16, Mike Benton talks of food associations like sentimentality, security, family, rewards, friendships, childhood memories, and so on.

3.3 Love Is a Basic Human Need

People seek a sense of *nurturing*. They also search for shelter, a sense of belonging in a safe, secure and trusted territory, and a sense of purpose. Yet the one most important *need* they have is for *love*. People must have love, touch and contact with others. Let's not underestimate this for a moment.

If you travel to another country you're likely to notice that Americans (especially those who live in the cities) seem to be, for some reason, less tactile and more concerned with privacy and space than people of many other countries. This may sound like a generalization, but in the last decade here, there has been increased awareness of the need to "reach out," as evidenced by an upsurge in "encounter groups" and all sorts of "therapies" encouraging people to hug one another and express more of their feelings.

Is it possible that some people's isolationist tendencies stem from their unnatural birth experiences? Ever since doctors and hospitals took over, childbirth has become less and less natural. The traditional medical birthing ritual routinely separates newborn infants from their mothers and places them alone in cribs in the nursery, and one might ask what emotional price these children have paid. Did they "adapt" and, rather than become bonded in their first intimate relationship with another human being, adjust to their aloneness by becoming "more independent"? One can only wonder. In this society, families are also separated more often as people become increasingly mobile.

It's not difficult to see that many people make up for that restless, empty space inside by *eating*. Why isn't it obvious that we won't find love and affection in a double banana split? The conscious mind may be reaching for a bag of chips, but the subconscious mind *isn't fooled*. The person is no closer to his real desires, and the frustrations left behind because of unfulfillment are merely buried deeper, to be reckoned with at some later date.

Sound familiar? Just as we palliate symptoms of detoxification through drugging, so too do we resort to food for palliation of symptoms such as inertia, boredom, restlessness, thus leaving the mental toxins inside instead of dealing with our true feelings. Some people have difficulty *admitting* their true feelings to themselves. They may not see that it's love and contact they're after, deep down, but the subconscious *knows*, even if they don't see it in their conscious minds. The games people play with themselves far outnumber the games they play with others. They must first fool themselves before fooling others.

Some of us "cheat" when "no one's looking" (including *ourselves*, presumably) and eat something we've been trying to avoid. Trying to fool ourselves! We try to convince ourselves each time that it "doesn't matter" or that "next time it will be different." As long as our intentions are good, we are off the hook temporarily. But truth is truth, whether we like it or not. We must see our selves as we really are, not as we should be. Again, our subconscious mind knows what is really going on. If we choose to let our conscious minds rule the subconscious, we will remain captives of our lower selves.

> "Stuck here trying to figure out the price of having to go through all these things twice..." —
> Bob Dylan

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4. Practical Aspects Involved In Making A Lifestyle Change—Part II

4.1 Rule #1: See the truth

The truth is all around you, free for the taking. Open your eyes and you will see that people are destroyed in their prime by wrongful living habits. The more they indulge and consume, the more vital energy is lost and dissipated.

4.2 Rule #2: Live by the truth

How many times have we heard the old saying "actions speak louder than words?" Or thought one thing and done another? Once we know the truth, we're only halfway home. We must teach our sometimes reluctant ego (our smaller self) the true meaning of freedom, that of being as strong as our dreams, that of really being the most evolved, radiant soul possible. Why settle for second best?

Why, indeed? For that is what many people, possessing full free will and freedom of choice, end up doing.

The split second between desire and fulfillment of the desire is very crucial. The two can blend together into one before you know it. This is why it's been said that the best way to deal with temptation is to cast it out before even *beginning* to think about it, because once you give a thought "an audience" by letting it assert itself, you've given your emotional self the go-ahead. You'll need a will of iron now, for this is where some people give in, sometimes out of sheer frustration or irritation (and usually accompanied by some excuse to their higher selves).

When people have jaded taste buds, it becomes tricky to see the fine line between stimulation and enervation in foods. Some of them are so used to altering their moods that they may not remember what a "normal" mood is like, what it's like to be *centered*.

It all sounds so logical, so why are we tempted? Is it because we're not really sure whether we should eat something? No, it is because we are sure deep down that we shouldn't, but we are still arguing with our physical self.

The mental self and the subconscious self have already accepted the truth. Why do we sometimes refuse to listen to our inner voices? Only we ourselves know the answer to this question. We know how far we will go to follow truth. Either we will compromise and bend our principles (knowing full well that nature does *not* bend hers) or we'll choose freedom. We all choose our level of awareness and level of being.

Knowledge comes to those who should have it, those that seek it, those that *see*. Some people put as much energy into *not* changing by not doing it yet, doing it halfway or thinking of changing, as they could just as easily put into changing, and getting it over with!

I remember a Chinese expression saying "much noise on the stairway, but no one comes through the door." Somewhere between the dreamers and the cynics are the actual doers. There is a quotation in *Composition of Foods* that says:

> "Nothing in the world can take the place of persistence. Talent will not: nothing is more common than unsuccessful men with talent. Genius will not: unrewarded genius is almost a proverb. Education alone will not; the world is full of educated derelicts. Persistence and determination alone are omnipotent."

The truth may not seem easy at first glance, but it is simple. Change is easy when you want it. You have to *love yourself enough* to change. (No one else will do it for you).

4.2.1 Self-respect...self-esteem...self-love

Self-discipline is a positive force. Discipline does not diminish life—it increases it. When we decide to become true to our biological heritage, we are *backed up* by all the forces of nature and by life itself. We learn how to channel our energy flow and conserve our vital energy.

Those who are undisciplined waste their vital life force and spread themselves too thin. They drain their energy, making life harder for themselves. Life can be easier and the choice is ours.

"He who has a firm will molds the world to himself..." —Goethe

"People do not lack strength, they lack will..." —Victor Hugo

Some say that 5% of the people in the world think for themselves and the other 95% don't.

When you get rid of a bad habit, feel glad. If you kick the drinking habit, don't think "now I can't drink anymore." Think "now I don't have to drink," or "now I am a *free person*." (Now I am saving money, now I am saving energy, etc.). *True freedom is freedom from need*. The less you need, the more free you are. You aren't denying yourself anything. You are giving yourself the greatest gift of all: life and freedom. You have chosen enlightenment.

"When you can control your tastes and appetites, you will be master of your self."

"You will be a soul in a body, not just a body with a soul." —Stanley Bass

Poets, philosophers and seers have written about this lofty state of being for centuries!

When you increase your willpower, you increase your self-confidence. You strengthen yourself to your highest potential.

Don't just break bad habits—cultivate good ones. Don't see your life as full of "restrictions." See that you are gaining all your power and energy, all your beauty and all your strength. You'll soon find that abstinence is easier than "moderation," and that it's easier to give something up than to indulge in it "just this once." More energy is saved. We should live with nature, not against it.

If we are tempted to "make exceptions," we must ask ourselves if we want to start the chain of habits again, giving reality anew to all the memories and obsessive compulsions attendant to them. We can't be on both sides of the fence. Once we give up a habit, its memory and hold will fade with time.

When we truly see that what we eat today walks and talks tomorrow, we may feel that we are one of a "chosen few." Once upon a time there lived a man who thought that the sun was the center of our solar system and everyone knew he was crazy. They knew that the earth was the center, and it was flat!

In habit and thought you are different from the crowd, but follow your instincts and do what you know to be right.

4.3 Rule #3: Visualize the positive

Please read the section on affirmations, Lesson 16, page 381. We must be aware of the subtle messages we may be giving our subconscious minds. Sometimes we don't realize we are expressing our positive hopes in a negative way:

We say:
I hope it won't rain
I hope we're not late
Don't slam the door

We mean:
I hope it's a nice day
I hope we're on time
Close the door quietly

There is a certain power in the written and spoken mind, and there is a certain power in the way we formulate our thoughts. People with a strong will to live and a positive attitude live longer, other conditions being equal.

Smiling and laughing are healthy, both on the giving and on the receiving end.

When we want to encourage the body's natural healing process when fasting or otherwise, we should not visualize the illness and the symptoms, which are a manifestation of the healing that is taking place. Instead, the body is to be imagined *in its healthy state*, visualized in the positive light, seen *as we want it to be*. Some people even speak of visualizing healing white light surrounding the sensitive area, protecting it. The idea is to focus positive energy on the body. This is vastly different from focusing negative energy on it; when we worry about symptoms we literally reinforce our "sick" state by lending strength to it with our thoughts.

A quick glance at the following two ways of life, the negative and the positive, will convince us at once to go with the life force, the positive!

Negativity	**Positivity**
narrow-mindedness	open-mindedness
evil, revenge	good, forgiveness
pettiness, prejudice, intolerance	tolerance
inflexibility	change, fluidity, flexibility
apathy, indifference, laziness	vigor, strength
gloom, morosity	positive outlook
negative conversation, gossip	positive conversation
dissipation of energy	focus of energy, centering
pride, self-righteousness, arrogance	humility, self-respect
self-pity	self-esteem
attachment, envy, jealousy	detachment
illness	health
anger	joy
hatred	love, touch, nurturing
anxiety, nervousness, tension	serenity, harmony, balance
dishonesty, deception	honesty, truth
self-deception, ignorance	vision, insight, wisdom, understanding, clarity

paranoia	trust, faith, hope
fear	courage
chaos	unity, simplicity
selfishness, greed	generosity
entrapment	freedom
violence, war	peace
regression	evolution, progress
destructiveness	creativeness
loss of powers, death	increasing abilities, life

4.3.1 "Mirror, mirror on the wall... who's the fairest of them all?"

The key to rule #3 is the positive image of ourselves that we keep in our minds. When we see this image, we will see that improper, compulsive eating in the past distorted our bodies and our minds and revealed a lack of love for ourselves, as well as an escapist lifestyle. We experience what we believe, so we must believe ourselves to be deserving, attractive, desirable, and lovable. We must create the image of our highest self. If we do, we will then *become* our highest selves.

If you look at anyone who is "successful," you will see their absolute faith in their ability to succeed. You must have faith in your inherent powers. You are not just a "victim of fate." Remember that what passes to the subconscious mind can be translated into action. As we said, negative thoughts build upon themselves. If you entertain thoughts of failure and if you doubt your ability to succeed, you will generate negative energy. Many of your anxieties become self-fulfilling. "As you thinketh, so shall ye be."

Let's not think negatively. Instead, let's cultivate positive thoughts, and create a constant flow of positive energy. We decide what mood will color our thoughts. It is best to choose friends, books, movies and thoughts that nourish our minds and aspirations. When we look at any food or drink and cannot answer the simple question "what *good* will this do?" then we should *let go* at once. Old habits and crutches only stand in our way of our liberation. Soon the good, positive lifestyle will be habit, as strong a practice as the lifestyle it replaced.

4.4 Rule #4: Eat the optimum diet and live according to your natural mandate

We have discussed the diet of fresh, raw fruits, vegetables, nuts and seeds, and getting plenty of exercise, fresh air and sunshine, in earlier lessons.

4.5 Rule #5: Remember the Simple Joys of Life

Not only are they free, they're fun. In a positive lifestyle we will find an abundance of joy. Singing, dancing, music, artistic and creative expression of all kinds, gardening—these are but a few of the simple joys of life. When we sing and dance, we join with the universe in its larger song, the eternal fountain of life.

4.6 Rule #6: Give of Yourself

In a television documentary on the life of Mother Teresa in India, it was said that she sent new volunteers to work in her homes for the dying, where they received their first dose of reality. One such volunteer came to her, a middle aged man given up to die of a heart condition by his physician. He'd apparently decided to put in some service to mankind before departing, but after working more and more with other people, and forgetting himself, his heart condition changed and he became well. (We know the role of diet in heart conditions, but some literature has also linked heart problems to people obsessed with themselves and with time, both of which will add stress to their lives.)

A person who doesn't give readily of himself suffers from a sort of poor sluggish disposition too. Giving of oneself is sometimes harder than giving of one's possessions. Either way, most people usually give to the persons of their *choice*, who are "worthy" to receive their generosity. We should give with the same readiness to strangers, since they are the same as every living being.

Kahlil Gibran says of giving:

"It is when you give of yourself that you truly give

For what are your possessions but things you keep and guard for fear you may need them tomorrow?
And what is *fear of need* but *need itself*?
Is not dread of thirst when your well is full, the thirst that is unquenchable?
There are those who give little of the much which they have—and they give it for recognition and their hidden desire makes their gifts unwholesome

And there are those who have little and give it all

These are the believers in life and the bounty of life, and their coffer is never empty

There are those who give with joy, and that joy is their reward

And there are those who give with pain, and that pain is their baptism

And is there aught you would withhold?
All you have shall some day be given;
Therefore give now, that the season of giving may be yours..

You often say, "I would give, but only to the deserving."
The trees in your orchard say not so...they give that they may live, for to withhold is to perish

Surely he who is worthy to receive his days and his nights, is worthy of all else from you

And he who has deserved to drink from the ocean of life deserves to fill his cup from your little stream

For in truth it is life that gives unto life—while you, who deem yourself a giver, are but a witness."

4.6.1 Living in Excess of One's Needs

Wealth—who hasn't wondered what they'd do with a million dollars? In our search for "security" we should stop and reflect a moment. The easier it becomes for us, the more we should look to see what we can do for others.

Even when we feel the pinch financially, there's always room to *stretch*, and there's always someone with less.

Anyone living in excess of their basic needs is being self-indulgent if s/he doesn't share. Just as the body with excess food becomes saturated or bloated or toxic, the spirit of a person becomes cloudy when s/he has more than s/he needs to get by. If one has health, happiness comes naturally. Beyond these, what will money buy? It can't really even buy these, and this has been said in so many different ways by now that it seems we'd take it for granted. Yet we often lose sight of our perspective in the search for security.

Some of the most generous people I met travelling in foreign countries were people who had *almost nothing*.

If you can learn to be happy with nothing, think what you can do if something comes along!

4.8 Rule #7—Relax

If you want to keep pace with a world that is moving faster than ever, the best thing to do is relax. The younger generation is instinctively more open-minded and active because it has to keep up with constant change and expansion. We should be as fluid, tolerant and easy-going as possible at all times, and let go of our attachments. We don't hold our breath if we want to live, and must let go of one breath and flow into the next one. We should be this fluid in our deeper selves. We don't want our physical body or our minds to be rigid, contained or tied to one idea, rather they should be as changing, evolving and ongoing as life itself.

Negative emotions are only useful insofar as they can trigger us into positive action. A brief moment of anxiety makes us alert to something that needs attention. Adrenalin stimulates the body to action. Or negative emotions may serve as a *release* of pent-up feelings, a cleansing. Whatever their purpose, whenever they linger on and stretch into minutes and hours, we begin to drain our energy and enervate the body needlessly. The anxiety (or whatever) alone, without action, is futile once its initial purpose, that of "warning," is fulfilled.

As long as we ignore stress, we are not in a state of mental well-being. Constant pressure injures us by interrupting the natural flow on a physical and mental level. Our brain becomes distracted and enervated. The autonomic nervous system gets out of control. We can feel the grip of stress in our necks, shoulders, facial muscles, feet, hands—we must break its grip.

The fear of failure can feel as threatening to us as an approaching train in whose path we stand. Your body can't tell the difference—it just feels the stress. In a chronic stress pattern there is sometimes a crisis that arises to break the cycle. For example, illness will force the person to *rest*, for he'll have an excuse to stay in bed or do nothing.

If only doing nothing were that easy. Some people are afraid that it means they're apathetic or lazy. They've forgotten that one can *creatively* do "nothing." Clearing the mind space and letting the universe inside for a moment can *hardly* be called nothing! People should remember to relax simply.

The simple repetition of a sound can relax the body and the mind. In meditation, breathing slows. Heart rate diminishes. The sensation is calming and relaxing. Relaxation response is the result. We know that we must change to good dietary habits for health, but it is worth noting that meditation has been seen to effect changes on the physical level as well as the mental level. Studies have shown that it diminishes irregular cardiac contraction, particularly ventricular tachyarrhythmias, and that it can reduce the number and intensity of anxiety attacks. Insomnia, tension and migraine headaches, and certain other kinds of pain may be reduced. Meditation helps lower blood pressure in hypertensive people, and has helped drug, alcohol and cigarette abusers too. It has been effective in treating speech problems such as stuttering. One study showed a significant reduction in serum cholesterol levels after eleven months of daily meditation. Yogis and serious meditators can learn to control their pulse, brain waves, blood pressure, heart rate, skin conductance, muscle tension, peripheral circulation and respiratory pattern and rate.

My purpose in mentioning this is certainly not to suggest that meditation should be a *replacement* for correction of dietary habits, but through meditation we may learn more about the powers of the mind, and this can help us on any level. We will be well-rewarded if we reach for both physical health *and* mental growth, for they go hand in hand. Meditation is a wonderful tool to employ in realizing self-knowledge.

Choose a quiet place where you will not be disturbed and get comfortable sitting or lying down. Close your eyes and let your mind drift. Let each thought go and quiet your mind. You'll be amazed at first how often your conscious mind will insist on asserting itself, accustomed as it is in preoccupying your normal waking state. But continue to let each thought go. Try to do this for fifteen to twenty minutes, twice a day, as a minimum. You may do it as often or as long as you like. With time you will see more and more changes in the quality of your meditative state. Some people read volumes on "psychic awareness," but these books can only describe various dimensions of thought and cannot of themselves bring the awareness to a person. Not all people gifted with sensitive minds are book-educated. Some of them are merely wise in their simplicity. Just as a fast (with temporary elimination of food) renews and revitalizes the entire organism, so too does meditation (temporary elimination of conscious thought) refresh the mind and elevate the spirit to new heights.

Pure diet, fresh air, sunshine, warm baths, swimming, dancing, hiking, camping, gardening, exercise, laughter (and crying) and humor are all possible ways of dealing with stress. Mild massage can help. Care should be taken to avoid rigorous massage with extremes of vigorous thumping, molding and probing. This may result in over-stimulation, enervation and possible harm. In mild massage, touch and the human factor are at work. There is something magnetic and caring about another person's touch that can do wonders. Love is truly healing.

Exercise should include some form of aerobics to get the heart pumping and circulation going. There was an inter-sting note in a book on longevity that said in one area with many old people the men seemed to live about 20 years longer than the women, with all lifestyle factors seemingly equal. Upon closer scrutiny, one difference was found: the women tended to walk around in their homes? on a flat surface, whereas the men climbed up and down the long, steep mountain trails for much of their days. They had well-developed, strong calf muscles which pumped the blood up to their hearts more vigorously—their circulation was better. So even when we walk and do housework and gardening, getting plenty of "old-fashioned" exercise, we must also do something with a bit more spark to it.

When I don't run or swim, I find dancing at home a good way to get the heart going and get a variety of movements done. It's my personal opinion that people miss a lot of fun when they reserve dancing just for special events or parties, or just for when they can find a partner.

4.9 Rule #8—Take your time

Time does not exist as we define it in our human terms. In fact, it even differs from individual to individual, from a child to a peasant in a field to a businessman checking his watch.

Before we are a year old, we live in an eternal present. At about 2, "today" appears, at 2 1/2, "tomorrow." "Afternoon" and "yesterday" come at 4 and "days" at 5.

Kahlil Gibran says of time:

"You would measure time the measureless and the immeasurable

Yet the timeless in you is aware of life's timeless-ness, and knows that yesterday is but today's memory and tomorrow is today's dream

And that that which sings and contemplates in you is still dwelling within the bounds of that first moment which scattered the stars into space."

Quantum physics says that everything is one and time in not linear. Modern physics sees space and time existing together at once, as if they were a block, without separation in the block. It is we as individuals who divide it arbitrarily into seconds, minutes, hours, days, weeks, months and years, ad infinitum. While many people become more and more obsessed with and dominated by time, or bemoan their "lack" of it, it seems that children, primitive people, religious and mystical people all live in an eternal, continual present. When time ceases to flow in the fragments created by our words, we are enveloped by the stillness that all the great mystics have spoken about.

When you aren't living in the *now*, and you slip into the past or the future, you are alive in a time that is not the real time of the moment. Your focus changes, and you are no longer centered, on balance.

When you think of time, does it seem that the last year has gone faster than the one before it? Do you often rush to get things done and fear that you'll never have enough time? What is *enough* time? Be assured that each of us has all the time we need.

If you let your mind jump ahead to the year 3000 you will see in perspective how important it is that the vase be dusted, or whatever. When you watch ants, some will get lost up on a twig for what seems like ages, doing who knows what. We are like these ants at times, distracted off in our corners, filling our time with all sorts of busy activity that seems important to us. We must survive and find our priorities in life. But in our rush to survive, we must not forget to LIVE. Once a day at least (if not more!), remember just to *live*, only to live, not to *do*. Stop listening only to your constant stream of thoughts; it's like looking in a mirror at yourself all day long—certainly most of us wouldn't consider that a thrill. Get outside yourself and listen to the birds, the wind, the silence, and you will hear *other* voices speak.

Feel the life force within yourself. Remind yourself to slow down for a moment, long enough to *enjoy the miracle*, for truly your participation in life in this grand universe is a miracle. Don't let life trickle through your fingers like the sand in an hourglass, so that once it's gone, it's too late and you never realized it. Don't wait to live. *Feel it*. Stop wasting your time worrying about time. An 81-year-old friend told me at 31, when I was lamenting about not having enough time: "don't worry, you'll have all the time you need when you're dead." Likewise, we have all the time we need to *live*. So, we must live our lives fully, for quality, not quantity.

John Lennon said,

"Life is what happens while we're busy making other plans.

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5. Using Psychology On Others

Most of us have tried on one occasion or another to "convert" someone to a health regime or to use "reverse" psychology on children, all with varying degrees of success or failure. We all know at least one person so stubborn that we would be better off talking to a *wall*, too. We will have to know when to persist in hopes of turning a key in their minds, and when to let go of our need to change someone.

Everyone has the same opportunity to see the truth. Those who don't see it are like someone whose eyes are closed when a shooting star goes by...can they then say that it did not go by because they did not see it?

It is always sad for us when loved ones will not see what we see as true. We all know someone with an illness that we'd like to help if we only could, if they'd only listen, if they'd only understand, if...

It's hard to know what to say, but if you were to hold up a volume of cherished poetry in front of a person who cannot read and two people who can read, one will see words, one will read words and one will read between the lines of the words as well, beyond to another depth.

It would be difficult to make the book any more than a book to the one who didn't read at all. It might not be much more than a book to the one who can read, but has less understanding. The third person, the one who sees more deeply, is really talking with the book's author.

How do you explain your ecstasy after listening to a musical piece to someone who doesn't feel it? How do you explain that the smell of lilacs is making you delirious with joy to a person suffering from a cold? How would you explain color to a person who is blind? In all of these instances, one can transcend words somewhat and get beyond them to another meaning, but different people will even respond differently to the *same* stimulus. We cannot expect everyone to see what we see even if they look in the same direction. Even if you hold up the same object, people see it differently.

This is what we must remember when faced with people who see and understand differently, and not become obsessed with changing their minds. We've seen parents try to change children, children trying to change parents, husbands and wives who try to change each other, friends who try to change friends, the list is endless. Someone always knows better. They beg and plead, or perhaps if these don't work, they try trickery, or, finally, give up or become angry.

It is up to us to decide in each individual situation how to handle conversations on lifestyle. After we make the truth known, each person will change only when ready to do so. Some of us have a hard enough time changing *ourselves*, so we should understand this quite well when we see it in others. Dr Albert Schweitzer said, "Example is not just the best way to teach: It is the only way!" Let us first change ourselves, and let others see for themselves what truth is, manifested in our example. Truth is self-evident. Each person decides whether to live by it. I am reminded of the words in a song of the last decade: "a man hears what he wants to hear and disregards the rest." Certainly true; but let's hope some of us can do better than that.

The following guidelines will help you in dealing with other people when the issues of diet/lifestyle come up:

Dos and Don'ts

DO	DON'T
relax	don't get tense
speak slowly, calmly	don't speak rapidly, nervously or argumentatively
avoid obvious tender discussion topics at dinner	don't preach
suggest what you would do, mention what you do/or don't eat	don't tell others "do this/do that" in a dogmatic way, just because you do it
be patient	don't lose your patience
be subtle	don't be blunt or offensive
keep a sense of humor	don't alienate others with your seriousness
do what you believe in	don't try to prove yourself to others

be tolerant and understanding	don't be too judgmental
"catch flies with honey"	don't *turn people off* to Natural Hygiene
be humble	don't be self-righteous, know-it-all
know your limits	don't overdo your health "lectures"
be aware of others reactions; be sensitive to how much they want to hear. Does this person want your advice? Someone who does is more apt to listen and absorb what you say than someone who obviously isn't interested.	don't waste your breath
be optimistic and positive	don't approach a health discussion with a negative "fire and brimstone" attitude
be gracious even if antagonized	don't lose your temper or become angry when someone lacks understanding

5.1 "Am I My Brother's Keeper?"

To what extent are we responsible for spreading the truth? We already spoke of setting a good example. The power of collective thought is barely even recognized, let lone understood, by most of us. We are all busy travelling through space and time, like millions of voyagers on a journey towards the future, a future that waits for us with population growth, extinction of species, computers, robots, space travel, genetic engineering, prosthetic devices and implants, more drugs and the unknown. Where will we fit in? How can the children of nature keep a healthy perspective?

When the first settlers came to America they were full of passion in their beliefs, ready to make it in the next world. The planet is much smaller these days, and there aren't many new worlds left for us. What we do now affects one another more than ever before.

We might think that we are only responsible for ourselves, but it is this illusion that is responsible for destroying our life source: our planet. We must not let this happen. We are responsible for ourselves *and* others. The planet needs to be healed, and people need to live in *peace*.

Weapons have a way of being very unHygienic, even for people who eat raw fruits, vegetables, nuts and seeds. While we fret about the price of shoes and who's ahead in the World Series, or plan our perfect diets, there are people who are busy making decisions for us, very grave decisions. They hold our destiny in the palms of their hands. Those of us who see clearly, see that just as doctors mesmerize the public with verbal slight-of-hand and drugs, our world leaders are trying to convince the masses that more weapons can "prevent" war. This continual addition of more complex and deadly weapons to our weapons arsenal has created such an over-kill potential (the planet can now be destroyed not once, but many times over) that it is like keeping a bottle of arsenic in the medicine cabinet to take to "prevent a cold."

There is a riddle going around that asks: "if we are in a closed room with a gas leak and have four matches, how many must you light for an explosion?" The answer, obviously is *only one*. The nuclear freeze advocates have been trying to tell us something.

So, what kind of a lifestyle change shall we make? Shall we give up candy and pat ourselves on the back? Or shall we learn to weave our physical bodies, our minds and our souls into the *whole* tapestry of life in the most beautiful way we can imagine? We will be our larger selves, linked to one another all over the planet.

Let us reach out to those who need help. The more love that goes out into the world, the more healing that can take place. There is no greater purpose in life than *helping others as we would help ourselves*.

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6. Questions & Answers

There is so much suffering: having compassion, how can one be at peace?

> Do you think you are different from the world? Are you not the world? The world that you have made with your ambition, with your greed, with your economic securities, with your wars—you made it. The torture of animals for your food, the wastage of money on war, the lack of right education—you have built this world, it is part of you. So you are the world and the world is you; there is no division between you and the world. You ask, "How can you have peace when the world suffers?" How can you have peace when you are suffering? This is the question, because you are the world. You can go all over the world, talk to human beings, whether they are clever, famous or illiterate, they are all going through a terrible time—like you. So the question is not, "How can you have peace when the world is suffering?" You are suffering and therefore the world suffers; therefore put an end to your suffering, if you know how to end it. Suffering with its self-pity comes to an end only when there is self-knowing. (J. Krishnamurti)

What else can I do after I change my own lifestyle?

> Channel some of your energy into one of the following efforts to save our planet, our home and life source:
>
> - clean up the environment
> - recycle
> - solar energy and other alternative energy forms
> - help free animals from exploitation, in laboratories and livestock farming
> - save seeds, especially open-pollinated seeds
> - organic gardening
> - plant trees, especially fruit trees, nut trees
> - plant flowers
> - educate others
> - music, dance, beauty, art
> - love others
> - shelter those who need it
> - help others

Article #1: Ahimsa Excerpts

Reverence for Life, and The Golden Rule

The phrase was originated by Dr. Albert Schweitzer to describe his belief that life has value; that life is a rich and rewarding experience for all who partake of it; and there is no such thing as worthless life. Probably the greatest of all is the Golden Rule: that we should act toward others as we would wish them to act toward ourselves.

The Golden Rule In Seven World Faiths

Hinduism

"Men gifted with intelligence ... should always treat others as they themselves wish to be treated."

Buddhism

"In five ways should a clansman minister to his friends and familiars: by generosity, courtesy and benevolence, by treating them as he treats himself, and by being as good as his word."

Taoism

"Regard your neighbor's gain as your own gain, and regard your neighbor's loss as your own loss."

Confucianism

"What you do not want done to yourself, do not do to others."

Judaism

"Thou shalt love thy neighbor as thyself."

Christianity

"All things whatsoever ye would that men should do to you, do ye even so unto them."

Islam

"No one of you is a believer until he loves for his brother what he loves for himself."

The person who has a mind that is controlled and serene, a pleasant and calm disposition, and a ready and sincere smile for others, will find others smiling right back. Good people instinctively are wary of someone who radiates fear and hatred, but one who shows universal love communicates this to others.

In this modern age of mass communication, a sweeping numbness has developed in many minds, a form of defense mechanism or reaction to the over-stimulation of our senses by visual and auditory gimmicks. The Golden Rule is still the *real thing*.

Man's insatiable curiosity has driven him to the conquest of Space and toward the stars, but man must master his lower self before he can realize his higher potential; and he must do both before he is fit to master the Earth, the sea, the skies and "outer space," let alone mastering other living beings such as animals, birds and fish. Man claims absolute "dominion" over everything that breathes, crawls, runs, flies, or swims, but he has been ill-trained for such a royal position, and seems more like a petty tyrant instead. Without this first conquest of "inner space"—the conquest by man of himself at the individual level—we are only turning loose a monster with little restraining sense of morality, justice, fairness and goodness. If only man would stop trying so hard to know, and would make more effort to understand. If only we could understand that the universe is not malevolent, and that man can live in love and compassion without perishing. Indeed, it appears more likely that he will perish if he does NOT practice these virtuous attributes to a sufficient degree.

In any event, we cannot have it both ways: man cannot pretend to be higher in ethics, spirituality, advancement, or civilization than other creatures and at the same time live by a lower standard than the vulture or hyena. The truth of the matter is that it is high time for man to leave his lowest brute nature behind, and bring his nobler self to the fore.

Mankind has been in the jungle too long. As with a mole or owl viewing bright sunshine, we are presently so dazzled by the brilliance of what may lie ahead, that we prefer the comfort of our present position. We are possessed by a great inertia; we cling to that which we think we know, rather than attempting that which we do not yet fully understand. But the world is more than just a jungle; we might come out of the darkness into the lovely sunshine, and become used to the bright light after awhile.

We will never make real progress out of the jungle until we break off the chains we have forged for ourselves and which we so proudly wear and display: the fears and ignorance, and self-satisfied complacency.

Everyone has his own way to go—you have yours. Follow your conscience and your Inner Light; they are your greatest guides on the trek out of the jungle into a new and better tomorrow.

We may close with this gentle but firm cautionary note against ever mistaking the vessel for the contents, or the guide along the path for the path itself.

May you know Truth, Wisdom and Peace.

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Article #2: Excerpted from Live Foods by George & Doris Fathman

Even more fantastic are the cases of the Bavarian stigmatist, Therese Neumann, and Giri Bala of India. Miss Neumann's case is, of course, world famous, and has been carefully verified many times. Going through the agony of the crucifixion every Friday, she has lived her entire adult life on nothing but one communion wafer once a day. Giri Bala's case is practically unknown, or was until it was first brought to the world's notice by Paramhansa Yogananda in his Autobiography of a Yogi. Her amazing story has been thoroughly verified. For fifty-five years she lived without eating! During all that time she prepared all the meals for her family, lived an active life, yet had no appetite for food. Both of these women maintain they live on God's light. When asked to explain, they say their secret cannot be revealed, that it is not for the mass of mankind, in this day, but only to prove that we are spirit, and that ultimately that spirit will rule the flesh.

Article #3: The Doctrine of the Memory of Cells by Stanley Bass

Man is constructed basically from the food and liquids which enter his body. When food is eaten, a profound effect is exerted upon the consumer in both the feeling and thinking nature, depending upon whether the origin of the food is from the vegetable or animal kingdom. The vegetable food induces a state of tranquility and inner peace in both feeling and thought with a disinclination to violence to either man or any living creature. The animal food induces a state of volatility and restlessness in the feeling, passional and mental nature with an inclination to anger and violence. The manifestation of these characteristics have their origin in two sources. *First*, from the intrinsic nature of the food itself.

For example, if the person eats flesh, the feelings and emotions such as fear and terror which the animal experienced before it was slaughtered are transported along with its tissues to the consumer. Then again, according to many religions, the passion-exciting qualities associated with all animal products are said to reside in its blood. Also, we have here a protein which was once alive, but is now dead and filled with the products of decomposition, bacteria and added chemicals, etc. The tendencies produced by this are sluggishness, torpor and inertia. All of this adds up to an assortment of disquieting characteristics of mental, feeling and emotional stuff which is ingested along with the flesh which is consumed. The same corresponding interaction applies to all other food which is eaten. Any inorganic minerals, chemicals or preservatives which are added from the mineral kingdom are not directly usable by the body unless they have first been incorporated into the vegetable kingdom. Their presence in this inorganic form acts as an irritant to the body which manifests as thoughts and feelings of irritability, hyperactivity, restlessness, sensitivity and feelings of insecurity.

The *second* source of origin of some mental and emotional tendencies relates to our state of mind when we eat. In some strange and as yet inexplicable manner, the thoughts and feelings we have at the moment we are eating enter and combine with the food. They are transported along with the food and are incorporated into the formation and fixation of the cells which are constantly being synthesized in all parts of the body. There they remain captive to exert either subconscious or conscious thought, feeling and behavior tendencies in the individual.

Now, when a person decides to undergo a process of detoxication, either by losing weight through restricting the food intake, or by upgrading the quality of food consumed, a very interesting process occurs. When the body intelligence sees that a higher quality of foods is coming in that is superior to the material that its tissues are made of, it immediately begins to disintegrate and eliminate its inferior tissues to make room for this better material in a new tissue formation. As these cells are dissolved, the memories, feelings and thought tendencies which were originally associated with the formation of these cells are released into the bloodstream. Therein, they circulate throughout the body and eventually are transported into the brain. When they enter the brain, there is a retracing of these memories and thoughts as the individual once again becomes conscious of them. A catharsis or washing out of these thoughts and feelings occurs and their hold upon the individual is broken from the subconscious fabric. A feeling of lightness, liberation and freedom from bondage is experienced and with it comes a feeling of release that one feels when a phase of life is completely finished with.

It takes 7 years to change and completely replace every cell of the body. When we detoxicate the body through fasting, for example, as cells which are 6 to 7 years old are disintegrated, we once again experience memories that existed at that time, but have since been forgotten. As old fluids in the lymph spaces are discarded, their associated memories go with them. If a person hasn't eaten chocolate for say 20 years, but the chocolate has been retained in lymph spaces or fat cells, the taste and smell of the chocolate will leave the body and become evident to the individual and outsiders associated with the person—both will smell the chocolate. The memories associated with the time it was consumed will flash back into the person's consciousness.

Strange as this theory may sound, I have noticed the truth associated with it in my own life for more than 25 years and in the lives of hundreds of others who were puzzled about the buried subconscious memories which became released when they purified their bodies and bloodstreams.

The moral of this story is that it should teach us that: (a) there is more to food than just the chemistry of it (proteins, carbohydrates, minerals, vitamins, etc.); (b) the feelings, emotions, thoughts and character of an individual are in some subtle manner closely associated to the quality of the food we eat. It makes one think about the character of the person who will be permitted to prepare the food of the household; and (c) it is important that the element of time be considered in the changeover of an individual from a lower to a higher quality of dietary. As the body changes, so will the quality of the feelings, emotions, thoughts and goals change. The process is subtle and takes time. With change of blood and tissue chemistry comes change of character. Herein is the true alchemy of the "philosopher's stone," the changing of base metal into gold, so eagerly sought by the medieval alchemists. It behooves us all to become modern alchemists by learning to transmute the best food of nature into the best character-material which is possible, which without fail will lead us to the highest happiness which is possible.

Excerpted from Overcoming Compulsive Habits

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Article #4: The Green-Eyed Monster by Virginia Vetrano

Jealousy means an intolerance of rivalry or "unfaithfulness," and an apprehensiveness of the loss of another's exclusive devotion. It implies hostility toward a rival or one that is believed to enjoy an advantage. It implies vigilance in guarding a possession, person or thing so that no one else can have it or enjoy it. Jealousy and envy can lead to evil actions. They become pathological when excessive and when the possessor and the object of the envy or jealousy are hurt. Not only does jealousy hurt others; it also hurts the one who is jealous because it impairs all the functions of the body. Jealousy consumes nerve energy at a rapid rate and hardens the features as few things will. Strong jealousy is a type of insanity, a combination of inferiority and selfishness. Jealousy is not merely the fear of losing the "beloved" one, for often there is no real love for the object of jealousy; *it springs largely, often wholly, from wounded vanity*. Wounded self-esteem, rather than undying love, characterizes the psychology of the deserted lover. This is forcibly illustrated by the well-known fact that the agony produced by a death, terrible as the shock may prove, generally more easily and in shorter time, and less often occasions suicide, than the pain and chagrin of a lover's "infidelity."

In cottages and luxurious palaces green-eyed jealousy takes all the joy out of domestic life, and plants thorns of strife. Jealousy is a vice, not a virtue. It poisons the well-spring of life. It kills love and respect and transforms human relationships into a hell.

There is every reason why we should learn to maintain emotional poise. There is every reason why we should void being, a green-eyed monster as long as we shall live, for you desire health, that spark of vitality and beauty, you will shun jealousy just as if it were a plague. It destroys everything.

Be ready to admit when someone can do something better than you. You are as good as your time and energy permits. There is no reason to be jealous or envious of others. Jealousy and envy have their beginnings in childhood. Children should be taught to be happy with what they already have and not dwell on what they don't have. (In fact, we adults might do well to learn this lesson too). If you thrill with someone when they get something new, and enjoy it with them, you will share their blessings instead of sitting there envying them and being miserable. Early in life we must train our children not to be envious of the possessions of others. Our school system teaches competition: only one can win. Each child should be praised for his efforts and encouraged to develop his individual gifts, and not made to fit into a ready-made mold.

If you are lazy and can't discipline yourself to do anything, then admit it, and just be you. You may be happiest just doing little things, or just doing nothing all day long. This is just fine. This is what you desire out of life. Admit it and then enjoy the accomplishments of others. If you want to discipline yourself, you will. Often jealousy stems from a pathological fear of losing one's power.

If you harbor a green-eyed monster deep within yourself, then for your own sake turn it into an angel of love.

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Article #5: Ridding the World Of Violence by Arthur Andrews

"And at the root of it all..."

Almost at the beginning of it all is the violence *we* do to *ourselves*, not the violence others do to us or that we do to other humans or other animals.

If we could manage a microscopic existence, and join our own cells at their levels, and see their fears, their panic, the alarms they set off and the defense systems they throw up, the strategies they formulate, the communications, the cooperation and support they muster for each other and for the total good in the face of what we impose on them as we indulge ourselves; if we could be locked arm-in-arm with all our stomach cell brethren as gross amounts of gross food gets piled in upon us, forcing us out and out as we strive desperately to hold on to each other just to keep from bursting; if we could be part of those scenes at that level, we might feel and behave differently, because these are violent acts we commit upon our physical selves. What is required of our bodies in the face of a coffee or alcoholic dousing should be as embarrassing to us as it must be frightening to our nervous systems and befuddling to our other parts of the body. Really, think about it and recognize that we make our internal and external bodies into garbage bins and cesspools! How violent!

The very first form of violence, however, that no one ever considers (and it is the start of it all), is the violence we do to the food we eat before we take it into our bodies.

We obtain quite live foods containing *life force* waiting for the opportunity to fulfill their intended purpose and thereby be rewarded by being incorporated into, becoming part of, our higher form of life. But before they ever get that opportunity to gain their own evolution, we kill them, we cook them to death. The things we do to our foods would be considered the crudest of tortures were we to do them to things that could cry out, and especially so, were we to do them to humans. Few things are so violent as cooking is to live foods. And with very few exceptions, it is so *unnecessary*. What a price we pay for it!

That violence which we perpetuate upon our foods as we kill them goes into the food and then into our bodies where the violence is, in turn, heaped upon our cells, tissues, organs and systems. Then as it builds and compounds, growing all the while, it becomes incorporated into our beings. And in time, as we interact with other humans in the same state, we release the violence within us on each other ... from irritations, to anger, to hostility.

If violence is to be dealt with meaningfully and with finality, it must be dealt with at its beginning.

Lesson 91 - Methods For Inducing A Lifestyle Change

- 1. Introduction
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- Article #6: Excerpt from "In Tune with the Infinite" by Ralph Waldo Trine

1. Introduction

1.1 The Gift of Potential

At the moment of birth, all humans are endowed with a common gift, the gift of potential: potential to think, to solve problems, to dream, to accomplish.

Perhaps the greatest of all the potentials with which we are endowed is that of achieving a level of health and functional capacity far beyond our present knowledge, experience, and expectation.

Most of the data which gives us a glimpse into the enormous possibilities for superior health and achievement in our endowment is derived from gifted and highly trained individuals. Only rarely do we catch a glimmer of understanding of achievement of some aspects of the dimensions of human potential as it is revealed in a Leonardo da Vinci, the artist; or in a Socrates, the philosopher; or in an Owens, the Olympic gold medal winner; or in a Spitz, the swimmer, who captured seven gold medals; or in a Mozart, the child musician; or in a Buddha, the ethical leader of billions of people.

It has long been established that few achievements in any field of endeavor, except perhaps in the bizarre, are ever accomplished by persons sick of body or mind. It would appear reasonable to assume, therefore, that the basis for full achievement in any field or endeavor is to be found only on a base of perfect health, a commodity so rare in our day as to be practically nonexistent.

But, the potential remains inherent. The potential for achieving perfect health lies in us all so long as we are not fundamentally deranged. We know that the possibility of a long, happy, productive, sickness-free life is there. Only the conditions for fulfillment must be established.

We also know that the organic requisites of life that sustain humans in perfect health are relatively few, very simple and easily possessed.

We have also learned that these fundamental needs of the living organism apply equally in sickness and health; that when a healthy individual satisfies all his basic needs adequately, but not in excess of need, he will retain his health; and, conversely, also, that when a sick person changes his attitude and lifestyle so that it now adequately answers these same needs, that sickness ceases. An evergrowing state of health then permeates the whole being. This is one of the miracles of life.

On a sliding scale of 0 to 100, we rarely, if ever, witness either extreme, most individuals falling somewhere within the middle, with some few failing greatly and, at the other end of the spectrum, some few achieving mightily. Some few dally on the outskirts of life, some few are high achievers. Generally speaking, the individuals who seek the help of a Hygienist are on the outskirts because they suffer some degree of diminished health. However, while they may have lost some part of their health, they still have potential.

It is the purpose of this lesson to impart to you the ways and means of inducing clients to make whatever changes in their lifestyles that are necessary for the restoration of any possible higher level of health considering the potential they presently possess. Changes made, of course, must be based on established Hygienic principles.

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2. The Three Requisites For Change

There are, of course, many ways to induce individuals to undertake change in their lifestyles so that they may enjoy a higher degree of health but basically they can all be categorized into three groupings:

1. Inspiration.
2. Motivation.
3. Knowledge of what to do and how to do it.

This last category implies the need for the client to have guidelines to follow, which are plainly marked, at least at the beginning of change.

In this lesson we will consider each category in sequence and see how we can employ it in our contacts with individual clients.

2.1 Inspiration

The "show-and-tell" technique is as old as history. Because it has proved to be an effective tool to inspire persons to increase performance in widely-diversified areas of interest and to induce change, among even the most reluctant, and has done so in all cultures throughout all of time, it merits our consideration in the context of this discussion.

The classic way for a Hygienic practitioner to use this very simple technique is by means of case histories.

To be most effective, the case histories should be of persons who have recovered from the kind of disease presently being experienced by the client who seeks your help. For example, if your client suffers from some rheumatic ailment, he will not be particularly moved or inspired to "go and do likewise" if you present him with a case study which relates how John Doe made a spectacular and complete recovery from asthma within a period of two days. He will not be motivated because he does not equate John Doe's recovery from asthma with his own aches and pains.

But, on the other hand, if he learns that Mary Williams who lives down the street from him and who he knows used to have rheumatoid arthritis so severely that it prevented her from ever leaving her own house, is now able to play golf two or three times a week down at the public golf course where he used to play, he will, all other things being equal, be inspired to believe that he can do the same. Hope is aroused.

If he also knows, because Mary Williams told him so, that you are the practitioner who taught Mary Williams what she had to do, how she had to .change, so that this miracle might be accomplished then, in all likelihood, he will have faith in you, so much so that he will follow your directions implicitly and without question.

And, similarly, if Ava Smith has psoriasis so badly that she sheds a cloud when she walks, she will hardly be persuaded to do as you suggest simply because you tell her (in words alone) that K. Singh living in far off Malaysia is now able to control his psoriasis to the extent that he is completely free of lesions except when he reverts to his former unhealthy ways of living. Not knowing K. Singh, she will not be inspired to follow his example, even though it be a truthful account and well presented by you. K. Singh is an unconvincing figure.

However, if Ava Smith were given a printed case history, even if it is about the same K. Singh, and it is read aloud to her by you in her presence, the impact on her conscious mind will be fortified in two respects: by the sensation of sight and by the sensation of sound. This is a common technique which is more effective than using either one in isolation from the other. If it were possible also to present *before* and *after* photographs of K. Singh showing full recovery, this would, of course, provide further reinforcement of your contention that Ava Smith can also experience full recovery from this distressful condition.

Even more convincing, of course, would be if Ava Smith could talk face to face with Gertrude Jones who is a recovered psoriatic (former) client of yours.

Thus, using case histories can be a highly-effective tool which can be used as a means of inspiring clients to change their lifestyles to conform to systemic need. However, when using the case history method to inspire performance, at least two important things should be kept in mind in order to encourage positive follow-up performance:

1. The case histories presented by you to the client should be applicable to him/her in as many particulars as possible, and
2. The case histories should be reasonably verifiable. That is, they should come from a reliable source, from some person whom either you or the client knows, or from some writer in whom both you and the client have explicit faith. Also, the person represented in the case history should be real, visible if possible. Preferably, of course, he should be capable of being contacted by the client either in person or by mail. This, of course, is not always possible.

When case histories are well-presented and answer the above criteria, they usually prove both convincing and inspiring to all but the most skeptical.

2.2 Motivation

The majority of sick people who seek out a Hygienist lack deep motivation or much hope. They have usually "been the rounds" before they come to your office. They have listened to and followed the advice of many others who promised "cure" and failed to deliver. They often approach you with many reservations, and even perhaps with tremulous fear. Their motivation to do as you suggest maybe feeble.

The feeling of helplessness is widespread. Only a relative few will not accept defeat and come to you already armed with conviction, convinced that they will turn sickness into health!

Dr. Elizabeth McCarter was one of these. Suffering the severe pains of the arthritic, unable to walk without help, she remembered a saying of her mother often repeated in her presence when she was a little girl: "Elizabeth, if you ever have a problem that is seemingly unsolvable, there is usually a book out there somewhere, in some library, that will provide the answer. Your real problem is to find that book!"

Thus, when she was forced with this very real problem, she determined for herself that she could solve her problem, that she would find the way to restore herself to health, that she would overcome this pain, this suffering. It took her well over five years of searching to find the book, five years during which she travelled the world and looked in many libraries, but finally she did find the book. She and I found it right here at home, in the U.S., in a little health food store in Solana Beach, California. What was the name of the book? Why, of course! It was Dr. Shelton's masterpiece, *Orthotrophy*, Volume II of THE HYGIENIC SYSTEM.

To the scientific mind this book has the impact of a thousand candles upon the darkness of night. It has served to motivate hundreds of thousands of people, both the sick and the well, to desert the herd and seek after the ways of health. Elizabeth is but one of many who were thus motivated and followed through to a successful conclusion, witnessing and participating in a lifestyle change into a high status of health.

Strangers now marvel that, at 82, Elizabeth has the vitality to do all that she does. One reporter even commented quite recently that she has "the grace of a ballet dancer." It is sometimes difficult for us even to remember the "once that was."

Motivation is difficult to define, methods differing as individual clients differ. Some clients have psychosomatic disorders brought about by introspective experiences for which there are few, if any, observable correlates.

For example, the feeling of helplessness that so many clients have, may, in part, be rooted in childhood experiences which led to their feeling of having been caught in a trap from which they could not escape. Some develop this feeling because of recent unsettling events or perhaps from continued and exhausting stress which drained their fund of nerve energy.

Sheep that were given tasks to solve but could not soon became neurotic, highly nervous, "unglued," as we say. P.O.W.s, to their credit, often felt trapped and helpless, but maintained some semblance of poise throughout their ordeal. Some became depressed and developed neuroses of one kind or another or various physical disorders. Some actively sought to solve their dilemma and got out of the trap. Jack B. Story, the celebrated Marine hero of the infamous Shanghai prison escape of World War II, is a classic example of motivation followed by action. When properly motivated, people seek after solutions, and when they find a solution adaptable to their peculiar problem, they usually try with all their might to follow through to a successful conclusion; not always, but usually.

Sometimes peoples' minds are so cluttered with toxins, they never do find their way. The Hygienist should understand that, as Dr. Alexis Carrel, M.D., so well stated in *Man, The Unknown*, "Mind and organism commune in man, like form and marble in a statue." As practitioners we must, understand that with clients whose physical ailments are psychosomatic in origin, the concept of capability, just replace helplessness before meaningful progress can be expected, this whether the immediate trouble is simple or complex and, even, perhaps when the ailments are purely and demonstrably physical, although usually there is a close and often undefinable relationship between diseases of emotional origin and diseases which are more physical. Rarely can they be precisely defined. Regardless of kind, location pr type, they all have a common origin: a toxin-saturated body or toxicosis.

Just this morning a woman, approaching her 50th year, sat in our office recalling the immensity of the restraints placed upon her by her powerfully-built, beer-drinking husband, a man seemingly possessed by an obsession to dominate the very thought processes of his wife.

For over 20 years, during which time she had endured a veritable parade of illnesses, she had meekly submitted to this man, following his every command without question. She became almost a mindless being.

But, one day (and we know not, nor do we care, what caused her to change), her mind suddenly became aware, aware that life had more to offer than this. She determined to improve her health and to get out of her rut before all of life had passed her by.

So it was that four years ago she came to us. She began to learn about Natural Hygiene. She became our private student. She took her physical inheritance and fasted for 14 days on two separate occasions, once at Dr. Shelton's and again with Dr. Vetrano. She made amazing progress physically. The mental changes were slower in coming but they came.

She is taking assertiveness classes now at the local college. She attends Al-Anon. The metamorphosis, the change, has been wondrous to watch.

This morning we discussed the I CAN concept of living with her. The need is to change an attitude of helplessness to one of "I can," to watch over our own conduct and cease being critical of others, the need to develop a commitment to the improvement of self. This is not the first time we had spoken in this vein to her but one of many. We pointed out to her that it is now time for her to establish a new goal, to select one all-important goal and to direct her thoughts toward it. It is also time perhaps for her to remove herself finally from her restraints, to cast them all aside.

Our client has changed, she has grown. Her husband, unfortunately, has remained just as he was, in a box of his own making. He is sick, but she is now well. She has proved herself because she was willing and even eager to make changes in her lifestyle. He has remained in his box because, stubbornly, he refused to change. His box is made of inferior materials: of beer, steaks, frog legs and wine. She is committed to adventure, determined to explore life and to understand its full meaning.

What did this woman require of us to help her to get out of her box? It took knowledge, it took empathy toward her very real problems, to her pain and suffering; it took repetition time and time again of concepts and principles. It took encouraging words, reminding her of the possibilities. At times, it even took scolding. But, most of all, it required improved health.

The days of whining and wondering are almost over. Our client has set her new goal and we believe she will attain her desire: to be so healthy that no challenge will be too great. Perhaps she will never have it all, but we know she'll give it a good try! And, we think, too, that life will know that this woman passed by and achieved something worthy while she lived.

George S. Weger in his book, *The Genesis and Control of Disease*, gives us another classic example of how the mind can sometimes control us and even create disease. A young man of 33, happily married, a father, mentally keen, extraverted type, with no vicious habits, and successful in business began to fail in health. He had a nervous breakdown and suffered digestive disturbances, jaundice and became highly emaciated. Like so many others he endured many examinations and much drugging. He became emotionally disturbed.

Dr. Weger also fasted his patient as we did our woman for a period of two weeks and, in the following six months, the man showed remarkable, recovery. Dr. Weger uncovered some amazing psychic aspects which had previously been entirely overlooked by other practitioners.

2.3 Health and the Psyche

As quoted from Weger: "The psychic aspects of the case were as follows: During early childhood an elder brother took particular delight in threatening his younger brothers and sisters with bodily injury, even menacing them with knives and declaring that he would kill them. The patient developed a fear-complex which became more assertive as he grew to maturity. As his health became impaired, he developed an obsession which he tried desperately to repress. He became the victim of an almost unconquerable urge to kill his wife and children. These obsessive inclinations left him in a cold sweat, trembling, weeping, and aghast at the enormity of his weakness. When he learned how this complex had originated in the subconscious and what a momentous effect the repression had on his physical well-being as well as on his mental morale, his complex became sublimated. He was an apt student and soon understood how it was possible for his mental repression to exert a like influence on his physical organism, overstimulating certain endocrines (such as the suprarenal and thyroid) and depressing other glands (such as the pancreas and liver), and how this included also all the functions of digestion and elimination. Understanding in this case was the equivalent of cure."

In the case of our woman client, she was motivated to change by the desire to remove herself from the restraints imposed on her by her thoughtless husband. In Weger's case, understanding that the cause of the psychic aspects of his physical ailments lay in his childhood experiences, motivated him to control his thoughts, to redirect them in more positive channels. In both cases, correction resulted when they became aware that they could be in charge of their own lives. They replaced *Helplessness* with *Capability*, the changes in lifestyle then followed, the toxic condition was alleviated by fasting and both moved on to new and more rewarding lives.

Once a client understands that whatever ails him/her is capable of solution and that you, the Hygienic practitioner, have both the understanding of cause and the knowledge of how to solve the client's problem, and that it is possible to change sick ways into health-promoting ways, simply by making certain changes in lifestyle, the client will be more favorably disposed to make whatever 'changes' you propose; at least to take the initial, hesitant first steps.

Sometimes the mere revelation of the source of psychic disturbances, talking them out with a willing listener, will assist the recovery process. It seems that cleaning out the cobwebs that clutter the mind often opens up unknown depths of long-unused thought, and makes one more receptive to change.

A case study we have previously written about comes to mind. This woman, as a child, had been subjected to much physical and mental abuse from her father, a prominent politician. Incest had been only one of many frightening experiences. As a teenager, there had been two attempted rapes. When she came to us, she was in her middle sixties and, up to this time, had never revealed any of these sordid details to another single soul, not even to her husband or children. The story came out in a torrent, the tears poured down her cheeks as she opened wide her soul and revealed how ravaged and unclean she had felt throughout her lifetime.

It was like washing the windows to reveal the day. From then on it was comparatively clear sailing. She was highly motivated to go the distance, to clean out every corner of her physical body just as she had cleaned out the poisons from her mind. She now understood that it had been this mental poison that had gradually taken away her health.

Motivation must always precede recovery. The recovery, of course, will necessarily have a dynamic basis and must be conceived in force, desire, goal or drive. The individuals must devoutly and fervently *want* health. Indeed, they must be imbued with an inner drive to reach a goal of superior health because it is now a very personal goal.

When the goal becomes a personal thing, even if obstacles arise, as, for example, a temporary healing crisis, they will not be defeated or even diverted from pursuing the goal. The individuals understand that they must cope with any problems confronted because they want to solve them; i.e., they desire to improve health so much that they will do whatever is required, make whatever changes are necessary to attain health, even if it means deserting the herd.

2.4 To Change, We Must Desert the Herd

Individual clients must be motivated to desert the herd. As a child we are all biologically dependent on others. As adults we are expected to take command of our own selves. We must remove ourselves from all cultural dependence, from media dependence; otherwise, we devalue Self. Appreciation of Self is important to recovery from sickness. Furthermore, if we don't, we soon lose control of Self.

As Hygienists we equate sickness with the herd mentality. Statistics prove the point for, as a group, the herd is sick. When clients understand this, they become better motivated to withdraw themselves from the herd and adapt more readily to the concept that change is vital.

Sometimes accepting divorcement from the herd and the need to change gives rise to temporary conflict. A conflict, however, which when satisfactorily addressed, serves in the end to motivate a person to remove him or herself even more from the masses, even to the extent that an individual will completely reverse his/her attitude toward life and what is required to achieve the goal of attaining superb health.

But, when sufficient motivation is lacking, failure will surely come. Fortunately for humankind, where sufficient motivation already exists and it is accompanied by an inner urge, desire, force, or drive, success is almost always assured.

It is the happy duty of the Hygienic practitioner to devise ways and means to motivate clients. An emotionally or psychologically healthy person is one who has learned to cope successfully with him or herself and his/her environment. We must motivate our clients to become more poised, to direct them skillfully in such a way that they will attain the superb health which may presently be but a vague dream or hope having no substance.

Motivation is a melding together of want, wish, desire and purpose. Certainly sick clients want to improve their health, they wish they were healthier than they now are, they have a certain amount of desire to cooperate with you and we should encourage this and, also, we must supply them with knowledge so that they will pursue the purpose which brought them to you.

2.5 The Hygienist's Knowledge

The Hygienist who is well-versed in the principles of Natural Hygiene—Life Science—has sufficient knowledge to change the world.

If the world understood and practiced the principles that you are learning in this course and had full understanding of the scientific truth of toxemia being the basis for all diseased states, and lived accordingly, all ailments, diseases, pain and suffering would be no more. The members of the world population would soon forego their whining, warring and worrying in favor of enjoying the fruits of healthful living. There would be ample food to feed the world because soil culture would replace what appears to be deliberate sickness culture. Productivity in presently unknown areas of human endeavor would be stimulated as euphoria replaced depression. The hours now spent in laboring would be dramatically reduced and used instead for the full enjoyment of life.

Yes! Natural Hygiene is capable of causing changes which could rock the world. And, the Hygienic practitioner who is well informed can be a full participant in the Grand Event. When you have completed this course, if you have been diligent in your studies, you will be fully prepared to do your part.

And, you can do your part as you meet every day on a one-to-one basis with the individual clients who seek your help. You can impart to your clients the knowledge of health-promoting practices which, if followed as circumstances permit, will restore them to the vibrant health that is our natural heritage.

At first meeting, however, unless proven otherwise, you must assume that your client has little or no knowledge of Life Science. Obviously, you cannot impart full understanding in one easy lesson.

Clients can often be turned off and become discouraged if we expect too much, too soon. Clients can also be disenchanted by any display of arrogance, the "know-it-all" attitude, on the part of the practitioner.

We will shortly take up some preferred and proven ways to direct clients in their education more effectively so that new practitioners can develop more confidence in their practice, perhaps more patience with their clients, and become leaders in their field.

Perhaps the knowledge learned in this lesson will induce some of our more experienced students to take courage and learn from their failures and in so doing improve their own human-client relationships to the mutual advantage of all.

3. Practical Methodology

In Lesson 90, the student has been presented with some of the psychological aspects of counseling as they may apply in the day-to-day practice of a professional Hygienist. We have in this discussion divided methodology into three main categories and an enlargement on each of these will follow. We should bear in mind, however, that the psychology of counseling can never actually be completely divorced from the more mundane aspects of counseling, from the techniques. The two are inextricably intertwined.

3.1 How to Inspire Your Client

We have already put forth our thesis that using specific case-studies may well be the single most effective tool to inspire clients to "go and do likewise."

We have stated that case studies of persons who have successfully recovered from a like ailment will, all other things being equal, have a greater impact on the psyche than will unrelated case studies.

Also, case studies which are given to the client in a printout form and then the information contained therein reinforced by the reading together of the information, combined with an opportunity for the practitioner to point out specific details and/or to clarify others, and for the client to ask questions, will prove a much more effective tool for providing encouragement than using either method alone.

Furthermore, the print-out may be taken home by the client for subsequent re-reading, thus reinforcing the first psychic impact.

3.1.1 Me, Too!

Inspiration and reinforcement (support) can be augmented by using the "Me, Too!" technique, an easily workable tool. It embodies the "If you can do it, I can, too!" philosophy.

The supporting methodology used here is simple. It is a gathering together of persons with similar affections in a ding, held either at the practitioner's office or home, or the home of a cooperative client.

This group should, ideally, have at least one member who has either made a remarkable recovery applying Hygienic principles in his/her own lifestyle or who, at least, has already witnessed sufficient improvement in his/her condition as to want to share experiences with others.

In the early days of your practice, you may not have worked with a sufficient number of similar conditions to be able to put together this kind of group. In this event, simply set up a support group composed of a few clients having a variety of troubling conditions, perhaps only three or four, just so that they can share their experiences and learn from one another.

Either grouping will work. Indeed, it is difficult to predict in advance which grouping will prove to be the more effective for you. Try them out and see!

3.1.2 The Meeting

At the beginning of your meeting, have a round of introductions. At first, just use first names. As time goes on, individuals will seek out and become friends with those persons best suited to them. Repeat these introductions at every meeting so that newcomers will feel at ease within the group and also so that group members will become more closely knit.

The practitioner may pass out case study print-outs—one or two are usually sufficient. These studies may be gleaned from various works by Hygienic writers. They are good to use as an opening wedge to encourage discussion by individual group members.

Discussions may range from the negative to the positive. We should not be discouraged by negative stories since such can often provide an excellent base for learning. The practitioner can give explanations of why certain "negatives" (healing crises) occur from time to time and what their portent is.

For example, many clients are disturbed by the initial weight loss so common in the early stages. When the weight loss is explained in terms of tearing down an old structure prior to building a new one, clients, more often than not, accept the rationale of the fact of weight-loss as a prior condition for later health improvement.

We use the blackboard frequently. It can be especially helpful in explaining weight loss. Progress is so often impeded simply by fear when clients do not thoroughly understand why they are losing pound after pound. They begin to question the validity of their whole program! We use the Diagram Method in such situations.

Early Stages: Weight loss begins to accelerate, then slows down somewhat but still goes on, due to catalytic tearing-down and discarding of inferior and diseased parts. All happens under the control of body's intelligence center. Anabolism, the building phase, is submerged to catalysis. Weight is reduced. Swiftly at first, less as time goes on.

At the Mid-Point: Here equilibrium is established. There is no further weight loss because the intelligent control center decides that sufficient inferior tissue has now been removed.

Final Adjustment: As the correct lifestyle is continued, Anabolism begins to accelerate, Catabolism slows down. The individual is well on the road to superior health.

The above is just one illustration of how a practitioner can use group meetings to explain away questions which may trouble many clients. This permits the practitioner to address individual problems in greater depth in private consultations.

At group meetings, all persons should be given an opportunity to speak, to ask questions, to share and to encourage one another. The practitioner should use such meetings to guide, direct, encourage participation and to explain when explanations are in order. As students of this course, you will be well prepared to handle most questions as they may arise from time to time.

Spouses and/or other concerned persons may, with the permission of the client, be invited to these meetings and, indeed, should be encouraged to attend. Hygienic practices are usually totally foreign to their thinking, too, and unless they fully understand and are in accord with what is suggested and taught by you, they may well prove an insurmountable obstruction to your client's future progress.

The key to success in these group meetings may be how well spontaneity is encouraged, and this may well depend on the attitude of the practitioner. Never permit yourself to be bored. Try always to cultivate concern, interest, that deep desire to help. Sick people often suffer much and the spontaneity they feel at your meeting can prove a powerfully positive influence for good.

Spontaneity may be difficult to achieve but if one makes a conscious effort to make these discussions free and open, a time for sharing both successes and failures, more courage seems to develop.

All of us, at times, have to learn to "take it on the chin" when healing crises arise, but often these meetings with other individuals, who have experienced exactly what you are now going through, can enable you to pick up the pieces and begin again, confident that when the crisis is over, you have passed a major milestone on your road to full recovery. If you have to "wing it alone," sometimes you can become discouraged and falter.

Include the quiet ones in the group discussion by addressing them directly as, for example, "Sue, what do you feel about all this?" Note the use of the word FEEL instead of the word THINK.

We all have feelings and most people, even the timid ones, will respond to a FEEL question where they might panic at a "What do you THINK" one!

3.1.3 Ending the Group Meeting

Always end your group meetings on a high note! Encourage your clients to hold their head up, to lift up their hearts as well, to turn their thoughts inward to positive channels of "I CAN!" Urge them to unify their energy, to draw down a blind, as it were, on matters of lesser importance and to keep their minds on an inner vision of what they SHALL become. Encourage them to emulate Lillian Russell's way of pushing aside the unlovely, who said that she put a sign on her mental door that read: "Only the serene and the lovely can enter here." She said that a thousand voices might call her away from her resolve, but she trained herself not to hear them. All of us must train ourselves not to hear the negative voices that cry aloud, in favor of keeping our thoughts focused in the direction we wish to go. We cannot let the distracting disruptive outer forces weaken our own resolve. The future can be too beautiful!

Gather your group together in a circle. Let them clasp hands and repeat in unison some simple CREDO, such as:

I AM WHOLE!
I AM PERFECT!
I AM STRONG!
I AM HAPPY!
BECAUSE I AM IN TUNE WITH MYSELF AND I AM HEALTHY!
SO BE IT!

The saying together of a simple CREDO will help your clients to accept the correctness of their program. It will help them to believe that they can have anything they desire, especially superb health. All that they will be required to do is to approach life's problems constructively, maintaining, all the while, a vision of the possible, and then to work at fulfillment.

Meetings such as we have suggested can challenge those present to continue on, to work for maximum recovery. As conditions of individual clients begin to improve, you will observe that, one by one, they gradually leave the side of the negative newcomers and pass over to become a member of the more positive "Me-too-ers!" Each passover serves to inspire your other newer clients to go forward, not to become discouraged, and, importantly, you, the practitioner, too!

Before closing your meeting, announce a time for gathering together again. Meetings should be held at least once a month. Officers may be elected or appointed to take care of routine announcements.

Usually, a few clients will volunteer to provide certain necessary services such as reminder telephone calls, etc. It is well sometimes to suggest to your clients that they "think" about a certain topic as, for example, "How Important is Exercise in Your Plan for Health?" Then, this subject may be the focus of the group's attention at the upcoming meeting. Be sure to ask those in attendance to sign a registration sheet. After you have been meeting for awhile, clients may ask if they can bring a friend. Encourage them to do so. It is within your right to request a minimal fee from clients for your services at these meetings. The money may be used to cover your time and expenses.

Don't forget that you must be a visible example of poise and peace, of successful accomplishment of what the clients themselves desire so fervently. When you are, you have a certain magic about you that you unconsciously impart to those who seek your help and you will be especially successful in conducting these important group meetings.

3.2 The Practitioner at Work

As a practicing Hygienist, you will be pursuing your career at every private and public appearance: when meeting with individual clients, when hosting or conducting a small group for purposes of furthering their education in Hygienic practices, philosophy and principles; and, certainly, when you begin to hold classes and seminars for the public, which we hope all of you will consider doing, and this as soon as practicable.

You will greatly influence not only the progress of your clients, but also your own, in a number of ways. Intelligent practitioners who wish to become sought out for their expertise will ask themselves many questions, and future success will depend, in great measure, upon what they do to improve in these areas of concern. We especially recommend that you address the following areas:

3.2.1 Questions to Ask Ourselves

1. Am I a reasonably good example of what I teach?
2. Do I speak positively, with authority, but not in an arrogant manner? Or am I too hesitant in my pronouncements?
3. Am I able to impart verbally and by my body movements and facial expressions the sense of empathy and concern I feel toward my clients? Do they sense that I really know exactly how they feel; that I understand their anxieties, their concerns? Do I convey to them a confidence in my words?
4. Do I listen more than I talk? Do I use the pronoun "I" too often?
5. Do I appreciate my own value?

Number 1

If the practitioner has recovered from some specific condition, s/he is usually more likely to speak with authority on that subject and perhaps also on the general subject of how best to regain one's health. S/he may even choose to specialize in a particular disorder as, for example, rheumatic or heart disorders.

However, having recovered from a particular malady is not, of course a prerequisite for practicing as a Hygienist! Even being capable of maintaining a high level of health under the prevailing unhealthful conditions and circumstances, can be, in and of itself, an inspiring challenge to induce lifestyle changes in your clients. In fact, this may well be considered a "plus!"

One's past experiences may well color the tone of the voice, impart a certain glow to one's manner and add conviction to statements, all helpful influences. But, a practitioner should not pretend to know what s/he does NOT know nor act a part being something s/he is not! Deception will always fail. Knowledge imparted honestly will always be more conducive to trust. If a client asks you a question and you do not know the answer, just say that you do not know, but add that you will try to find the correct answer.

If you are still recovering from some condition, say so. Share your progress, even your regressions, with your clients. We recall one time when Elizabeth broke out in a wild rash. It began behind her ears and on to her cheeks. She was a sight to behold and, to make matters worse, the itching was intense. And, to top the whole affair off, we were just about to open an advanced course of study!

We went right ahead with our plans! The class consisted of a mix of old and new students. Elizabeth stood up bravely and announced to those present that the subject of the day was, you guessed right! Healing Crises! We all learned a lot from the experience as the days passed. Students learned about fasting and about what occurs in the body during these days. In fact, those students watched the progress of this entire healing crisis and learned much from it. We are confident that the students who attended that class will not panic when they are confronted with their first healing crises! They will continue on making whatever changes are required in their lifestyle to accomplish their ultimate goal.

The lesson to be learned from this episode is that, if you feel you are lacking in some respect, then you should try as best you can either to remedy the situation or to use it; to cope with it or to accommodate yourself to it. All of us can probably improve our appearance, our attitude, our confidence, in many areas. It is well to take a frank appraisal of one's appearance and assets and to seek actively to improve in those areas where improvement is indicated, or where it might well be to your advantage to do so. Nobody's perfect, but we can all strive for perfection, even if we never achieve it! Remember that you are a living example of all that Natural Hygiene promises. Therefore, why not promise them the best! That will surely influence your clients to make the lifestyle changes you deem appropriate.

Number 2.

Do I speak positively, with authority in my voice, but not in an arrogant manner? Or am I too hesitant in my pronouncements?

What has all this to do with inducing clients to change bad habits into good habits? A great deal! You will be able to induce constructive changes in your clients' lifestyles effectively and consistently, the more talented you become in presenting the changes you deem necessary for a particular client and then follow by explaining the reasons why such changes are vital to your client's well-being. We accomplish this largely through our spoken words, perhaps because they are more personal.

If you are presently hesitant in your manner of speaking or have some other limiting factor, it might be well for you to take a course in public speaking. These are offered from time to time by most schools and colleges and very inexpensively, too, if not altogether at no cost.

Be happily appreciative of your clients. You will reveal this in your manner and in your voice. Your clients have honored you by seeking you out. Leave all arrogance or impatience out of your voice, for such will only serve to turn people away from you.

Everybody likes to hear nice things about themselves. Tell your clients that you appreciate them and especially, remember always to compliment them as they reach a Hygienic milestone. Such appreciation encourages them to go forward and not to either stand still or regress. It inspires them to make the required lifestyle adjustments. Just take a few moments of your consultation time to compliment your client about *something*. Practice on your friends, the people you meet in the supermarket, wherever you go, and it will soon become natural to you to be more appreciative of others. Remember to compliment those who attend your meetings, the little ones and the big ones. They have given you a compliment by coming, give them one in return. Inspire your clients by being appreciative of small accomplishments if you sincerely want big changes to follow.

Dale Carnegie admonished his students always to say "WE" instead of "you." Instead of saying, "John, I want you to do such and such," it is better to say, "John, don't you believe we all would be better served healthwise, if we would do thus and so?" The former gives the impression one is talking down to his client. The latter includes *you*—the authority—as well as the client—the student. *You* must make certain lifestyle changes, too!

Avoid the negative in your attitude, your looks and in your words. In fact, having a positive attitude and a positive look about you will often speak louder than words. It may, of course, be necessary to scold a client occasionally, but don't make a practice of it. Avoid it if you can. The shrew soon loses a mate. The scolding or arrogant practitioner soon loses his/her clients and they lose their opportunity to live their lives healthfully.

Talk *with* your clients, not down *at* them. Talk in terms they can understand about their concerns, their worries, their problems. Show them how to get rid of their health problems so that their other concerns will either be completely solved or their impact lessened. We are reminded of a session we had one time with a very obese gentleman, the president of a large corporation. We were obviously concerned about his excess weight, his high blood pressure and other ailments, about how best to address these issues and how we were to persuade him to make the necessary changes in his lifestyle. We had been consulting with this man for some six months and, of course, had made some progress, but it was limited due to the fact that, like so many obese ones, he had a tendency to revert to his former bad habits from time to time, even to bingeing, all of which retarded his progress. He was psychologically wedded to his old ways and reluctant to change.

However, at one of our consultations he confided that he was extremely concerned about his future. Here was a man in his early fifties. Where he had once been a proud, highly-confident man, he was now a frightened man. It seems he had just been fired from his highly-lucrative position, one he had occupied, and successfully so, for many years, because of certain overseas developments which required worldwide reorganization.

It would have been useless for us to have lectured him about his shortcomings or, indeed, to have talked about anything else. Such a disregard for his feelings and valid concerns would have been inexcusable because his mental state was such as to negate physical reconstruction of the rest of his body anyway. So, during that entire session, we never once directed our attention to his obesity, to his high blood pressure. Instead we listened and interjected, from time to time, some positive thoughts about how old doors close and new ones open, that we make our own world, our own opportunities; that we can attain whatever we want in life or in this world if we determine what is required of us, what is needed, and then follow through with the doing. We did suggest that becoming healthier, by making positive changes in his eating and living habits, would serve to clear his mind and that this important change would serve to open many doors for him.

When he came back three months later for his next appointment, his blood pressure had dropped dramatically, an examination had showed that over a dozen existing polyps in his colon had either completely disappeared or were greatly diminished in size. He announced with a happy smile that he had a new position which seemed very promising. He had made many of the necessary changes; he had corrected many of his bad habits. Indeed, he was so enthusiastic about his new way of life that he came armed with a whole list of questions for us to answer.

Welcome questions from your clients. Don't be impatient and think that answering them is taking up *your* valuable time. Your clients are interested or they would not ask!

Always remember that your clients will be more inclined to change incorrect habits of eating and living when they discuss the rationale with you on a one-to-one basis, when they receive a sympathetic ear to their queries and problems. The questions may seem too simple to devote your valuable time to them, but remember they are important to the one who asks.

Be sincere and open with your clients. Your inner conviction of the rightness of what you have to offer will help to bridge the gap of misinformation which restrains your clients' forward progress and prevents their making necessary changes. Use the spoken word in a confident, but sympathetic way and your clients will usually respond favorably and follow your wise counsel.

Number 3.

Am I able to impart verbally and by my body movements and facial expressions the sense of empathy I feel toward my clients? Do they sense that I really know exactly how they feel; that I understand their anxieties, their concerns? Do I convey to them a confidence in my words?

As students of Life Science you are preparing for one of the most rewarding careers it is possible for you to pursue. You are preparing for a career of service which, if well done, will fulfill your reason for being —to help others to grow in body, mind and spirit; as well as rewarding you financially and in many other perhaps intangible ways.

If you naturally feel empathy toward your clients and concern about their needs, you will instinctively impart to them the sense that you understand their needs and are vitally interested in helping them. There will be a "oneness" between you and them and they will respond more positively and be more inclined to follow your directions.

If, however, you do not, by nature, feel this kind of empathy and are planning to enter into Hygienic practice solely for the purpose of making money, then you will surely fail because you will be wrongly motivated and if you are wrongly motivated, you will be unable to convince people to change their ways of eating and living.

However, if you are sincerely interested in helping people to change incorrect habits of eating and living into a more correct lifestyle, then you can develop certain techniques which will assist you even though, at present, you do not naturally feel empathy toward people; and you can do this simply by practicing it!

You may have to pretend at first, to act a part, but all of us do that every day, don't we? By practicing you will soon begin to evidence in word, deeds, facial expressions, body movements, a gesture here and there at the right time, that you really DO care about your clients.

Sincere interest, an encouraging word when needed, a smile instead of a frown, a hand on a shoulder, just touching a troubled person in a friendly and gentle manner at a time of need can change a worried person's whole demeanor and outlook on life, can encourage them to go on when they might otherwise be inclined to give up.

So, enrich your personality by consciously striving to develop a "ONE-NESS" with your clients. It will not only help them over their more difficult crises, but will help you in your career.

Sincere interest will cause people to be more confident in their relationship with you and when confident of you and of your understanding of them, they will be less likely to falter and more willing to follow your suggestions.

Consider yourself a rebuilder of men and women, for that is what you are. To rebuild a human structure, unlike beginning to fashion a house of wood and stone, you must have understanding of the mind and soul before you can build a worthy structure.

Work on your personality. If necessary, take personality lessons. Begin with positive attitudes, work at understanding people's concerns, and learn how to support your clients through their most difficult times. Having a sincere empathy toward those who seek your help will not only bring you success in many ways, but it will serve to give many back their lives, to give them another chance to live in health for many years to come. There can be no more worthy calling!

Number 4.

Do I listen more than I talk? Do I use the pronoun "I" too often? There is an old French proverb which, when translated, reads, "Little by little, the bird builds its nest." Just so, clients change bad habits into good habits and learn how to rebuild their bodies.

The ability to listen to other people is a requirement for success in any profession. It is absolutely essential to the successful Hygienic practitioner.

We have to learn how to give up our set notions of how a meeting should proceed and especially of how a consultation should proceed. Of course, we should always have a plan, but sometimes we have to let the wind blow where it will. Crises come and crises go and current happenings revealed to you as you listen can often direct your immediate course of action.

Always have something in reserve to talk about, of course, some points you wish to express or discuss with your clients, but keep the ingredient of spontaneity alive. Let your clients talk. You be a good listener. More often than not, the greatest good will come to your client when s/he has an opportunity to tell another human being about anxieties that lie heavy on the heart and trouble the soul.

Once these have been revealed, they may well influence the changes in lifestyle which you may then suggest as the next desirable course to follow. And, of course, shared concerns and anxieties are already half "cured!" Letting your clients talk can be highly therapeutic.

A part of listening well is learning when to ask the right questions. Sometimes the appropriate question interjected at the right time will lead the interview in the direction you have planned and bring out a consciousness of further need for change on the part of your client.

For example, a woman came to us with many serious health problems. She was so satisfied with her progress by the time her second appointment had come and gone that she failed to keep her third one.

We called to remind her of our appointment, at which time she said how excited she was at her progress and how well-pleased she was that everything was going along so well—so well that she thought she had no further need to consult with us.

We listened as the voice went up and down and when she was apparently finished, we simply suggested that perhaps after some forty years of building disease it might take just a little longer and a little more guidance to rebuild her body the way she would like to and did she not think perhaps that she might learn something more about herself and about how she functions so that she could have it ALL!

The woman thought a minute and said, "I believe you're right. I guess I really have just made a start. When do you want to see me?"

The appointment was made and a new study begun. We have been working together on rebuilding her body now for almost a year. Our client has found that there were many more adjustments that were yet to be made and that making them correctly has yielded rich rewards. She now has so much confidence in us that she knows that we will advise her when we think she is ready to "go it alone."

Listening and knowing when and how to ask the right questions is a talent possessed by all successful people. Cultivate it well and you will find your clients much more amenable to change. To be successful we must use every attribute we possess to influence clients to change their lifestyle. Becoming a good listener is one of the best!

Number 5.

Do it appreciate my own value? Inspiring clients rests on both the tangible and the intangible assets of the practitioner. Hygienists, more than any other practitioners in the whole health sciences arena, should appreciate their own value and, especially the value of their services to their clients.

As a student of this course you have gleaned true scientific facts of life, you have learned the true science of healing. The Hygienists alone (among the "healers" of the world) understand that people are the "architects of their own miseries" and that it is the Hygienist who can lead people into a harmony of body, mind and spirit which will enable them to reap the wonderful rewards of a life correctly lived.

We Hygienists need to be confident of the Tightness of what we impart to our clients, to appreciate its worth and be able to convey our confidence in that worth to our clients. How else can we expect them to trust us with their most precious possession, their lives?

We Hygienists are valuable and especially so when we have applied and continue to apply Hygienic truths in our own lives; when we ourselves have made the necessary changes in our own lifestyles to demonstrate the worth of what we propound. Once we have conquered ourselves, then we are prepared to become worthy and wise teachers of the healing truths learned in this science of life and living.

It does not matter if you are not handsome or if your face is lined with the ravages of past pain. When you smile at your clients, your value to them shines through. When we are certain of our worth, we can forget self and become genuinely interested in others, and this ability to be un-self-conscious and take interest in other people is actually in a direct relationship to our personal estimate of our own worth!

We should, of course, set our standards high. They should be in keeping, on a par with, our value. Only then will we be able to cause clients to appreciate what they themselves can become, to appreciate their own potential and to strive to attain their goal. It is you that can impart to them the reality of organic existence, that life and nature are with them at all times, working on their side, planning and overcoming obstacles and all in their behalf. And it all happens through you, the knowledgeable Hygienist!

In other words, the magic of the sense of your own value will serve to enhance their appraisal of their worth and encourage them to work harder to make the necessary changes called for by their own bodies so that they can become worthy of all that life has to offer to those all too few individuals who are healthy enough to hold it precious. Inspiring clients to make the necessary changes in their lifestyles can be accomplished in many ways. We have named a few. As Hygienists we understand the need for change, and are called upon to use every asset legitimately at our command to encourage the sick ones to change sick habits into more health-promoting habits. The practitioner who can, by word, deed, attitude and by his sense of self-worth, inspire others to leave off the old destructive ways and begin a new and healthier lifestyle, will become a leader among peers.

3.3 Motivation

In the second edition of *Foundations of Health Science* by Henkel, Means, Smolensky and Sawrey (Allyn and Bacon, Inc., Poston, 1972. Page 159) we are told that "motivated behavior is behavior that is directed toward the attainment of some goal, object, or purpose. Motives have to do with the wants, wishes, desires, and purposes of the individual and the manner of their attainment."

It would be difficult to find a better way to define motivation as it particularly applies to the relationship between a practicing Hygienist and the client. The successful practitioner should always bear in mind that those persons who seek you out are already motivated to a certain extent to perform. They have a goal and a purpose for being in your presence. They wish to become well again and they hope you have the knowledge either to work some magic or to tell them what magic is needed for them to attain their objective.

The first part of motivation then may be to "disillusion" them, i.e., to help them to reach an understanding that there is no *magical* road to lead them to a higher status of health. Few understand, of course, that superb health can only be achieved through a process of discarding bad habits followed by a joint effort which involves rebuilding and maintaining. The practitioner must build on the existing foundation of many false ideas and superstitions and then go on to disabuse the client of his original false concepts and change them, to direct clients into new and perhaps unfamiliar and "strange" ways of living and eating.

In Hygienic practice, motivation, in almost every instance, involves "holding out the carrot;" imparting to the clients an enlarged view of what the future CAN hold for them PROVIDED they do "thus and so."

As practicing Hygienists we learn to judge individual clients' capabilities rather quickly. How well do they respond to large changes? Are they more comfortable, less emotionally disturbed, perhaps, with smaller, less-challenging changes? We adjust our thinking and our suggestions accordingly after full explanation of the fact that an abrupt about-face is always more conducive to a rapid and more complete return to full health than are smaller changes.

However, some clients may be frightened if proposed changes appear too much for them either to understand or to handle, and when this is the case, they do not continue on a Hygienic program for very long. With such clients, we and they are better served when we provide reasonable suggestions which may immediately be met. With these more reluctant clients, a planned program of instructive changes combined with a developing insight into the cause-and-effect relationship in building health can lead to a fuller understanding of the need for certain changes which have been designed by you to bring them into the desired fullness of health.

Group meetings to which family members are invited (a family night, for example) often helps the clients by motivating members of the family to be more cooperative and supportive of their efforts to obtain their goal of better health.

If the suggested changes prove too demanding, then they must be simplified. In other words, they should be adjusted to more realistic expectations. Avoid placing the clients in a position of strong conflict either with themselves, their families, or with you. Some conflict may, at times, be inevitable, but we should strive to minimize it. Remember that individuals differ in their maturity and we have to be in tune with these differences when we voice our suggested changes.

3.4 The Hygienist Is a Teacher

Hygienists are basically teachers of the ways and means whereby the present state of ill health of a client can be changed to one of improved health. In order to bring their efforts to a successful conclusion, they must employ many of the modern tools of education. We will, of course, not be able to suggest all the possible tools of the trade but, hopefully, we can give you some of the ones we have found most useful in our own practice.

1. When to Use Fasting

Fasting represents, in most instances, a giant leap. To fast is always a first priority change when feasible according to the emotional stability and prior "knowledge of a particular client with respect to what is involved in fasting.

We suggest that, from time to time, you hold classes on fasting at which time procedures are given. At these classes case studies may be presented, as well as personal experiences related by clients who have themselves fasted to good advantage. These meetings give a time for learning, for asking questions and for becoming familiar with a hitherto unknown procedure.

2. The "Baby Steps" Technique

Recommended for more timid clients. Both the practitioner and the client should understand that sometimes the recovery period is prolonged and at times even discouraging. Generally this is a limited technique to use to help less stable clients to make required changes and/or to use with poorly-informed clients. However, the choice between 1 and 2 must be made and all clients will have to be evaluated as to which will prove the more effective and/or acceptable, emotionally, to them.

3. The Historical Review

Sometimes clients become discouraged and think they are making little or no progress even though you know this to be untrue. At such times, it is well to review a client's historical record, noting on a blackboard, when possible, various symptoms shown on first meeting and reminding the client of the positive changes (which you have diligently noted on the client's record at each meeting) which have subsequently occurred, even though these be minor ones.

With some clients it may be advisable to call the client's attention to these improvements at each meeting. This may be especially advisable when a client suffers from a major disorder which is difficult to manage as, for example, muscular dystrophy, which is generally conceded not to be amenable to Hygienic practices especially insofar as expecting a complete "cure" is concerned.

In such cases small improvements can be very significant. We sometimes have to show the carrot frequently, to reassure and reassure, time and time again, in order to encourage the clients to keep their gaze on the light at the end of the tunnel rather than focusing their minds on the troubling symptoms that presently annoy.

4. The Inner Circle Concept

This concept is applicable in more difficult cases and especially with clients who may experience rather frequent healing crises. It helps one to keep clients on course, making the necessary changes in their lifestyles that you feel appropriate at a particular moment in time.

The Inner Circle shows that healing does not occur in a straight line but rather in cycles. We progress from one healing crisis to the next but these become less frequent and less severe until finally, by our diligent attention to correct living and eating, we reach the Inner Circle, at which time our body, mind and soul are in perfect harmony. Our goal has been reached.

The Inner Circle Concept can be depicted from time to time as need arises to remind clients of the cyclical nature of healing. They often like to estimate how far they have progressed in their healing.

5. The Direct Challenge

Sometimes it becomes necessary to confront a client who is reluctant to make certain changes with a direct challenge. Are you less strong than So and So? So and So can be another client, but remember to use a client's name only if you received permission to do so and only then. Otherwise, let the challenge refer to a nameless person, or to a person depicted in one of the printed case studies which you have previously reviewed with the client. Try to incorporate in such clients the "I CAN, do it if So and So can do it" concept. Generally, retaining an inner vision of something we yearn for can sustain us through the rough times and carry us forward to a successful attainment.

6. Family Counselling

When all members of the family are convinced of the need for them to change their lifestyles and to make a mutual effort to do so, success is generally assured. We recently experienced such a happening and have seen how effective the combined motivation can be in achieving a common goal.

The first client was a diabetic married daughter in a certain family. She had been diagnosed as being insulin-dependent. Her improvement was dramatic and swift with considerable reduction in her insulin intake. Then a sister who suffered from systemic lupus joined her.

Next, came a son, age 7, the child of the first daughter. He was an asthmatic. His improvement was also excellent. Then came the grandparents, the father and mother of the two sisters. They were both in their middle fifties. Finally, the oldest daughter and her husband joined in the program, all with individual problems and goals.

We eventually, by the consent of all, gathered the entire family together in a single series of conferences devoting two hours to each such meeting. At these gatherings, questions and answers were given; each person presented a progress report; there was sharing and planning for the future good of all. Progress was so satisfactory that now we hold these family conferences at three-month intervals, at which time we review, appraise present states and progress, and provide encouragement. Where changes are required, they are suggested.

All members of the family are very supportive of one another and highly enthusiastic about their new way of eating and living. The grandparents have a pool and the daughters, their husbands, and all the grandchildren often gather for a family party around the pool. They tell us that even those who do not actively attend our conferences are slowly "getting into the act." At any rate, they are all enjoying their "carrots!"

7. Using a Placebo

This technique is sometimes useful when working with elderly, very emotionally distraught clients, who are reluctant to take the first timid "Baby steps."

All of us would probably agree that using a supplement of any kind is unHygienic in principle. However, it can be a useful tool in exceptional circumstances such as when an emotional person needs a rope to hang on to. At such times we have recourse to a pill, one made of vegetables dehydrated in a vacuum at low temperatures. It is relatively harmless, certainly far less so than a sugar pill. We advise our clients that this pill is to be used for a stated limited time to "fill in anything missing" in their diet. This seems to reassure these disturbed individuals. It often calms them down emotionally and gives them the confidence they require to make the first primary changes in their lifestyles. Once this hurdle has been taken, the others seem to follow more easily.

8. Only One Way to Go!

When all medical resources have been exhausted and have failed, as they invariably do, clients are usually more amenable to change. You will all have clients who are in this position. They are, at one and the same time, both easy to work with and difficult.

One of our students was faced with such a situation. She had taken a course in nutrition when she learned that her husband was terminally ill with cancer of the bladder. Armed with her new knowledge about the science of living in health and in disease, she made a complete turnaround in her lifestyle. She refused to place her husband in the hospice, refused to remove him to the hospital as demanded by the consulting oncologist, and said she would care for him by herself and in their own comfortable home. The specialist and a representative from the hospice were permitted to visit whenever they chose to do so. A nurse from the hospice visited several times each week.

The man's diet was changed abruptly to an alkaline diet of fresh uncooked fruits and vegetables. Two items only were served at a meal. On some days only juices were served—fruits and vegetables at suitable intervals. Sunbaths were taken when possible and the man exercised every day to the extent possible. Toward the last, he was gently massaged by his wife and this several times during the day and especially along his spinal cord.

It is interesting to know that this man required no pain killers except an occasional aspirin until the last 24 hours, when he took six aspirin tablets. At his funeral, which we attended, we asked one of the visiting nurses from the hospice if she had ever witnessed such a peaceful conclusion to a terminally-ill cancer patient. She shook her head and then commented that she had never seen anything like this before in her entire practice.

9. Overcoming Compulsive Habits and the "My Doctor Says" Complex

These are perhaps the most difficult of all changes for the client to make, with overeating probably being the most difficult of all bad habits to overcome. In fact, it is said that only about 5% of the obese are successful in reducing their weight to what it should be.

Encouragement and constant prodding are helpful. Consultations should be much more frequent than with other clients. We ask our obese clients to keep a weekly weight record and at each consultation we record any changes. We find it necessary constantly to remind the reluctant ones of their goal, of what obtaining a more normal figure and weight might mean to them in health benefits and of the social and business doors that might well be opened to them.

We also generally ask our obese clients to keep a record of their meals. They usually "confess" to their sneaking and their "bingeing." The old saying states, "Confession is good for the soul!" Perhaps asking for such confession will sometimes be helpful.

Getting over the "my doctor says" complex stubbornly maintained by some clients requires patience on your part. In fact, to overcome it, you have to come up with a better product, so to speak, to be successful with this kind of individual. Of course, we can always remind them, as and when the subject comes up, that they are here—in your office and consulting you—because "my doctor" did NOT have the answers!

In other words, when possible, these clients, if they are to attain their desire to be healthier than they presently are, must be led finally to accept the reality of past failure and replace it with the new opportunity for success now offered to them simply by applying their newly-learned Hygienic ways of living and eating in their own lifestyles.

10. The Bionutritional Blood Test Analysis and Profile

We find this a highly-motivating tool for change and it is so with most clients, almost without exception. By word and by picture the Analysis and Profile presents to the client the realities of blood condition as revealed by a series of tests made at a standard laboratory which are interpreted and plotted for the client's study. The necessity for change, when such exists, is made clear. We suggest that our clients have these made at six-month intervals. When good changes are observed, as is generally the case when Hygienic changes in lifestyle are adopted, clients are further motivated to improve and make any additional indicated changes.

11. Grouping Clients

The practitioner should take time out to study clients' records, grouping them together by type of disorder being experienced, as follows:

1. Arthritic Clients
2. Diabetic Clients
3. Clients with nervous disorders
4. Clients with heart disorders
5. Clients suffering from respiratory diseases, etc., etc.

Make a critical study of the following as shown in past and present history:

Emotional
Lonely
Very angry
Fears death
Jealous
etc.

Poisons
Coffee, tea
Smokes
Alcoholic
Cocaine, other drugs
etc.

Endotoxins
Uric acid
High cholesterol
Calcium deposits
Purines
etc.

Deficiencies
Poor marriage
Eats junk food
Lacks sufficient money
etc.

Symptoms
Each client

Make a special listing for excesses, such as: works too hard, eats too much, etc. This will help you to guide individual clients and to suggest appropriate further changes to be made.

When feasible and practical, have group meetings for mutual discussion and analysis of methods used, changes already made, improvements forthcoming, and future planning. Where good results have been slow in coming, these meetings can sometimes be a means of ferreting out hidden causes. They can also provide a meeting of the minds, so to speak, an understanding by all participants of he need for change and for time to accomplish the required healing and, perhaps, even a better understanding of the commonality of cause among participants.

Only those clients who are willing to participate in a frank and open discussion should be included in this type of group discussion because they amount to a "Show and Tell" meeting which sometimes requires disclosure of more intimate details of one's lifestyle. Some clients, of course, are reluctant to participate in frank and open discussion, but with willing clients, the results can often prove highly motivating.

12. "Sell the Rose, Not the Thorn"

Always hold out to your clients the vision of the possible. Do not dwell on the present nor on the past overly long. Clarify all issues involved as they come up, of course, and make clear the possible consequences of incorrect habits, but place emphasis on the salubrious effects of making all appropriate changes in lifestyle. A positive approach is always more effective in selling. Salesmen are advised to sell the benefits accruing to the buyer. The successful practitioner must sell the benefits of living Hygienically and these are legion!

Keep nudging clients along, inch by inch, if necessary. The results can so often be spectacular! A single case study will make our point. Four years ago a woman came to us seeking help. She had had several massive heart attacks, a mastectomy with lymph nodes extirpated, her shoulders and back were severely curved, and she was fainting seven and eight times a day. Her blood tests revealed an almost impossible state. As we write this today, we have received a letter which reads, in part, as follows: "We have enjoyed our summer and I am glad to report that I haven't had such a feeling of well-being for ages. I really feel good." She is still having some minor problems, a few hemorrhoids, for example. But, her improvement demonstrates the magic of Life Science. Sometimes, we and our clients can become discouraged, but motivation and inspiration return once we view results such as this woman has experienced.

3.5 Knowledge of What To Do—and How to Do It

This is where Hygienic practitioners come into their own! They have the knowledge of what their clients must accomplish in the way of making specific changes in their lifestyle if they wish to attain a higher level of health, and also, on broad terms at least, of how they must proceed.

The practitioner must, at one and the same time, become the parent who evaluates the situation and determine the proper course of action, the teacher who expounds on methodology, and the overseer who follows procedure to a successful conclusion.

All practitioners have their own personal equipment: ability to lead, respect for the client's needs, sincerity, emotional maturity, sense of humor or lack thereof, appearance, ability to empathize with the client's sufferings. The higher their equipment quotient, the more likely that they will be able to transfer their knowledge of "what, when, how," etc., to clients and thereby maximize results.

The average person's knowledge about him or herself is abysmal though much information is available, indeed an extreme abundance. But, at one and the same time, there is also an extreme confusion about humans and what is required of them to maintain them in a state of excellence.

The modern child has not been taught to read and/or to consult various authors or sources on matters of health, but rather has been taught to follow the advice given in the media, these imparting only the medical view of how to obtain health and to keep it. Early in their lives, people are programmed to consult the medical mentor for guidance as to what to do and how to take care of themselves in sickness and in health and, to the masses, only the medical view is valid.

"Science" divides humans into fragments. Life Science alone treats people as a unitized whole which is governed by immutable laws. Orthodoxy fails to take into account the ethnic, epidemiological and historical nature of man. Hygienists have a conscious realization of cause and effect and it is this that differentiates the Life Scientist from other more traditional practices and beliefs. It is this difference which must be imparted to clients if they are to fulfill their potential destinies as human beings

We are required to learn man in his entirety, about the symbiosis of his inner parts and his symbiotic relationship with his environment.

It is impossible, of course, to impart to new clients at first, second or even third meeting, all that we know in this regard. Therefore our practice becomes a matter of intelligent selection, choosing the more relevant and discarding that which, for the moment at least, is of lesser importance. Evaluation of need, therefore, is a first priority. In our next lesson we will discuss the initial interview. For now, let us merely state that this first meeting is critical but not all-important. We learn a little more about our clients at each consultation, at group meetings, at potlucks, whenever we are in each other's presence. All precise information and all impressions must be considered and evaluated for their importance.

Following evaluation of need we must construct a plan of action based on need as is revealed by past history, impressions, etc. A study of possible causes follows. Here one usually discovers a plenitude of possible causes such as the most common cause of overeating; extremely traumatic events in the past or on-going in the present, such as physical cruelty; overworking; psychological trauma such as worry, fear; perhaps assuming too much responsibility in civic affairs; or exercising beyond one's present capability; eating junk foods; drinking tea, coffee, soft drinks, etc; alcoholism; prior surgical extirpations of organs and parts; and on and on.

An evaluation of the more important causes should precede the construction of a plan of action. We must always be aware of the fact that most people manifest only an elementary knowledge about themselves and are capable only of revealing things they *know* to be harmful, and this knowledge is limited. They are usually capable of only tackling easy tasks; this is especially true at the beginning.

We generally find that most people are watchers and followers—not instigators, performers, or doers. They are wary, too, of you and of your advice, unless perhaps they have been referred by someone in whom they have explicit trust. This is especially true when ii concerns their physical selves. Most are deficient and sick. They must, therefore, be led and guided, prodded and pushed—but gently. As Alexis Carrel wisely said in *Man, The Unknown*, "Humanity has never gained anything from the efforts of the crowd. It is driven onward by the passion of a few abnormal individuals, by the flame of their intelligence, by their ideal of science, of charity, and of beauty." As Hygienists, our knowledge of *what to do* and *how to do it* and *when* must become our passion, our bright flame, so that our knowledge of life's beauty and its potential as governed by law, can pass over and become a pan of conscious being of those who, because they suffer, seek our help.

Remember that the mental acceptance of Hygienic principles and practices is a wonderful thing that will come through exercise of the mind. Just as bones and muscles develop through physical exercise, so will the mind enlarge and accept new ideas as it is exercised. As each new principle and practice is expounded by you and practiced by the clients, they will advance another step toward their ultimate goal of better health.

The extent of forward progress will depend on the client's inner discipline which is so often tempered more by peer thinking than by the working of logic. As teachers we must lead clients toward healthier habits of lifestyle by logic, by inspiration and by example, rather than away from bad habits by scolding and lecturing, by imparting to them the wondrous vision of what is possible for them to achieve and to enjoy. We must not express that which must be taken away, but instead tell about that which will be given. Few clients will learn the right way to live and eat solely by lecturing. The desire to know the beauty of life lived in its fullness is that which can attract, guide, and hold.

The greatest desire of humankind is for health and youth. Men and women alike spend their lives and their gold most often in a fruitless search of illusions. It is well known that we wear ourselves out more often than not by our excesses, our lack of moral discipline, our overdoing in so many ways. The science of life is Truth-gold. It is based on the known facts of physiology and anatomy, not on illusions or ideas; on natural and universal law not on mere concepts. It shows us up for what we have been but also opens up the door to what we can become.

Once we have imparted to our clients the secrets of life, we will have taught them how to keep their bodies whole; we will have returned to them their control and have placed them at the steering wheel of life. They will have received knowledge of many of life's secrets so that for all of life they will be able to keep intact the vigor of their body, its beauty, and the capacity to enlarge their mental sphere.

To accomplish all that we might like to accomplish requires a well-thought-out plan of action. The practitioner should have a general plan which can be modified to fit individual clients' needs. The plan must address all of the biodynamic requisites of organic existence: how much exercise, precisely what changes are required in feeding, what bad habits must be eliminated immediately, etc. All must be considered and addressed as individual need dictates and as progress is reported from time to time.

Mice kept overlong in cages in close confinement and subject to manifold stresses soon wear out, but when given freedom in larger pens where they can burrow and explore, and when they are fed and fasted appropriately, their life spans are extended in health. So it is with people. When simple Hygienic habits of organic existence become a part of our clients' thinking and doing, they receive the gift of a knowledge which will favorably influence them for the rest of their extended life spans.

Clients will, of course, experience adjustment difficulties. Some will fall by the wayside and then we must learn to "let go." We must not waste our energies in futile pursuit but rather expend it in more useful ways and with more receptive people so that greater success will be assured.

Basically then, we must ascertain the facts to the best of our ability, exploring our clients' knowledge about both the past and the present. Then, we are called upon to formulate a plan of action realizing full well that a plan is just that. It is not a rigid edifice which cannot be changed as need arises. The Hygienist who meets need as it arises with a correct solution will be successful, not only financially, but in having satisfaction in work well done.

It is wise to cultivate both in one's self and in one's clients positive attitudes which will yield positive results. Every forward step, every replacement of a bad habit by a positive change in lifestyle is conducive to improvement in the quality of life. We need to impart to our clients the idea that they have the greatest health-building machine ever built and that when they work with it and answer its simple needs, it will provide them with a fulfillment of riches beyond all their fondest dreams.

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4. Questions & Answers

It seems to me that holding group meetings and giving lectures would take up a lot of time. Do you think the time spent in such activities is worth all the effort and expense?

> Definitely! I say so for several reasons. Practitioners who keep to themselves will soon have no clients, for one thing. For another, they will become stale. They will not be in tune, as we say, with clients' needs as well as when they meet frequently with clients in group meetings and also when they have contact with the public. Group and other public meetings provide a time for the exchange of ideas, to hear other points of view, to learn what is going on in the community, to keep abreast of developments. Additionally, it is interesting how often your words spoken perhaps a year or more ago will remain in the minds of those who heard you speak and cause some persons to seek you out when need arises.

I have a client who is quite elderly, in her late sixties; she is frightened of fasting. What would you suggest as a possible procedure for me to use in handling her case?

> Each client is different, of course. However, with such timid and uninformed clients, I would not insist on fasting unless the condition is so far advanced as to require it. But, even then, I think it advisable to take some time, if at all possible, to teach the client about fasting, to provide study materials about fasting, and lay the groundwork which might cause greater willingness to fast
>
> Sometimes, too, we are called upon to use alternative methods, such as a 24-hour or a 36-hour fast followed by mono or duo meals which place limited stress on the digestive organs and conserve energy resources
>
> I think we have to remember Alexis Carrel's statement that the mind and body are inextricably one. I believe he said, as if etched in marble, so intertwined are they. A client beset by fear will not progress very well. Sometimes it is necessary to back off, before we can go forward. So, my advice would be to take it easy and make small but important changes before taking a giant leap.

You make it all sound so easy. Is it really as easy as this lesson makes it out to be to influence clients to change?

> I'm glad you asked that question. The answer is a resounding "No!" Of course not. Theories and methodology are always comparatively easy to recite but can be extremely difficult to put into practice, unless one is very skilled in handling people. However, these are workable tools to use. Using them day after day, month after month makes us grow in our ability to work with people. Remember that practice makes perfect! We become more skilled as a practitioner the more we practice. It takes time to build a house. It takes time to build disease. It takes time to build health. It also takes times to build one's skill in helping people.

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Article #1: Faith

Obviously, if we are to be successful in our endeavors, we are called upon to have faith in the fact that what we do is correct. If we are not convinced that our program has merit, that it will bring health; indeed, that it is the only possible way to achieve a better life for ourselves, then we will never reach our goal. Even a poor regimen will often produce astounding results, if the patient believes with all his/her heart that it will make him/her better. And how much more spectacular the results can be when the regimen adopted is one in perfect harmony with our body's needs.

Once upon a time, or so the story goes, there was a Sultan who, for some time now, had been very, very ill. He was much beloved by his people and they begged his learned physicians to make him well. The exalted men of science had given him numerous remedies and drugs, they had bled him and given him snuff, this being the medical custom of that day. But, it had all been to no avail. The Sultan continued to grow ever weaker.

At length, one of his physicians, wise among men, instructed the Sultan's craftsmen to fashion a hammer of wood. He told them to make a hollow hammer, both the ball and handle were to be hollow inside. When they had finished the hammer, they were instructed to bring it to the sage together with a block of wood fashioned in a hollow cube. And so it was done, according to the wise man's instructions.

When the hollow hammer and the hollow cube were brought to the exalted one, he filled them, each in turn, with many different drugs, remedies selected by the most learned men in the kingdom. They came from far and wide with offerings of their art. When all the hollow parts were filled, he instructed the craftsmen to seal up the hammer and the block so that none of the powerful and exotic drugs could escape. Then, the wise one went to the Sultan, there on his bed so close to death, and directed that the bed and the Sultan be lifted up and carried out of doors into the open courtyard. And, it was so done.

The great man told the king that, early in the morning before "breaking fast," he was to strike the hollow cube with the hollow hammer, now filled with the potent drugs, until such time as the Sultan should sweat profusely. He told the poor sick king that the aroma wafting from the drugs encased within the wood would, in this manner, be gently wafted about his royal person and, at the proper time, the Sultan would be cured. Day after day, the king followed instructions. And, it came to pass as it had been predicted.

The Sultan grew strong and vigorous, the people rejoiced and waxed eloquent in their praise of the wise physician. He was given much gold and silver and robes of purple and gold.

While this is only an allegory from the Arabian Nights, it imparts to those who see and understand, much wisdom. It tells us the futility of using drugs in any program for health. By inference, we know that it was not the drugs that brought the gift of life, but rather exercise, rest, fresh air, pure water, time and FAITH. Faith plus the doing can make health happen!

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Article #2: Desire Plus the Doing

Desire is not enough! We must also have the *doing*! Sir Francis Bacon (1561-1626) wrote as follows: "We denounce unto men that they will give over trifling, and not imagine that so great a work as stopping and turning back the powerful course of nature can be brought to pass by some morning draught, or the taking of some precious drug; but that they would be assured that it must needs be that this is a work of labor, and consisteth of many remedies, and a fit connection of them amongst themselves."

We can have all the desire in the world and yet never achieve our goal of being healthier than we now, are. As Sir Francis indicated, we must gather together all the known attributes of health, the Biodynamic Principles of Health applied according to the Vital Laws of Life, and with these we must work at building health. There will, of course, be times when all will not appear to be going well but, like Robert the Bruce, we must continue to do those things which we know to be required if we ever expect to be better than we now are.

Many long years ago, Cicero said, "The only difficulty, if any there be, consists in making a beginning." So, here we are. We have travelled a lifetime together; we have learned many new and wonderful things about living. We know that this earth might well become a place of joy, if man would but follow natural law. The sages of all time have taught us that the simple ways of life bring health to body, mind and soul. It is the simple ways that cause the blood to move gently within the arteries and to course merrily through the veins. Obedience to Law causes movement to quicken and the spirit to soar, the memory to clear and wisdom to come. We know that sickness shortens our years, even as health prolongs and gladdens them. We must now make a beginning, for each one of us is required to travel this magic road to health alone; it must be our desire and it must also be of our doing.

In this century, a young woman spent her body's energies caring for an invalid mother. She, too, lay sick and dying. So ill, in fact, was she that a new young doctor in the village where she lived, was afraid to be seen treating her. He feared that, if he offered his services to this dying girl, that he might lose the few patients he had just obtained. There was no other doctor to whom she could turn.

Her family, knowing no other way, closed her up tight in her room thinking to keep her warm and snug. They fed her freshly boiled broths and did their best. However, this giving, loving girl continued to weaken and her pain became almost unbearable. She finally concluded that death would be a welcome release from an existence such as this. She begged her troubled father to carry her out to the lawn and there to place her on a mattress. She told him to bring her no food and no drink for she was determined to die, but she was also determined to die under God's heavenly blue sky. She asked him to bring her a stick and then to leave her there.

The father, himself weary with life, did as his daughter quested. He carried her out of the comfortable warm house and placed her on a mattress there on the lawn. No one brought her food or drink, only some pure fresh water. The girl amused herself with her stick, feebly digging from time to time in the earth, first on one side, then on the other. She looked up at the blue sky and watched the birds on the wing. She talked upon occasion with the passersby. And so the day passed by, but still she lived.

The next day she continued to dig, but she ate no food and had no drink; only, pure, cool water. The days passed, days turned into weeks and weeks into a month and still she did not die. This feeble woman, no more than a child in years, began to dig deeper and deeper. A strange and unexpected thing began to happen: she grew stronger and stronger. Suddenly, one day she decided she wanted to LIVE!

In fact, she knew that the reality of life could be hers and it was revealed to her how she could bring it all to pass.

How excited she was. She cried out for food, and they brought her the foods she requested: only God's sun-ripe fruits would she have, and these in abundance. Soon, she was able to sit up and they then placed her on a couch, still under the blue sky. She continued to dig, rolling first on one side and then on the other, reaching down to the round.

In time, she arose from her couch, and her joy was complete. Like the birds she had watched for so long, she, too, was now on the wing. Health had returned, a gift of nature. It had been there to receive all along but it had taken a deep desire to live and then the knowledge of how to achieve life plus living according to the demands of the human structure and function.

Sometimes we, like the young girl in our story, require no food. Perhaps we can use only the sun, the air, the fresh cooling breezes. Perhaps all we need to do is to forget that we are sick and look around us at this beautiful world and enjoy the free gifts that can bring health. Perhaps all we need is cool, pure water until that time comes when we, too, can reach out and touch a life that is beginning to blossom again. Knowledge, Desire, followed by the Doing! Could these be the magic keys to health?

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Article #3: A House Divided

"A house divided cannot stand!" We are all familiar with this saying. It applies to families, to countries, and to professions. The voices are loud in extolling the advances of mankind, yet does it not seem paradoxical at this time in our history, when so much progress is reported in so many diverse fields, that we are witnessing so much confusion in the field of health science?

We walk on the moon and communicate to the far reaches of space. We explore the innermost depths of land and of sea with equipment and instruments from a never-never land of make-believe. More money, time and effort are probably being spent in research into the realm of disease than ever before in the long history of mankind. The amount of dollars expended in this country alone troubles the mind.

Astronomical sums are gathered each year for the investigation of our modern day scourges: arthritis, diabetes, cancer, multiple sclerosis and heart trouble. Name the disease and there is probably a fund being collected somewhere. Each year, with a regularity that provokes admiration, come the appeals for money, offering ever anew the hope of meaningful progress around some illusive corner. The hunters are on the loose, or so we are told, ready to search out and destroy all the deadly robbers of health—if they can only find them. But, it takes money! and MORE money! and still MORE!

Scientists, nutritionists, dieticians, physicians of all persuasions—all offer "cures," "treatments," and opinions, these latter being almost as diverse as the grains of sand on the shore of the sea! There are divisions within divisions. Preventive medicine is also a "Big Thing" but even here there is disagreement as to how to prevent disease in the first instance.

Where are the teachers of health? We do not find them among these. All seem to be concerned with the sick, with disease, few with health! How can we know anything about health when we concentrate solely on disease? Where are those who teach the laws of the body—laws which have always determined our state of being, whether we are healthy or whether we suffer from some degree of diminished health? Where are those who can show people how to build a health bank account and can point out and demonstrate forcefully by their own doing, the exciting and as yet unexplored realms of discovery that may lie ahead for the person whose health account is in good order?

Instead, depending on whom we consult, we may be told that our sickness is just a sign of the times. We probably suffer from acidosis or anemia, either a high or a low blood pressure. Perhaps we take too few calories, or could it be, too many? We no doubt eat "too little" protein. Everybody does, you know! Our metabolism is, without a doubt, sadly disarranged and our body chemistry is surely a mess. We need iron, or iodine, or folic acid, perhaps; and of course, Vitamins C, X, Y, and Z!

In all likelihood, too, we could use a little magnesium, potassium, zinc, or some other mineral right off the chemist's shelf. And then, it's easy to see that we must, of necessity, shed that pot-belly, or could it be that we could use just a wee bit more padding to balance us off? To top it all off, of course, our endocrine system is worn to a frazzle giving us severe emotional problems and we definitely need a few shots and a psychiatrist. And, of course, there's always the possibility, too, that there's absolutely nothing wrong with us. Of course, that's it! It's all in our mind and we'd better get with it, or else! And so, humankind sickens and dies, often prematurely and in great pain.

...Sickness is everywhere about us, but no one sees the message to be found in sickness. Sickness and death give way only to more of the same. The hope of humankind lies in understanding the ways of health—THE HYGIENIC WAY!

We Must Get Involved

A house which is so divided causes confusion and many problems. It gets nowhere. Therefore, we feel it is important for all of us, whether we are actually engaged in this business of teaching health or whether we are just ordinary persons who want to live out our days in joyful health—all of us must become more open-minded, more informed, so that we can get some new ideas. We must trade the consensus of sickness for the consensus of health. We must learn the Vital Laws of Life which are circumscribed for all living creatures, even Man, and we must understand that unless we live in accordance with these laws, that we have no choice but to become a part of the herd; a part of all the sick, the suffering and the diseased, all those who cry out in pain among our midst.

Man is so easily misled. He tends to place his trust in man instead of in Nature, which provides a grand design for man, a design planned to the last detail: the food he should eat and the environment in which he must live. Man has always tried to improve on Nature or to make Nature accommodate herself to his own ideas of the way things should be and the way they should be run.

It might, of course, be very nice indeed if all of our parts and systems would adapt themselves to our wishes and whims but, unfortunately, they just won't! We are unable to change our physical equipment in any real way; it works in its own sequence and patterns to sustain life. So it appears, that at least for the present, we must learn to accommodate ourselves and our habits of living to our physical self because, if we refuse, the parts will wear out in far too short a time and we simply won't have a chance to back up and try again for, you see, we will be very, very dead.

Excerpted from "Superior life Management"—5 study lessons—by Robert and Elizabeth McCarter.

Article #4: The Several Doors to Your Personality

Your voice is the "front door" to your personality, and like the front door on a real house, much of the impression that folks get of what YOU are like "inside" depends upon the atmosphere about that "front door" of yours. If it is warm, friendly, sincere, and readily opened, folks will get the impression that they are going to LIKE what they find inside.

When you open that door to let your personality COME OUT, the kind of person people see and hear leaving that "house" of yours will depend upon what you say, and HOW you say it. So, your "personality house" will need several doors.

It will need the door of good conversation, through which you enter into cooperative relationship with others, by the exchange of ideas and thoughts, by intelligent listening to others, and by asking complimentary questions.

It will need the door through which you can step and make effective presentations of your good ideas to groups of people, guided by thoughtful, prepared speech, delivered in an interesting, attention-claiming manner.

It will need the door through which you use your voice and, words, to inform others—to instruct—to guide—to influence. Those you meet as you step through this door will be your family, the people with whom you work or have social relationships. (And, of course, your clients!—The Authors.)

The best "hardware" with which to hang these important "personality doors" is a broad vocabulary, an ever-expanding vocabulary, acquired by listening and reading, and choosing new words and phrases as your own.

Put This Bright Finish on Your House

Now with your "house" structure completed, we can add some of the finishing touches, starting with the color scheme. One basic material is yours to work with here, and with it you can put the most attractive finish on your house. This material is OPTIMISM. (Remember that when the principles of Life Science are applied by a person filled with sufficient residual energy to initiate and sustain the recovery process, you will approach a success rate of 100%!—The Authors.)

Take a good look at this world of ours, and what is happening every day, and at just how we are getting along. Take a GOOD look, and you'll see that this old place is basically going along in an OPTIMISTIC manner! Things aren't *perfect*—but there's a lot more on the POSITIVE side than on the negative. And if you CONCENTRATE on this fact, you will ALWAYS find that there are two sides to every condition—no matter how "dark" something may seem at any one moment.

You can add the perfect decor—the perfect "color scheme" to your personality, by DEMONSTRATING that you can and do find the "bright side" of this world—OFTEN—*very* often!

Optimism—and all the congenial, happy attitudes it infers—will make YOUR "house" an outstandingly attractive one in the eyes of everyone.

How Fine You Look!

Then, of course, you will want to add the distinctiveness of a good landscape job, so you accomplish this through DRESS and GROOMING.

You know, if we went around in practically nothing but our skins, as do some of our brothers and sisters in other parts of the world, (totally in keeping, of course, with Hygienic principles!—The Authors), we might say that we could greatly simplify this whole matter of wardrobes, and taking care of our clothes, and being concerned about how we "look." But just suppose that we did make a fantastic switch in our culture, and decided to try it the "South Sea Island" way, with loin cloths, and beads and grass skirts the "fashionable" dress. It doesn't take any imagination to picture what would happen to the personalities of all of us, does it? I don't think I would want to argue the merits of such a "fashion" for myself.

I am sure that when you consider the ramifications of the two extremes of culture, the "grass-skirt" motif as compared to the fully-clothed motif, you will see the great responsibility and dependence we place upon clothes and grooming in the kind of society in which we live.

Others don't see the real skin-clad you. They see the clothes you wear, and the condition of the exposed portions of your body, such as hands, arms, face, hair. Therefore, they are constantly appraising and evaluating you, upon the basis of the quality, cleanliness and good taste of your clothes and grooming

Harmonious color combinations, good choice of accessories, well-cared-for hair, all add up to the way to "landscape" yourself, so that people will have a continuously agreeable reaction to the kind of person you are. For this reason, your wardrobe should be considered an INVESTMENT—and your grooming a careful preparation for your appearance as an actor or actress on the "Stage" that is your everyday world.

Unlimited Choice of Furnishings

And finally, of course, you will want to furnish your house. Here you have unlimited choice of materials, because you furnish your "personality house" with KNOWLEDGE.

Learning, the seeking of knowledge, the ACQUIRING of knowledge makes your personality grow and prosper. Through an expanding pattern of knowledge in your life, and its expansive effect on your personality, the adding of days and months and years to your life, ACTS IN YOUR FAVOR. Each day that brings you NEW knowledge adds to the power of your personality, and if each changing day brings this knowledge from a DIFFERENT source, adding variety to your inner resources, your personality IMPROVES with age! A most desirable circumstance, isn't it?

In your "personality house," there are many rooms to furnish, and so there are many opportunities for using a variety of knowledge. Seek to furnish each room distinctively, through positive, progressive knowledge concerning your vocation, your avocation, your interests, world affairs, community affairs, and the people with whom you associate. Good knowledge of all people and things that concern your everyday living will make your "personality house" one that is COMFORTABLE for you and for others.

Now you know what it takes to make an ideal "personality house." You know the materials that are required to build one, or to "remodel" your present one. You know HOW to do it. Most important is the fact that you can have a "personality house" that is distinctive for YOU, and which will be seen by others as being most ATTRACTIVE.

You can create the attitude within yourself that will ENABLE you to have this house by doing two PROGRESSIVE things, TODAY!

Do This Today for a Guaranteed Future

First, make an honest inventory of your personality assets and liabilities, by comparing your present habits and attitudes (and the results as they affect your life), with the STANDARDS' set out for you, as we build that IDEAL "personality house." Persons who have objectively made such an inventory, under this plan, have had good experiences, because they ALWAYS found that the "remodeling job" suggested to them was easily within their ability to accomplish. The important thing was the they MADE the inventory, so they knew exactly what to do. This is equally important to you, and the results will be equally valuable. (Could this be an appropriate tool, also, in helping clients the better to understand areas of concern in their lifestyle habits?)

Second, based upon your inventory, make a plan to do that "remodeling job"—beginning TODAY! The very act of making this plan, and of taking your first step to ACT according to the plan, will result in a favorable change concerning your future.

From then on, each step that you take to improve your "personality house" will be a forecast of a favorable future.

A Strong Ally for a Bright Future

You have an intimate ally which will go to work WITH you, as you take this inventory, and make this plan. Perhaps I should say that this is an intimate ASSOCIATE, since it can conceivably NOT be an ally.

I am referring to your subconscious mind, that inner part of your mental resources that records all you do, and in turn, influences you to act the way you do. It has always been working this way, and it influences negatively or positively, depending upon what you caused to be recorded there. Record an abundance of negative reactions from the things that you do, and your subconscious mind will be impressed accordingly, and will tend to cause you to continue to act this way. But if you record an abundance of positive ideas and thoughts, your subconscious mind will be impressed by THESE, and will try to get you to continue along the same path. In that case, it will be your ally. Right?

If you apply yourself wholeheartedly to your inventory and your plan, your subconscious mind will be greatly impressed, and it will HELP you go into action on your plan. I know that this is what you are going to do, so I know it will be your ally.

... For every moment of the future that is controllable by you, your attitudes and habits as reflected in this IMPROVED personality, will work POSITIVELY to effect a FAVORABLE control.

Your "personality house' is *you*. Make it comfortable, pleasant and secure for yourself, and distinctive in the eyes of others, and the future for YOU is predictable. It cannot help but be a fortunate future!

From Personality and Your Future by Charles M. Simmons

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Young and old people, although in the same region of space, live in different temporal worlds. We are inexorably separated by age from one another. A mother isn't usually a sister to her daughter. It is difficult for children to understand their parents, and still less their grandparents. Obviously, the individuals belonging to four successive generations are profoundly heterochronic. An old man and his great-grandson can be complete strangers. The shorter the temporal distance separating two generations, the stronger may be the moral influence of the older over the younger.

From the concept of physiological time derive certain rules of our action on human beings. Organic and mental developments are not inexorable. They can be modified, in some measure, according to our will, because we are a movement, a succession of superposed patterns in the frame of our identity. Although a human being is a closed world, his/her outside and inside frontiers are open to many physical, chemical, and psychological agents. And those agents are capable of modifying our tissues and our mind. The moment, the mode, and the rhythm of our interventions depend on the structure of physiological time. Our temporal dimension extends chiefly during childhood, when functional processes are most active.

Then, organs and mind are plastic. Their formation can effectively be aided. As organic events happen each day in great numbers, their glowing mass can receive such shape as it seems proper to impress permanently upon the individual. The molding of the organism according to a selected pattern must take into account the nature of duration, the constitution of our temporal dimension. *Our interventions have to be made in the cadence of inner time*. (Emphasis by the Authors.) People are like a viscous liquid flowing into the physical continuum. They cannot instantaneously change their direction. We should not endeavor to modify a person's mental and structural form by rough procedures, as one shapes a statue of marble by blows of the hammer. Surgical operations alone produce in tissues sudden alterations which are "beneficial," but recovery from the quick work of the knife is slow. No profound changes of the body as a whole can be obtained rapidly. Our action must blend with the physiological processes, substratum of inner time, by following their own rhythm ... Our interventions in the building up of body and consciousness have their full effects only when they conform to the laws of our duration.

A child may be compared to a brook, which follows any change in its bed. The brook persists in its identity, in spite of the diversity of its forms. It may become a lake or a torrent. Under the influence of environment, personality may spread and become very thin, or concentrate and acquire great strength. The growth of personality involves a constant trimming of our self. At the beginning of life, a person is endowed with vast potentialities. People are limited in development only by the extensible frontiers of ancestral predispositions. But at each instant a choice must be made. And each choice throws into nothingness one of their potentialities. They have, of necessity, to select one of the several roads open to the wanderings of existence, to the exclusion of all others. Thus, they deprive themselves of seeing the countries wherein they could have traveled along the other roads. In our infancy we carry within ourselves numerous potential beings, who die one by one. In our old age, we are surrounded by an escort of those we could have been, of all our aborted potentialities.

Every human being is like a fluid that becomes solid, or a history in the making, or a personality that is being created. And our progress, or our disintegration, depends on physical, chemical, and physiological factors, on viruses and bacteria, on psychological influences, and, finally, on our own will. We are constantly being made by our environment and by our self. And duration is the very material of organic and mental life, as it means "invention, creation of forms, continual elaboration of the absolutely new." (Quoted from *Creative Evolution* by Henri Bergson, Henry Holt and Co., Inc.)

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Article #6: Excerpt from "In Tune with the Infinite" by Ralph Waldo Trine

Fear and lack of faith go hand in hand. The one is born of the other. Tell me how much one is given to fear, and I will tell you how much s/he lacks in faith. Fear is a most expensive guest to entertain, the same as worry is: so expensive are they that no one can afford to entertain them. We *invite what we fear, the same as, by a different attitude of mind, we invite and attract the influences and conditions we desire*. The mind dominated by fear opens the door to the entrance of the very things, for the actualization of the very conditions, it fears.

"Where are you going?" asked an Eastern pilgrim on meeting the plague one day. "I am going to Bagdad to kill five thousand people," was the reply. A few days later the same pilgrim met the plague returning. "You told me you were going to Bagdad to kill five thousand people," said he, "but instead, you killed fifty thousand." "No," said the plague. "*I killed only five thousand*, as I told you I would, *the others died of fright*."

Fear can paralyze every muscle in the body. Fear affects the flow of the blood, likewise the normal and healthy action of all the life forces. Fear can make the body rigid, motionless and powerless to move.

Not only do we attract to ourselves the things we fear, but we also aid in attracting to others the conditions we in our own minds hold them in fear of. This we do in proportion to the strength of our own thoughts, and in the degree that they are sensitively organized and so influenced by our thought, although it be unconscious both on their part and on ours.

Children, especially when very young, are, generally speaking, more sensitive to their surrounding influences than grown people are. Some are veritable little sensitive plates, registering the influences about them and embodying them as they grow. Those who have them in charge should be very careful in their prevailing mental states, and a mother should be especially careful during the time she is carrying the child, since mental and emotional aim on her part will so greatly assist her approach to labor and to the care of her newborn infant. Let parents be careful how they hold a child, either younger or older, in the thought of fear. This is many times done, unwittingly on their part, through anxiety, and at times through what might well be termed overcare, which is fully as bad as undercare.

I know of a number of cases where a child has been so continually held in the thought of fear lest this or that condition occur, that the very things that were feared have been drawn to the child, which probably otherwise never would have come at all. Many times there has been no adequate basis for the fear. In case there is a basis, then it is far wiser to take exactly the opposite attitude, so as to neutralize the force at work, and then to hold the child in the thought of wisdom and strength that it may be able to meet the condition and master it, instead of being mastered by it.

But a day or two ago a friend was telling me of an experience of his own life in this connection. At a period when he was having a terrific struggle with a certain habit, he was so continually held in the thought of fear by his mother and the young lady to whom he was engaged—the engagement to be consummated at the end of a certain period, the time depending on his proving his mastery—that he, very sensitively organized, continually felt the depressing and weakening effects of their negative noughts. He could always tell exactly how they felt toward him; he was *continually* influenced and weakened by their fear, by their questionings, by their suspicions, all of which had the effect of lessening the sense of his own power, all of which had an endeavor-paralyzing influence on him. And so instead of their begetting courage and strength in him, they brought him to a still greater realization of his own weakness and the almost worthless use of struggle.

Here were two who loved him dearly, and who would have done anything and everything to help him gain the mastery, but who, ignorant of the silent, subtle, ever-working and all-telling power of the thought forces, instead of imparting to him courage, instead of adding to his strength, disarmed him of this, and then added an additional weakness from without. In this way the battle for him was made harder in a threefold degree.

Fear, worry and all kindred mental states are too expensive for any person—man, woman or child—to entertain or indulge in. Fear paralyzes healthy action; worry corrodes and pulls down the organism and will finally tear it to pieces. Nothing is to be gained by it, and everything to be lost. Long-continued grief at any loss will do the same. Each brings its own peculiar type of ailment. An inordinate love of gain, a close-fisted, hoarding disposition will have kindred effects.Anger, jealousy, malice, continual fault finding, lust—each has its own peculiar corroding, weakening, tearing-down effects.

We shall find that not only are happiness and prosperity concomitants of righteousness—living in harmony with the higher laws—but bodily health as well. The great Hebrew seer enunciated a wonderful chemistry of life when he said, "As righteousness tendeth to life, so he that pursueth evil, pursueth it to his own death." On the other hand, "In the way of righteousness is life; and in the pathway thereof there is no death." The time will come when it will be seen that this means far more than most people dare *even to think as yet*. "It rests with ever-growing splendor and beauty, or in a hovel of his own building—a hovel at last ruined and abandoned to decay."

The bodies of almost untold numbers, living their onesided, unbalanced lives, are every year, through these influences, weakening and falling by the wayside long before their time. Poor, poor houses! Intended to be beautiful temples, brought to desolation by their ignorant, reckless, deluded tenants. Poor houses!

A close observer, a careful student of the power of the thought forces, will soon be able to read in the voice, in the movements, in the features, the effects registered by the prevailing mental states and conditions. Or, if he is told the prevailing mental states and conditions, he can describe the voice, the movements, the features, as well as describe, in a general way, the peculiar physical ailments their possessor is heir to.

We are told by good authority that a study of the human body, its structure, and the length of time it takes it to come to maturity, in comparison with the time it takes the bodies, of various animals and their corresponding longevity, reveals the fact that our natural age should be nearer a hundred and twenty years than what we commonly find it today. But think of the multitudes all about us whose bodies are aging, weakening, breaking, so that they have to abandon them long before they reach what ought to be a long period of strong, vigorous middle life.

Then, the natural length of life being thus shortened, it comes to be what we might term a race belief that this shortened period is the natural period. And as a consequence many, when they approach a certain age, seeing that as a rule people at this period of life begin to show signs of age, to break and go downhill as we say, they, thinking it a matter of course and that it must be the same with them, by taking this attitude of mind, many times bring upon themselves these very conditions long before it is necessary. Subtle and powerful are the influences of the mind in the building and rebuilding of the body. As we understand them better it may become the custom for people to look forward with pleasure to the teens of their second century.

There comes to mind at this moment a friend, a lady well on to eighty years of age. An old lady, some, most people in fact, would call her, especially those who measure age by the number of the seasons that have come and gone since one's birth. But to call our friend old would be to call black white. She is no older than a girl of twenty-five, and indeed younger, I am glad to say—or I am sorry to say, depending upon the point of view—than *many* a girl of this age. Seeking for the good in all people and in all things, she has found the good everywhere. The brightness of disposition and of voice that is hers today, that attracts all people to her and that makes her so beautifully attractive to all people, has characterized her all through life. It has in turn carried brightness and hope and courage and strength to hundreds and thousands of people through all these years, and will continue to do so, apparently, for many years yet to come.

No fears, no worryings, no hatreds, no jealousies, no sorrowings, no grievings, no sordid graspings after inordinate gain, have found entrance into her realm of thought. As a consequence, her mind, free from these abnormal states and conditions, has not externalized in her body the various physical ailments that the great majority of people are lugging about with them, thinking in their ignorance that they are natural, and that it is all in accordance with the "eternal order of things" that they should have them. Her life has been one of varied experiences, so that all these things would have found ready entrance into the realm of her mind and so into her life were she ignorant enough to allow them entrance. On the contrary she has been wise enough to recognize the fact that in one kingdom at least she is ruler—the kingdom of her mind, and that it is hers to dictate as to what shall and what shall not enter there. She knows, moreover, that in determining this she is determining all the conditions of her life. It is indeed a pleasure as well as an inspiration to see her as she goes here and there, to see her sunny disposition, her youthful step, to hear her joyous laughter. Indeed and in truth, Shakespeare knew whereof he spoke when he said, "It is the mind that makes the body rich."

... Would you remain always young, and would you carry all the joyousness and buoyancy of youth into your maturer years? They have care concerning but one thing—how you live in your thought world. This will determine all. It was the inspired one, Gautama, the Buddha, who said, "The mind is everything; what you think you become." And Ruskin had the same thing in mind when he said, "Make yourself nests of pleasant thoughts. None of us as yet know, for none of us have been taught in early youth, what fairy palaces we may build of beautiful thought—*proof against all adversity*." And would you have in your body all the elasticity, all the strength, all the beauty of your younger years? Then live these in your mind, making no room for unclean thought, and you will externalize them in your body.

In the degree that you keep young in thought you will remain young in body. And you will find that your body will in turn aid your mind, for body helps build the mind the same as mind builds the body.

... Full, rich and abounding health is the normal and the natural condition of life. Anything else is an abnormal condition, and abnormal conditions as a rule come through perversions. God never created sickness, suffering and disease; they are man's own creations. They come though his violating the laws under which he lives. So used are we to seeing them that we come gradually, if not to think of them as natural, then to look on them as a matter of course.

... Give the body the nourishment, the exercise, the fresh air, the sunlight it requires, keep it clean, and then think of it as little as possible. In your thoughts and in your conversation never dwell on the negative side. Don't talk of sickness and disease. By talking of these you do yourself harm and you do harm to those who listen to you. Talk of those things that will make people the better for listening to you. Thus, you will infect them with health and strength and not with weakness and disease.

To dwell on the negative side is always destructive. This is true of the body the same as it is true of all other things ... "We can never gain health by contemplating disease, any more than we can reach perfection by dwelling upon imperfection, or harmony through discord. We should keep a high ideal of health and harmony constantly before the mind...

"Never affirm or repeat about your health what you do not wish to be true. Do not dwell upon your ailments, nor study your symptoms. Never allow yourself to be convinced that you are not complete master of yourself. Stoutly affirm your superiority over bodily ills, and do not acknowledge yourself the slave of any inferior power ... I would teach children early to build a strong barrier between themselves and disease, by healthy habits of thought, high thinking, and purity of life. I would teach them to expel all thoughts of death, all images of disease, all discordant emotions, like hatred, malice, revenge, envy, as they would banish a temptation to do evil. I would teach them that bad food, bad drink, or bad air makes bad blood; that bad blood makes bad tissue, and bad flesh bad morals. I would teach them that healthy thoughts are as essential to healthy bodies as a strong willpower, and to brace themselves against life's enemies in every possible way.

I would teach the sick to have hope, confidence, possibilities. No person's success or health will ever reach beyond his/her own confidence; as a rule, we erect our own barriers.

"Like produces like the universe through. Hatred, envy, malice, jealousy, and revenge all have children. Every bad thought breeds others, and each of these goes on and on, ever reproducing itself, until our world is peopled with their offspring. The true physician and parent of the future will not medicate the body with drugs so much as the mind with principles. The coming mother will teach her child to assuage the fever of anger, hatred, malice, with the great panacea of the world—Love. The coming physician will teach the people to cultivate cheerfulness, good-will, and noble deeds for a health tonic as well as a heart tonic; and that a merry heart doeth good like a medicine."

Lesson 92 - Planning A Transition To Better Living

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1. The Typical Client

The typical client who consults with a Hygienic practitioner will most likely have had recourse to various "therapies" and will have plied him or herself well with a variety of chemicals which may well have ranged from all manner of prescribed drugs to over-the-counter concoctions; to vitamins, herbs, and a variety of assorted supplements. Many will also have sought a magic release from their many ailments from practitioners of diverse disciplines. Almost without exception, they will be lacking in hope and seek out the Hygienist as a last recourse, lacking any real faith that this time they will be successful in their quest, the finding of a "cure" for whatever ails them.

It will be rare, indeed, to find clients who will appreciate the fact that, so long as sufficient vital force exists to power the effort, the erstwhile dream of attaining a higher level of health can become an accomplished reality and this through something they had all along: the healing power within. And, too, they will fail to realize that the magic solution they have sought for so long will require effort on *their* part; that the attainment of better health requires a planned transition, a gradual organized rebuilding which will, when adhered to in all particulars, take them from their present *here* of sickness and suffering to the *there* of dreams fulfilled and euphoric joy in living.

1.1 Fred—Case Study

Fred was typical. In his late 70s, Fred came to us suffering from digestive trouble and a prostate enlargement which caused him to urinate frequently, especially at night, and was the source of much discomfort. For several days prior to his first visit, he had been unable to retain any food, vomiting, as he said, "even a poached egg."

A widower for some ten years, Fred was lonely. He recounted a sad tale of how he and his wife had travelled many miles and counseled with many "specialists" in search of a cure for his wife's cancer, but to no avail.

Sadly, he told us that it has "cost me well over $70,000.00 to bury my angel."

It was obvious that Fred was still grieving and living in the past. Like so many others, following his wife's death he, too, had begun to fail and, like so many others, too, he had begun yet another, so far unsuccessful, search for a better life. He recounted how he had consulted with several medical men, including a specialist in internal medicine how, almost in desperation, he had finally gone to see naturopath and a nutripathist; all without, of course, a noticeable improvement.

Fred told how he had taken the pills, the enemas (low and high), the various drugs, herbs and vitamins. In fact he said that he had a whole box of vitamin bottles and with a gesture, indicated a box large enough to house a food processor! Fred sadly shook his head. He knew that he had foolishly spent a fortune on yet another fruitless pursuit. And now, said he, "I am here to see what you have to offer."

Fred's predicament is not at all unusual or rare. Unfortunately, his case, while not wholly typical in all particulars, does demonstrate the emotional valley it which so many of our new clients find themselves. The practitioner must be ready to respond in a constructive way to this kind of negativity. Perhaps the most valuable service the Hygienist can offer in the initial stages of transition is to supply the missing ingredient of *hope*.

1.1.1 Our First Move

To instill an element of Positivity into Fred's thinking we invited him to one of our potluck parties. At that particular meeting, we had 13 guests besides him. He was surrounded by people in various way stations along the transition road. All had achieved some measure of success some amazingly so. Fred had to take notice!

We watched and listened as Fred asked questions received positive input and encouragement. One couple, in particular, cornered him and we heard the give and take One little child, age eight, a recovered asthmatic, climbed up on his knee and asked, "Do you like fruit, too?"

The table was spread with all manner of salad makings. The washed fruit filled a number of plates. There were steamed potatoes for Fred and some steamed green beans, and he wisely ate very little. But, his eyes darted hither and wonder watching what other guests chose for their meal.

Fred asked for his second appointment before the evening was over. We asked him to keep a record of his food intake and set a time for our next meeting. Fred was ready to begin his own transition into better living. The meeting together with friends had successfully supplied the missing elements in Fred's life: faith and hope.

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2. Superb Health The Norm

Almost every person who consults with a practicing Hygienist will be experiencing some degree of diminished health, sometimes even serious.

Few clients will comprehend that superb health should be the norm. Few, if any, will understand that (aside from that which may come as a result of accidental injury), all disease, all suffering, all sickness and, in fact, all the accompanying and/or subsequent pain and travail that so often comes with impairment of health, are signs that the body is in an abnormal (or toxic) state, and is trying to *cleanse* itself.

This may well be the first important concept that must become a part of a client's thinking. This is the first "Baby Step" most are required to take as they begin their hesitant transitional steps to better living.

And yet, for some, this will be a giant leap into a strange new world, a world of new thoughts, new ideas, new concepts.

The client must learn that each person creates his own suffering, his own pain, by a series of multiple errors in eating and living and that the amount of diminished health which is presently being experienced can, in all instances, be traced back to and accounted for by some rather simple principles.

Each of us represent the sum total of countless generations of people and, for this very reason, we enter the world with our very own personal collection of strengths and weaknesses. We all have strong parts, but we also have a few weak ones. The sum total, of course, represents our constitution. All of us, too, make mistakes. Our present condition represents a lifetime of multiple errors in eating and living, errors which no doubt began on the day of our birth.

Most clients willingly accept this concept but there is also another concept which they must learn and it is even more important, and that is that the converse of the preceding negative aspect of life is also true: namely, that it is possible to manage our lifestyle, beginning now, at this moment, in such a manner as to cause us to progress from the present HERE of pain and suffering forward to a THERE of euphoric joy, at which time full health becomes our constant companion, replacing the former dour shadows of sickness.

Additionally, the practitioner should make clear to his client that this transition can be accomplished by faithfully following a planned sequence of biologically-acceptable, scientifically-sound, steps and procedures designed to change a health-damaging lifestyle into one more in tune with all hidden systemic needs.

In other words, the client can become somewhat inspired if s/he comes to appreciate the fact that it is entirely possible within the framework of sound scientific principles to change frustration and despair, always the unwanted fruits of a diseased state, into a wonderful joy-filled experience. Developing a more positive attitude about life and living will, in and of itself, help one and all to take new forward steps less timidly.

And, finally, in the context of this present discussion, clients who become actively involved in the planning and execution of a pattern of behavior will, all other things being equal, be more willing to further actively their own cause: THEIR transition into better living.

Perhaps the hardest concept for new clients to accept is the knowledge that there is nothing outside of the body that has any power whatsoever to heal body hurts and, even more vital, that there are no outside wisdom, guidelines, or intelligence which can fully assess, define, determine the complete nature or the extent of the client's own peculiar needs; that there are no gadgets or machines which can accurately determine the cause or possible multiple causes of the particular sickness or ailment. The client must gently be urged to an understanding that there are no outside forces or substances or combination of forces or substances which can fabricate blood, lymph and other body fluids, or direct them to where they are most needed. As practitioners most of us once stood, figuratively speaking, where the clients now are and we must be aware of the existing deep medically-oriented programming that has up-to-now dominated their thinking. It will be difficult, on first hearing, for them fully to comprehend the truism that there is no outside force(s) or substance(s) which can correctly evaluate the situation and decide which cells are to be replaced or retained, or just where the precise place is where they may be needed to enhance systemic functioning or meet structural needs. Should some be discarded, or perhaps recycled? Most of us don't have sufficient wisdom to make this determination *consciously*, but, wondrously so, it is inherent in our *subconscious* being.

To most clients the exposure to this life knowledge will represent a new dimension in their thinking, one that requires them to discard the "magic bullet" concept, the belief in a health fairyland, in favor of mind- and self-control, certainly not an easy transition to make. This kind of reorientation requires considerable change in the clients' thought processes and it may take time for them to fully grasp the entire significance of the idea that all healing power lies solely within the body itself and that making it fully operational will depend upon how well individuals meet their own very personal needs and that the extent of wellness it is possible for them to achieve will depend on how well they meet those needs and upon the amount of vitality they yet possess to power the transition to a successful conclusion, to the better living they so fondly envision.

In other words, at the outset, the client should be helped to reach this understanding. Briefly stated k means that all healing, by the very nature of the life process, must be and is a biological evolution. Old and sick cells must first be torn down and usable parts salvaged before new and healthier cells can be formulated by a commingling of recycled materials with the incoming tide of higher quality nutrients.

The client must be brought to an understanding that the first new cells represent only a beginning, a start on a transitional process that will witness a parade of generations of cells, each being just a little healthier than the preceding generation.

This fascinating journey towards better living represents an amazing series and variety of transitional implementations, a biological rebuilding which proceeds cell by cell. In no way, can this transition be brought about by a single giant leap over mountains of hidden systemic obstacles accumulated perhaps over a period of many years; impedimenta composed of the residues of pills, potions, procedures—the multitudinous errors of the past.

Healing is a very human happening, one made operational the moment the inner self receives the tools of life: good food, fresh air, pure water, friendships, warmth and sunshine—the essences upon which life depends. In other words, if we would walk in health, we must walk in the ways of health!

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3. Introducing The Toxemia Connection

3.1 Early Introduction Advisable

In working with our own clients, we feel it is advisable, at an early opportunity, to introduce the Toxemia Connection. This concept, like that of self-generated healing, will generally be completely foreign to clients' thinking and accepting it as a totally valid premise may also require some major adjustments on their part.

Most clients have followed the herd all their lives. Almost without exception, they will have been nurtured on the germ theory of disease. Almost all will have willingly accepted the prevailing idea that their pain and suffering are the direct consequence of the foul work of some outside agent, be it germ or virus. They also have dutifully been well-programmed to believe that healing will require some powerful force to "do away with" whatever is at fault. Certainly, of course, and in their view, their illness is hardly of their own doing.

To discard these popular notions requires some mental handsprings, as it were, by the clients. The toxemia theory of disease which they must now learn represents the firm foundation upon which all Hygienic practice is based. Therefore, the connection between toxicosis and disease must be set forth in plain terms for the clients' enlightenment. It is vital for each client to develop a deep understanding of all that is involved in the toxemia connection and what can reasonably be predicted to evolve, and therefore reasonably be expected to happen in their own selves, once the theory has been well examined, cerebrally accepted and then intelligently acted upon.

Briefly, as Life Science students have already learned, the Toxemia Connection is based on the fact that all diseases, barring those of accidental origin, have their beginnings in a deranged state of the fluids of the body, in a departure from the norm brought about by an abnormal accumulation of metabolic acid debris which has more less exhausted vital power.

The nature of the disease itself will depend on the kind of poisons present, upon the amount of waste present and, to some extent, upon the peculiar inherited weaknesses of the affected individual. The extensiveness and intensive-ness of the ailment will likewise be similarly influenced; the possibility for full recovery, upon the vital power.

Multitudes now live in pain. More multitudes have died writhing in agony because they did not have this knowledge, or, being informed, refused to walk in the ways of health.

3.2 Orienting the Client as to How S/he Relates to the Seven Steps to Pathology

The client's next mental adjustment concerns the fact that any departure from the normal condition of the body fluids will always result in a biological evolution, but this time it will be a reverse evolution from the norm to the abnormal. This departure will always proceed in a more-or-less predictable fashion from simple cellular fatigue (enervation caused by cellular constipation), in its earliest manifestation, to a more-or-less complete saturation of cells, fluids and tissues with acid metabolic waste debris, this last in its later stages. Such accumulation and the ensuing defensive measures instigated and kept operational by the nervous system in an effort to retain the life of individual eventually exhausts the vital force, at point death ensues.

Concisely put, the Toxemia Connection simply means that most people become ill and subsequently die prematurely, not from a particular disease, per se, but rather from organ failure; usually the failure of the liver, or kidneys, or heart, or some combination of poorly-functioning organs which can no longer meet the systemic needs of the life process due to a derangement brought about by the accumulating poisons.

Thus, the body cells that make up the faltering organs and the total society of cells, overcome as they are with acid wastes, simply are forced to cease their functional duties, causing the life process to come to an end: the electrical power that sustains life is no more.

Throughout the entire reverse biological evolution many cries for help are constantly being given off by body cells in the form of pain and suffering. The disease itself, however manifested, represents the body's attempt to reestablish normalcy and it is only when the vital force becomes exhausted that the pains of protest and the systemic attempts to normalize the situation, the symptoms formerly expressed, now cease because the healing vital power has been wasted. None remains to fuel the effort.

3.3 Building Reasonable Expectations

Here is where the blackboard becomes almost indispensable. As our practice is strictly educational in all respects we use this tool frequently. We write down the seven step; in the evolution of pathology which have previously been delineated in this course; to review, they are briefly Toxicosis, Enervation, Irritation, Inflammation, Ulceration, Induration and, finally, Fungation.

Next, we note the various symptoms characteristic of each stage and encourage the clients to share with us any symptoms they may recall from their own past. Clients are then amazed at how closely their own medical history will correlate with what they now see on the blackboard before them. By this kind of active participation they begin to develop an understanding of the nature and origin of, disease and, what is even more important, just how their own past lives, their errors and omissions, may have contributed to their own reverse biological evolution.

Additionally, the practitioner can perhaps, at a later time, when the clients may become discouraged by their seemingly slow progress, remind the clients of this evolutionary transgression and to what stage they may have progressed before beginning their own transition to better living. The building of reasonable expectations often depends on the client being exposed early in the transition to this knowledge.

Of course, full acceptance of such a radical change in thinking may require some time. However, we do not hesitate to suggest, even at this early stage, that it is possible now to set the stage for a more or less complete turn-around; to put the brakes on, to make a new beginning, this time in the opposite direction, toward health. In other words, we have an opportunity to encourage the clients to begin their own transition towards better living.

Often we find that gaining this new understanding of the nature of healing and coming to realize that it may be entirely possible for them to reverse the biological evolution, to turn it in a more positive direction, is often sufficient to supply the missing element in their thinking: the Hope mentioned earlier.

Hope often supplants their former fear because they can now see both where they have been and the positive direction they can now begin to take, provided that they learn what they themselves must do to enjoy this totally new experience, this transitional journey from HERE to THERE, to the time and place when superb health will be their constant companion.

Using the blackboard to define and illustrate the transition that must be made in every instance helps the client also to an understanding of the fact that the more severe their symptoms (that is, in whatever stage they place themselves, either correctly or incorrectly, in one or perhaps even in several), the longer it will probably require for them to achieve full recovery if that, indeed, be yet within the realm of probability, considering their present condition. In other words the foundation for reasonable expectations can thus be laid even this early in the transition, possibly alleviating future disappointments.

Enthusiasm for this new way of living coupled with Desire, Hope, the Will to Act and having Reasonable Expectations may well prove to be an unbeatable combination!

3.4 Zeroing In

Clients usually have some difficulty in grasping this new concept of the nature of disease and, since this understanding is essential to future progress and peace of mind, the true nature of the disease process should necessarily be introduced early in the transitional reeducation period.

Certainly, if this theory is correct—and it is becoming increasingly accepted among modern cellular scientists if not among the orthodox hanger-on, and if symptoms were not forthcoming, the individual would soon die. Thus, the diagrams can help the new client to understand the WHY and the IMPORTANCE of *Symptoms*.

Using the blackboard and/or the diagrams to illustrate the role of toxicosis in disease-making provides a graphic representation, to the clients of their own past, the present and future possibilities. Intelligent clients soon realize, perhaps for the first time, that an opportunity is being presented to them to begin a totally new life, one filled with attainable promises of a better life and this, too, for ALL life!

Blackboard and diagrams help the client to realize that if the body did NOT unload its excess acidic waste, the cells must soon be adversely affected, both in functioning ability and in their structural integrity; in other words, that these acids will damage. Also, a natural conclusion follows that organs composed of these deranged, confused and damaged cells would then, in due course, likewise deteriorate in the same manner. Once this understanding is reached, it is only a simple and direct conclusion for most students to make that if they desire a better life, they must reduce their own systemic toxicity, that they must begin a program to normalize their own body fluids.

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4. A Practical Demonstration Of Procedure

Let us go back and see how we worked with our client Fred whom we met at the beginning of this discussion. At age 77, a widower, very lonely, without relatives, he was in a very depressed state of mind. At 5 feet, 7 inches, he weighed 169 pounds. A review of his medical history showed the following:

1. Pyloric end of his stomach excised some years ago, time uncertain.
2. Part of vagus nerve removed.
3. Diagnosis of prostatitis made.
4. Desert fever.
5. Nodule in lung.
6. Unable to retain food for the last three days with frequent vomiting prior to that time.
7. Constipated. Necessary to take frequent enemas.
8. By prescription of naturopath, he was presently taking 26 vitamins and other supplements daily.
9. Feeling terrible.

Recommendation: Fred was to brew a day's supply of vegetable broth made from carrots, potatoes, green beans celery and zucchini. For a total of four days he was to make a fresh supply of this broth. Also, he was told to remain in bed, having access to fresh air at all times. The broth was to be taken in quantities of 6 to 8 ounces every two hours, or as needed, from 6 a.m. until 6 p.m., after which only distilled water could be had, as and when required only.

Following the four days bed rest with broth, Fred was to rest for two hours during the day and then to be up for two hours. At two-hour intervals he was to have freshly made vegetable juices (Fred owned a juicer), extraction them from carrots and celery, these to be alternated with freshly-extracted fruit juices (orange or grape). These juices could be sipped slowly every two hours, if needed. For his evening "meal," Fred was told that he might enjoy a single variety of fresh fruit. We call this our "Two-Two Transition Program."

Following the four days bed rest, Fred was encouraged to do some elevated leg exercises, just a few at first. These exercises are done lying flat on the floor and raising the legs to a vertical position. The legs are then "pumped," bending the knees and then extending the legs again to the vertical position.

Fred was advised to reduce his vitamin intake but was cautioned about the possibility of a crisis should he attempt to eliminate them completely at this time. Obviously, Fred had become accustomed to false stimulation.

Fred was provided with our study book on the colon.

Three Days Later

Fred telephoned. It seems that, in the intervening few days, he had experienced rather annoying pains in the abdomen (perhaps a mild crisis?). However, he reported that he was now feeling much better and would renew the Two-Two Program. We suggested that he might find a hot bath useful should he again experience any pain, this to be followed by bed rest using a hot water bottle.

One Week Later

Our second consultation: Fred had lost 14 pounds. Said he felt MUCH better and was definitely more relaxed. The chief difficulty during the previous week had been the expelling of gas. A discussion on fermentation and putrefaction followed and Fred was advised of the pressures caused by such gas production on various organs including the prostate gland, the heart, etc. He was advise that poor posture can add to this discomfort. The study book on the colon was gone over with the client. A chart of "Good Things to Eat" was reviewed, as well as informative charts about the colon, the digestive system; list of flexibility exercises was provided with several being pointed out as being advisable in Fred's case. Face and neck exercises were demonstrated. A new dietary program was suggested, as follows:

1. Meal One—Fruit—A single variety.
2. Meal Two—Salad plus vegetable soup.
3. Meal Three—Salad plus:
    a. Lamb or chicken, OR
    b. Ricotta cheese, OR
    c. Baked or steamed potato

Fred was now to eliminate salt, pepper, and all beverages except distilled water. Since he had never used any of these to any great extent, we all felt he could make this part of his transition rapidly.

Once his future course of action was agreed upon, we have a brief discussion on the Seven Steps in the Evolution of Pathology and Fred left with his next study book which uses the condition of arthritis as a means of illustrating this biological evolutionary process.

Second Week

Fred returned for his third consultation the following week. The student will observe that only one week was given between consultations with this client. This was felt best since, being alone, he required encouragement to keep him on course.

He was asked how he had managed. Response: Fred was well pleased and felt much improved. On his new diet, he had experienced much less gas and very little discomfort. Additionally, he was now sleeping well, being required to get up only once each night. (Previously, he had gotten up to urinate as often as five or six times every night.) He was delighted with his progress. Fred had eliminated most of his vitamins and other supplements on his own.

The origin of pathology was reviewed and the seven steps in its development. This time, the various symptoms indicative of each stage in this evolutionary process were depicted using the blackboard. We suggested that our PLAN was to reverse this process of toxemia buildup and thus prevent further damage. We pointed out to Fred that his present condition was the result of 77 years of systemic mismanagement and that it would take time to have the level of health he desired. In the first study book Fred learned what errors may have led to the development of the colitis condition which had been diagnosed some years previously. He actually was able to cite many of his former errors. These same errors, as time went on, had perhaps led to benign growths that had also been diagnosed and to the proctatitis condition.

In the second book and through our discussions, he saw revealed, for the first time, the evolutionary nature of body damaging and recalled many of the symptoms experienced in his own life that had been characteristic of the seven stages. Now, he was ready for his third study book, this one to present the four categories of causes of toxicosis. By this time, Fred could hardly wait to get on with his studies because he was naturally of an inquisitive mind. We contrasted for Fred the high cost of using apheresis to cleanse the blood with the Hygienic way, the former costing as much as and perhaps even more than $32,000.00 for a series of "treatments;" the latter, the Hygienic way, simply adherence to principles and practices ordained by human design. We pointed out to Fred that the Hygienic way is self-help, working with biologically-sound principles, while the other represents a purely-mechanical cleansing which is hit-or-miss at best, and one that carries no guarantee. We emphasized that the Hygienic self-help plan not only cleanses the body fluids but also removes the cause(s) of impairment while apheresis is, at best, only a temporary expediency, a refined type of bloodletting, a technique long ago discarded as debilitating and useless, since cause remains behind to make future trouble.

Over fifty years ago animal experimentation showed that the blood of animals could be removed, cleansed and then be replaced. This was all well and good, of course, but it was soon learned that, in a very short time, the blood returned to the exact same condition it had been in before the cleansing procedure!

Why did this reversal occur? Simply because the tissues had not been changed, the organs remained as they were, and functioning efficiency of cells remained unchanged. *Cause*, you see, had not been removed—It seems obvious, does it not, that apheresis will be similarly ineffective long-term as a means of restoring health and for the very same reason: *cause* remains. Only natural methods have any chance to restore.

The Fourth Consultation

Another week had passed. Fred was immediately asked what he had done to assist his body's cleansing efforts. He said that he had been gaining considerable insight into what had brought about his present condition. He had reviewed all his studies and now, having read this newest lesson, he understood many of the things he himself had done, and had failed to do, which had led to his being so uncomfortable. He felt that overnutrition; overstimulation through the use of coffee, salt, sugar and meat; the emotional stresses of his wife's long illness and her subsequent death; the financial worries during this long period; and, finally, his self-imposed social isolation and subsequent loneliness—all had contributed to his "downfall."

He reported that, being a good religious man and at our suggestion, he had attended church during the last week, something he had not done for some time. We encouraged him to continue to do so and also to attend weekly meetings at church and to go to some of the community's programs for older citizens. In other words, we encouraged him to socialize. We also invited him to another of our "parties."

On examination, we say that Fred's tongue was a nice pink. He said his stomach felt like a new stomach. He thought he could begin his exercise program in earnest now, so we provided him with a series of exercises we thought suitable for his present capacity and encouraged him to walk every day. He promised to do so.

We then reviewed all past lessons and told him that, since he had done well, he was ready now to learn about proper food combining. For the next two weeks he was to read and study about how to formulate his meals correctly and to practice doing so. We requested him to keep a record of his own meals and to bring this to his next appointment, at which time we would all go over them together to see how well he had done. We supplied him with a copy of *The Tree of Life*, and a Food Combining Chart, this last to hang in his kitchen as a guide to meal-planning.

What Was Accomplished in These Four Weeks?

1. Fred became convinced that his former visits to various other practitioners, and there were many, had all been in vain.
2. Fred learned that healing was residual within the body and could not be put into the body from some outside source or by "treatments."
3. He learned that health comes only as the fruit of healthful living.
4. Fred resolved to learn how to live so that he could enjoy a higher level of health.
5. Fred learned about the colon and its purpose in the body.
6. He learned about how toxemia affects all cells of the body, and eventually damages organs and tissues. He has stopped taking pills.
7. He learned the seven steps in the evolution of pathology and characteristic symptoms of each.
8. He learned about the four categories of toxemia and related them to his own life experience.
9. He found that his body responded favorably as he put his new knowledge to work in the marketplace—in his own body—and he was pleased with the results.
10. He became imbued with enthusiasm to continue his studies, to learn more, so that he could become even better physically, mentally and spiritually.
11. Fred made the initial transition quite successfully.
12. He is looking forward to his next consultation because we have told him that, at that time, he will learn how well he has done with his own food combining and then will learn about the six steps he must take to perfection.
13. Finally, his blood pressure which was, on first visit, hovering around the 200 mark, is now

reading 120 over 78. Fred is ecstatic.

4.1 Symptomizing

Symptomizing, of course, often causes new Hygienists to "snap back." Consequently, they fail to find themselves. It is vital, therefore, for new clients to understand that the continuance of life actually depends on this gift of life: the body's ability to channel a toxic overload to various accessory exit points whenever a toxic overload presents an emergency situation, one that is life threatening.

The symptoms that arise, whatever they may turn out to be (and each individual will respond with his own peculiar symptoms which may be either severe or light, or even somewhere in between, depending on many variables; and may even be nonexistent in some cases) can reveal much about the client. The greater the amount of residual vital force, the more violent the symptoms are likely to be. As the individual grows older and his vital force has been wasted to a considerable extent, the healing symptoms may be quite mild, if at all. This is, of course, why chronicity becomes established. As the individual lives his years wasting his vital force needlessly because of a destructive manner of living, the horrendous spectre of chronicity makes its entrance when the power has been so reduced that health-saving symptoms are no longer possible. Thus, diseases of late years tend to become progressively more intensive and extensive, symptomizing more emotionally trying.

However, when clients adopt a more Hygienic way of living, they have the opportunity, with the help of the practitioner, to establish in their minds that, from this point on, health-building will become their business. If they can do this, they will develop a belief in themselves, in their ability to create their own lives and to create them in the very best image of themselves. Belief in one's self can be equated with success. Clients who believe in their bodies' inner power to heal will be more inclined to begin the business of health-building and will recognize each symptom experienced as a success story, a confirmation of their own creative abilities. It will help them to give consistency of effort and bring their efforts to a successful conclusion. Confidence in self, in the Hygienic program, in the practitioner, will all help to keep hesitant clients on course and make the transition a successful one.

Developing an understanding of the possibilities involved in the transitional process can often rapidly metamorphose students' thinking and cause them to become very enthusiastic about their own possibilities. How far can they go? Could it be that they could become like "*him* or *her*, or *them*"? Even practitioners sometimes have to remind themselves that, with full acceptance of responsibility for one's self, an amazing amount of recovery awaits their clients' best efforts. We must remember, too, and tell our clients that symptomizing means that the business of health-building is being successfully pursued.

4.2 Levels of Tolerance

Clients will, of course, have developed their own levels of tolerance. They should, in our view, learn something about this concept early in the transition. It will help them better to understand this matter of symptomizing. We provide study materials about how the constant introduction of poisons into the body from external sources or by the generation of excessive amounts of metabolic poisons within the system itself through life's errors, can not only damage cells, tissues and organs, but can actually lead to an increase in the systemic toleration to: 1. individual specific poisons and/or 2. to poisons in general.

Of course, the client should be led to an understanding that there, is an unfortunate result of such increased toleration: the body constantly functions under a handicap and thus wastes the vital force. The higher the level of toxic toleration, the greater the wasting effect.

Rapid wasting naturally leads to such disorders as, for 'example, Alzheimer's disease, organic brain syndrome, and many others generally, but incorrectly, associated with the aging process.

4.3 The Evolution Of Pathology

I. TOXICOSIS	Cellular constipation starts to build.
II. ENERVATION	General Feeling of malaise, of not being "up to par." Cellular functioning ability decreases Person may feel irritable, nervous, anxious, depressed without sufficient cause, etc.
III. IRRITATION	Sensation of pain. May come and go in predisposed areas; of varying intensity. Previous symptoms, if evidenced, tend to worsen. Constipation Occasional diarrhea Headache Dry cough Itching, pimples, mild rashes, etc.
IV. INFLAMMATION	Fever, redness. Runny, red nose. Some swelling and mucus formation. Previous symptoms tend to worsen. All "itis" diseases, named according to location.
V. ULCERATION	Hardening of tissues, stiffening of movement. Walling off of lesions; benign tumors form. Scar tissue. Sclerosis. Advanced degeneration of organs, especially of liver and kidneys. Onset of senility, abnormal behavior patterns.
VII. FUNGATION	Cellular replication out of control: true cancer. In early stages: organ failure, especially of the heart, kidneys, liver. Tuberculosis Gland malfunctioning—breakdown of hormonal system, especially the hypothalamus and pituitary.

5. Decision-Making Time

5.1 The Power of the Past

Certainly the client's present condition should have made him fully aware of the power of the past. His past errors have produced his present. The life script of the past is gone, it cannot be relived. He has an opportunity now to create a new life script. He must not permit himself to resist becoming the best he can be in favor of the past. Unfortunately, it would appear that far too many humans feel they don't deserve being the best they can be. They tend to hold back, to retain the past, until they simply get "fed up" with the present.

However, it is decision-making time for the clients. The diagrams hopefully will make them appreciate the fact that, as human beings, they can change. The knowledgeable practitioner can help make clients fully aware of the fact that, as human beings, they can put an end to their former destructive manner of living which produced negative degeneration and a poor quality of life, and create, instead, positive regeneration of mind, body and soul: the "I CAN" philosophy.

Clients must ask themselves these questions: Why am I here? What am I doing to change? Where do I want to go? How would I like to look and feel? Is health REALLY important to me? How important? Can I make the required changes? WILL I? Will I desert the herd, the past, in favor of a more promising future? In their answers lie the success of both the clients *and* the practitioner.

5.2 What's Wrong with Medical Science

But, there may remain one question that may arise in a practitioner's initial dealings with clients and it must sometimes be addressed, that question being, "What's wrong with medical science?" The answer, of course, to this question which is so puzzling to many clients, has been given by many writers and can best be summarized, we feel, as follows: Namely, that medical science is wrong because it is always changing!

Truth never has cause to change because truth is always truth, in any age and in all circumstances. We can never depart from truth and remain truly scientific.

The ability of the human body to heal is always there so long as life remains. That doesn't change! The replication of cells goes on and on and on, generation after generation, so long as life power exists. That doesn't change! It may become a more feeble effort, but it is there. The body secretes the same secretions, in the same way, and for the same purposes, each possessing its own specificity. That doesn't change! All things, forces, actions which are characteristic of life remain. The only changes which take place are in the wasting of body power through erroneous behavior and the subsequent wasting of cellular functioning capability, and thus, too, of organs and systems.

It is never pleasant for any person to hear that he has been worshipping at the feet of a false god. We had a consultation at one time with a man whom we'll call Albert. We had just covered much of the information discussed thus far in this lesson. Albert listened attentively as he learned how it is often possible to retrace the downward path and restore a higher level of health. His face soon began to reveal deep frustration and anger. He commented, "What a fool I've been! I have wasted not only my health but also my wealth in pursuit of a mirage. Just a month ago, I attended a lecture and the lecturer offered a panacea for all my ills. I fell for his line and it cost me well over a hundred dollars. I have done this countless times, and for what? For a lie! Now I can see that I have played a leading role in a total farce!"

To cite another case. Morrie weighed over 300 pounds and suffered from arthritic pains. He recounted how he had consulted a total of 26 medical doctors over the past years and had found no relief. To the contrary, he has seen his pains worsen, the swellings grow larger and become harder, his muscles stiffen.

His last physician had referred him to a specialist in rheumatic troubles. This consultation had been "the last straw" for Morrie. It had lasted a total of 15 minutes. His bill had been $60.00. His advice? "Take aspirin whenever you feel the pain."

Morrie had been taking aspirin for years! Completely baffled and disillusioned, confused and desperate, Morrie was a prime target for some medical "quack" to take him on. Fortunately, he came to us. It was now our immediate task, as it will be for all practicing Hygienists, to make real the body's ways: of the healing inner power, of the body's awesome wisdom to manage the healing effort, to bring it to a successful conclusion. If this is not done, the transition road may well prove to be difficult because a mind clouded by its past shadows will remain filled with doubts, even fear. It behooves all practitioners to "set the stage" as near perfectly as possible. In so doing, they help their clients to make a successful transition from the past into better living.

To be successful, we have to motivate if we expect clients to change. Otherwise, they tend to invest their energies (vital force) in staying where they are rather than making those changes all humans must make if they desire success. An established faith must be cultivated befon hope of progress can become a realized fact. Clients must be encouraged to invest their vital force now in building a better life rather than in staying as they now are; if not indeed, becoming increasingly worse. Life is such that each one of us has this choice: to remain a prisoner of our past errors or to get on with the business of living into a better life, perhaps one that will be even better than we might ever hope to enjoy. Thus, during the first phase of client's transitional journey, we must set the stage. We introduce to our clients some new thoughts, new ideas new concepts, a new faith and new hopes. In other words we introduce Natural Hygiene!

6. The Six Steps To Perfection

1. The Problem

The client must now begin his personal transition to better living. The first step entails a clear recognition by him and the practitioner of the PROBLEM, its extent and its intensiveness. Various tools are pertinent here: the medical history, the diet profile, conversational give and take.

The client must realize that acknowledging the problem and/or the vulnerability to a particular condition is the first step to solving it and that, whatever this may be, it is capable of solution through the systematic application of proven Hygienic (truthful) practices and principles, all the concepts gained in this Life Science course. We must reach the subconscious mind and establish a BELIEF, perhaps not complete at this early stage, but beginning to emerge, the belief that, "YES! I CAN DO IT! I can make this transition!" The Master Plan Chart which follows can be used to good advantage as an explanatory tool.

2. The Plan

The second "P" toward Perfection is the formulation of the client's personal PLAN OF ACTION. In order to formulate such a plan the practitioner working with the client's cooperation must first examine the four categories of possible causes of illness (Poison Habits, Deficiencies in eating and living, Excesses in eating and living, and Emotional Causes) and then ferret out those considered most responsible for the client's present impairment. The Master Plan can prove useful here.

For example, clients will see that exercise is an organic requisite, part of the MASTER PLAN OF LIFE. If clients have heretofore lived rather sedentary lives, they will more readily accept the fact that now, if they desire to live better, in the full meaning of that term, then they MUST exercise. As part of their plan, a suitable exercise program should be included, this being one of their first "baby steps" to Perfection.

The Diet Profile must be studied and changes in the dietary regimen made as may be indicated. Each organic requisite in the Master Plan can be considered in turn until the client's own PLAN is complete.

As we were writing this section, the gentleman whom we met early in this lesson, Fred, telephoned. He is eating and enjoying his meals and, what is more, he is sleeping throughout the entire night now, something he has not been able to do since his wife's death. Additionally, the terrible gas pains that seemed to grab at his heart are completely gone. He confessed that be had been gripped by a fear that he, too, would die of cancer and, remembering his wife's years of torture, he had, at one time, even contemplated suicide. He called because he wanted his next appointment to be scheduled earlier, if possible. Fred is now in a hurry. He sees perfection now as a real possibility! And for *him*, too!

Clients must be brought to realize that they can no longer live in the "World of If." *IF* I had only eaten correctly! *IF* I had kept up with my tennis. *IF* I had only rested more and partied less! *IF* only I had accepted the responsibilities of being human. *IF* only I had not eaten all those horrible foodless junk foods! The World of IF must be laid aside. It is time to weed out all the causes of ill health, one by one, perhaps; or even all at once if that is so indicated.

Specific errors in lifestyle will be revealed by the client from time to time as confidence in the practitioner, and in Hygienic practices and philosophy, grows. Each should be addressed at the time.

The most difficult of all poison habits to identify are, without a doubt, those of emotional origin. The importance of the psyche upon physical wellness is also one of the most difficult to bring to the conscious attention of the client. Clients hesitate generally to advance to public view their private fears and to weigh the deadly effects of such imprinting.

Joan provides us an excellent example of how one client coped with a devastating emotional web of fears and sorrow. In her late 60s, Joan was a widow. She had recently buried her husband, a victim of cancer. She went through some of the early steps of transition hesitatingly because she had mental reservations. We had been working with her for well over a year before we found out that she harbored deep fears about her future. Alone, without close family ties, she wondered about her economic well-being, her health future, about her ending up her days in a nursing home like so many of her peers, or even perhaps in the agony of terror she had witnessed in her husband's last days. Fears and sorrow pervaded her very soul and limited her progress.

We encouraged this woman to join a bereavement group. There she found companionship. As she grew in health, she began to make plans. She sold her home, the upkeep of which cost her heavily, and subsequently moved into an apartment complex where she was constantly with people of all age groups, particularly at the little recreation center maintained by the owners. She began slowly to put her fears aside and the first thing we knew Joan was laughing again. And, as her joy in living increased, so did her wellness. Joan now looks for solutions, instead of suffering defeats.

Most of us have been brainwashed in the past and by current medical teachings to separate the cerebral centers from the rest of the body. In reality, however, this cannot be done, for our cerebral centers consist not only of isolated nervous matter but also of fluids which bathe the cells. By virtue of human design, these fluids have their composition regulated by the blood serum which, in turn, contains all the secretion emanating from all the cells of all the glands and tissues, these permeating and diffusing throughout the entire body.

Every organ contributes to the chemistry of the brain, as does every cell; and the brain imprinted thusly sends out its constant messages. There is not a square centimeter within the entire community of body cells that will not be imprinted by the distress of cerebral cells exhausted by emotional upheavals or by toxins contained in the fluids which sustain them.

An ever-present fear of what the future may bring can cause that future to materialize and become the present. Worry can impair and even paralyze the digestive organs. So it is, that hidden fears must be found and the client led into a deeper understanding of the importance of mind control. Positive action must replace the "If s" and concerns of the past.

The client and the practitioner both must comprehend that there is no such thing as suspended forward motion. For health to happen, we must *change* into health. This is why formulating a workable PLAN—one deemed so by clients themselves—is essential to future progress. If clients are ever to break the toxemia connection and begin a transition into better living, they must identify and recognize their problems, develop an understanding of possible causes of their problems, and then, with the practitioner's help and guidance, develop a sound, workable plan to solve the problems.

The practitioner must further impart to the client the concept that NOW is the time for him/her to take control of his/her own life, to learn intelligent self management, this to be based on sound physiologically-, biologically-, and anatomically-proven facts; that s/he can no longer afford to base wellness on demographic ally-controlled news releases, or on medical therapeutics which have failed in the past. S/he must now learn to manage the body and mind intelligently according to the capabilities and limitations established by personal design.

All the familiar patterns of self-abuse must be penetrated, identified and corrected. This is why the PLAN can never be static. It must be subject to on-going change and modified from time to time to meet all specific needs as best they can be determined. It should be made quite clear that if the clients manage themselves well and supply adequately the needs of life (the Master Plan) they will begin to enjoy an ever-higher level of health. I they do not, of a certainty, the converse will rear its ugly head.

The Client Reports

Upon introduction of the initial changes, we ask the client to report back in seven days or, at least, within two weeks. S/he is encouraged to respond to such questions as: How did the stomach react to the dietary changes? Was the client able to sleep better? How many pounds were lost, if any? We encourage and note all positive responses. These serve to inspire both the client and the practitioner!

The holidays are always difficult times for newcomers to Natural Hygiene. Last Christmas we hosted a Christmas day party. We all enjoyed a Hygienic meal and the fellowship. No one missed the health-destroying practices so prevalent at this time of the year and it is interesting to report that few of our guests suffered from spring cold and not a one "enjoyed" having the flu. We will repeat this kind of party from time to time.

Unfortunately, some clients may meet with resistance from family members or from their peers, and so may begin to falter. It is essential for such as these to "psych" themselves into following their plan exactly. They must learn not to feel guilty about not eating or acting exactly as the other members of the family do, or as the masses. They can be helped over these difficult times by teaching them to reaffirm, over and over again, if need be, both silently and aloud, "I NEED to become healthier than I am. I NEED to eat this way. I MUST eat this way. I WANT to live better and the ONLY way I can enjoy life is to DO WHAT I MUST DO. Therefore, I WILL DO IT! PERIOD!"

Clients must reach, early on, an understanding that everything they may now hope to become depends on how well they meet their basic nutritive needs *now.* Students of this course have much knowledge to impart to those who seek their counsel. They know how to set up eating formats, about food quality, where to go to purchase organically-grown foods. They know which foods are best adapted to humans by virtue of their structural design and biological requirements. This must be imparted to the clients, else they will forever be dependent on other; Included in the PLAN must always be specific instruction on the subjects of air and water quality, the amount of food to be eaten at any one meal or throughout the day, a well as information on how and when to eat. There is much for clients to learn and so little time to share all the knowledge.

The time of transition is a learning experience. It is period that requires much change, both in thought an practice. Clients must learn the practices, the foods, the substances and forces that are anti-vital, destructive of body cells, of the life force. They must also learn how best to manage themselves into a new and better dimension of life. Ideally, it will progress from the simple initial physiological, physical and sensory, almost resting, phase to the first strange ways of assembling and eating foods; and then the coupling together of a host of helpful changes in the total lifestyle. At the conclusion of the transition, ideally, there should be full acceptance by the client of the Hygienic manner of eating and living, this having been encouraged by the positive results obtained.

The Story of Bess

The PROBLEM possessed by any one individual can be present in actuality, it can be of the here and now; as, for example, a painful arthritic condition; or it can exist in a VULNERABILITY, a predisposition by virtue of an inherited systemic weakness to some condition, either known or unknown. Erroneous cultural habits often lie at the root of such problems of "vulnerability." We inherit the cultural errors of our childhood teachers; not, in actuality, the tendency to a disease!

Bess, age 34, presents a classic example of the latter. When she first consulted us, she was beginning to experience some shaking in her hands which, under stress, became quite annoying. She recalled that her mother, toward the end of her days, had suffered from Parkinson's disease, the "shaking" sickness. Bess was terrified.

We worked out a plan for Bess which was new and strange to her but she followed it successfully for about six months. The shakiness disappeared, even when she found herself under stress. So, Bess became somewhat careless about working her plan and, being single, she began to go out with the girls now and then for a pizza, and then more and more frequently. She failed to keep an appointment, so we dismissed her from our client list.

After about a year, a penitent Bess was back in the fold, this time perhaps even more frightened than before. The shakiness had returned, so much so that she was no longer able to meet adequately the demands of her very responsible position. Her "vulnerability" had finally penetrated Bess' conscious mind. She knew now, with a far deeper understanding, that she was vulnerable in that her nervous system could not withstand the careless assaults she had been making upon it. All doubt about the need for her to live Hygienically was removed. She knew with a certainty that, from now on, she would have to invest in herself. She decided that she wanted to "let all of life in" and would invest her all in making this new life. This time she decided to take the important THIRD STEP toward Perfection.

3. Priority

Yes! Bess decided to make the attainment of superb health her FIRST PRIORITY. This is what psychologists refer to as "GETTING TO THE YES POINT." After reaping a sick harvest from following the ways of the masses, Bess found herself haunted by the sick shadows that walked beside her, ghosts of the past. Thus it was that reality brought her to the YES point. The attainment of superb health, by necessity, became her FIRST PRIORITY.

Previous to this point, of course, Bess had passed through a series of emotional storms wherein she resented the demands of her own Self. Thus, for a time, as many clients try to do, she attempted to fantasize herself into a higher state of wellness and so took the detour which led to many emotional, physical and mental skirmishes which put her back in touch with the realities of organic existence. She found that, like all humans, she was subject to organic laws. She had become submerged and actually enmeshed by FEELINGS instead of in touch with her real self. The results of her fantasizing feelings, instead of keeping in touch with her real self, and her completely unrealistic expectations, finally caused her to become aware, probably for the first time in her 34 years, of the systemic needs of self. This period of storm and uncertainty is often called the period of "Low Think." Bess survived it and has since adapted fairly well to her new way of life.

Clients can be helped to pass through the period of "Low Think," and then on to the establishment of superior health as their personal FIRST PRIORITY once they begin to see their own small successes as they follow a series of planned sequences. Printed, well-chosen study materials often can help a client to reach the extremely important understanding that the Hygienist has a larger view of nutrition than the simplistic views espoused by most dietitians and medicos. To the Hygienist, nutrition is not only a mechanical-chemical process vital to life, but also one that is intimately personal, involving, as is always true, emotional, cultural and psychological factors, mores, etc. To the Hygienist, nutrition includes everything that happens to food once it is introduced into the mouth: mastication, digestion, absorption, transportation, assimilation and, finally, elimination; and all the factors, influences and substances that can affect each or the whole. The Hygienist and the client must comprehend all these manifold aspects of the nutrition scene and also that all must be made as nearly perfect as possible, if full health is ever to be achieved.

If the clients decide that they now wish to break the toxemia connection and remove their burdensome toxic overloads, they must give active consideration to this most important aspect of self-management and follow through with intelligent implementation.

The transition period is, first and foremost, a learning experience of major proportions, one contrary, in most instances, to all previous training. It includes necessarily the development of an understanding that the client's previous heterogeneous manner of eating, drinking and living created systemic frenzy and failed to meet systemic needs. The client must learn that food is used by his/her body solely for replacement purposes. Additionally, s/he must acquire the knowledge that certain common practices, foods, substances and forces are anti-vital, and actually destructive of body cells and the life force. It must also include discovering how best to manage himself, often against considerable societal and personal odds, into a new and better dimension of life. Ideally, it will progress from the initial physiological, physical and sensory simple changes to the full acceptance of the Hygienic way of life. The practitioner should not forget that this is no mean feat!

But, it is this experience which can finally put clients back in ouch with themselves. They begin to love themselves so much that they no longer have any doubt that the attainment and maintenance of full health must become and remain their FIRST PRIORITY because upon their doing so, all else depends. This is when the client begins to reach an understanding of the practical value of expectations based on organic reality instead of on myths which lack life substance. This is when clients begin to take hold of conviction, and establish as their main purpose in life, the need to build as high a standard of wellness for themselves as it is possible for them to achieve. They will do this not only for themselves but also for the benefit of those they may happen to love and for society at large. Once the windows of the mind have been opened up, the clients can then enter into a new and hitherto untravelled dimension of their lives, one filled with undreamed-of opportunities.

4. Performance

The clients have their problems. With the practitioner's help, they have devised a plan. After a certain amount of accommodation and soul-searching, they have decided that they love themselves enough to make health-building the First Priority. Now they must work the plan, they must PERFORM.

As practicing Hygienists, we cannot accompany our clients home and supervise their performance. THEY must work their own plan.

Once the plan is instigated and in force, with the needs of the body now being adequately met, the cerebral powers begin to take a new direction according to the following organic law:

"When the quality of the food coming into the body is of higher quality than the tissues of which the body is made, the body immediately begins to discard all lower-grade cells and tissues which are then

recycled. All usable materials are incorporated along with the incoming top-grade nutrients, and used to formulate and construct new and healthier tissues, this being accomplished in an ongoing, biological evolutionary process with each generation of cells being healthier than the preceding generation."

The client, for this reason and according to this law, must expect certain salubrious changes to become operational because his/her own body intelligence will, by due process, recognize immediately that certain improvements, both in lifestyle and in eating, are now forthcoming. Curative, health-building changes will begin which may prove disconcerting at times. It is at such times that the client necessarily becomes acquainted with the power of the only healing ability s/he has, a healing force resident wholly within. S/he has it ALL! And it is a powerful force that will always guide in the direction of perfection so long the Plan is followed. Having a workable plan and working the plan—PERSONAL PERFORMANCE—will inspire the required constructive INNER PERFORMANCE. Personal performance brings positive inner performance and its twin, Positive progress, not only physically, but also mentally and spiritually.

The client soon realizes that nature's efforts, unlike the drug response, are not due to simple chemical actions and reactions, but are, rather, vital changes, changes which have been designed with exactitude by the body's own intelligence to correct that which was incorrect, and that all such will be brought to a successful conclusion, in due course and as may be required, by cell destruction (catabolism) followed by cell multiplication (replication and cell formulation (anabolism). The quality of the performance will, as a certainty, determine the quality o the correcting vital work—and all will be under direction of the sympathetic nervous system.

To state our thesis simply, the client must discover to best to manage self (the Plan), reach the grand decision the First Priority; and then perform in order to realize this potential that lies sleeping within. Perfection awaits the *willing* performer and in the performing lies a world filled with creative processes intended to write a new life script one which increasingly witnesses the fulfillment of potential. All that is required of the client is that s/he bear faithful witness to organic authority.

Rubber-Banding

But being a faithful witness to organic authority is sometimes difficult for some clients. Often newcomers to Natural Hygiene have a tendency to revert, to go back to the old, palate-pleasing foods and their tantalizing former lifestyles, even though they may comprehend, at least at the surface of their minds, that these incorrect foods and habits are the very same ones that damaged them.

This very common tendency of people to revert to the more familiar past is called by some psychologists *"RUBBER-BANDING,"* a snapping back into old habits that please instead of following new directions that challenge and even, at times, become painful. Adaptation and accommodation are required, both mentally and physically, if such snapping back is to be simply a momentary happening.

The practitioner should help clients to recognize the cause of this rubber-banding: receiving false instruction; which come either from a *damaged body and mind* OR from *habitual happenings of the past*, many of which were written in childhood memories and are illustrative of the child mind. As health-seekers, clients must now enter into their own new worlds, in which they will constantly receive *new* instructions of a much higher value instructions programmed by an awesome inner wisdom each designed to transport them into an ever-growing wellness of being.

Clients will make an easier transition if they accept the fact that they are not being *deprived* of something desirable but, rather, are being offered a splendid *opportunity for ENRICHMENT!* Once this awareness takes over, they are usually ready to adopt the new pattern for living and begin, too, to set forth their own goals, small reachable goals at first. The wise practitioner permits these easily-attainable goals and then goes on to encourage clients to take the necessary baby steps to reach Goal Number One. At that point, rubber-banding can often be avoided, if a period of adjustment taking a varying amount of time according to individual differences if allowed. This permits a time for body balancing.

When full accommodation has been reached, then Goal Number Two becomes a new challenge. This procedure is then followed until the desired level of wellness the achieved reality; the challenge has been met.

Such helpful guidance encourages clients because the) experience a rewarding pattern rather than feeling they an being deprived of something of value. In this way, the client is helped to assume the: "I AM IN CONTROL!" position instead of being locked in the "Low Think" jail of past imperfection and failure.

5. Patience

In working his/her plan, the client may not always progress in a straight line; indeed, few will. Many clients become beset with societal concerns that can have severe emotional impact. For example, clients may become worried that other people won't like them, that they may consider them "odd," or "different" from themselves.

Let us share a part of a letter we received just this morning from a young man who is beset with just this kind of emotional concern. A salesman, handsome, talented, witty, a man of many talents, had the early signs of rheumatoid arthritis. He was in considerable pain.

This young man, let's call him Kurt, began his program in a suicidal frame of mind. Because of his youth and willingness to perform, he made rapid progress and soon forgot about his former aches and pains. In their place, however, came a new worry, "I am getting too thin! I look like a skeleton," he complained. So, he reverted, at least partially, to his past. He became a rubber-band.

In his letter he dismisses us saying, "You have been a great help and inspiration in my life. ... I am not a true vegetarian. It didn't agree with me or my hectic lifestyle. (He has failed to understand that it may well have been his hectic lifestyle that led to his rheumatic ailment.) I just became too thin, felt weak and started feeling upset. Therefore, I have compromised. No hamburgers, steak, chops, etc. I just eat lots of chicken, fruit, vegetables, but still love mashed potatoes, etc. God bless you." and he signs his name.

This young man will return to Natural Hygiene. How do we know? Because his symptoms will return! As Dr. Shelton so well said, "We cannot disobey the laws of life with impunity."

We must encourage our clients to have the PATIENCE to let their bodies fully accomplish the necessary work. Otherwise, they fail and perhaps we ourselves fail to some extent. But, if we do our best, then, of course, we must learn to "let go." New Hygienists have a choice: to endure a hurting body, or to be content to let other people "do their own thing," to go their own way while they live into a new and higher level of health such that these others will never be privileged to experience.

Novices in the science of life must develop conviction of the correctness of their plan. This, of course, will come only as the fruit of knowledge, knowledge about themselves and how they fit in with the life process. They must get into life and realize just how important life really is, that it is worth their very best efforts. To make this adjustment can be difficult because all of us are so bombarded by herd mania, but patience will make it happen.

Knowledge can help to build a kind of security system around clients, one that will serve to protect them from outside negative comments, thoughts and forces. A security system based on knowledge coupled with a sense of the worthiness of self will often survive throughout the transition to perfection. Clients must not close the door of their mind to truth but rather they should learn to open it to organic reality.

Kurt, unfortunately perhaps, made too much progress and made it too rapidly, within a very few weeks. His pains left too quickly! He is now thinking, not about his future, but rather about all the pretty young girls he would like to date. We must expect this behavior, from time to time. Those who lack intelligence or who, like Kurt, possess false standards, may not complete their on-going journey toward perfection. They lack patience.

But, the vast majority will! They will come into a full realization that the body will do its own metabolic balancing, that it will somehow and in some manner discard all that needs to be discarded: all the putrid, messy, decaying filth that accumulated in the days before self became important. Kurt mistakenly believes he now has Perfection! Instead, he has been inspired by FIRST IMPROVEMENT to become a rubber-band. His lack of patience will prevent his reaching, at least for now, the ultimate goal of euphoric wellness.

Elderly persons can better appreciate the fact that they must get control of their mind and of themselves. They must have a full measure of patience, sufficient to get on with the involved work of health building.

We must do our best to teach clients to flow with the certainty of the life process, with conviction that there is no other way to have their desire, that perfectly functioning and peaceful body. We must exert our best efforts to develop the understanding that every mistake, every error, will leave a lasting imprint, that it will damage the body. Our clients must be led to appreciate the fact that, upon the patience they now manifest, will depend the quality of all their future life.

Learning about Natural Hygiene means learning about cooperation: all persons with themselves, and themselves and all others. We must do our best to teach our clients to look at life, to anticipate life, knowing that a full, enriched life will surely come to them, if they but have the necessary patience and *will* to let it happen.

6. Perseverance

The twin of patience is, of course, PERSEVERANCE. We humans can't put ourselves on "hold." We can't say "maybe" or "perhaps," or "next week." The body never remains in a static position. It will move either forward or backwards depending on whether or not we answer systemic needs, these varying from individual to individual.

As the energy level rises, or falls, this movement, whatever the direction, will begin to accelerate. So, once we embark on this transition to better living, we must persevere in the doing, knowing that our plan, our performance, our patience and our perseverance will reward us with gifts, enormous dividends, if you will; to name but a few, in the form of:

1. Improved health and peace of body and mind.
2. Economic dividends of immeasurable value.
3. Internal cleansing to set free formerly-wasted reserves of vitality, these providing an enlarged capacity to live always in health.
4. Reduction or total elimination of internal handicaps that restrain and limit functional excellence.
5. Provide new spiritual insight into life's meaning and one's purpose for living; a statement of "Why was I born? Why was I chosen to receive this precious gift of life?"
6. Remove our former dependence on manmade pseudo foods, drugs, potions, and all false stimulants.
7. Provide us with a new beginning, a new dimension of life that can be exciting, provocative, promising and immensely rewarding both to ourselves and to others.
8. Establish a permanent euphoric joy in living.
9. Provide a worthy example to others of what living Hygienically might possibly accomplish in the lives of those we meet as we travel our own life course.
10. A rare opportunity, known to but few, to write our own challenging life script and this, too, regardless of our chronological or physiological age.

7. The Call And The Challenge

This then is both the call and the challenge of a transition into better living. Someone once said, "We do not 'ooze' into health, we choose it!" Each client must love him or herself so much that s/he chooses to follow the Six P's to Perfection. S/he must come, by whatever means, to realize the authority of organic law and, being desirous of the whole of life, then choose to give far more than lip service to this authority and, instead, choose to live *in accordance with* it, and, even more important, to persevere no matter how long it may take to reach his/her own ultimate goal.

In other words, the client who will be successful makes the grand decision to desert the sickened herd and chooses, instead, the good rich life, the better life, of perfect health. Once this has been done, all that remains is for the client to focus seriously and deeply on this goal, always motivated by the good results that follow in the wake of intelligent performance.

Harry is a case in point. He had watched himself become a 50-year-old "baby," completely dependent upon others, a burden to his family and to himself. At our first meeting, his eyes were filled with terror.

Harry has been a Hygienist now for the better part of a year and has reached that point where he is fully confident that one day he will no longer be dependent on others for his total care.

Harry has yet to fast a whole day but, undaunted, he says, "Don't worry, I'll make it. I'll do it!" And we are sure he will. This is the confidence required to reap the rewards of a successful transition. Harry is already looking forward to the day when he can, in person, attend one of our potlucks or other meetings and there tell his own wonderful story so that others may develop his deep sense of the rightness of the Hygienic way. Harry usually replies, "Do you think I can do that?" Our reply comes, "Why, Harry, of course you can do it!" And then a smiling Harry usually replies, "You know, I believe I really can!" The challenge has been accepted.

Someone once said, "Minds grow by reaching, not by resting." Our clients will surely make a successful transition when we help their minds to reach into the wonder that is life's scientific truth; when we impart to them the knowledge that life is never static, but rather always a dynamic play of forces; and that, by adhering to nature's gentle ways, they can participate in a positive dynamism that will, with certainty, fulfill all their dreams. Client and practitioner alike must honor the call and accept life's wondrous challenge. After all, we are all in the process of *BECOMING*, and what we *will* to become, that we will *BECOME*!

8. Questions & Answers

I know Natural Hygiene works. Remember how my blood pressure dropped from near 200 down to normal? Well, now it's back up there again. And I'm back on my medication again. I have it under control again and with the lowest dosage I've taken in many a year, but I just can't seem to stay on course. I'm all right until the evening hours. Then, what do you know, I'm at that popcorn and beer again. And, as you can see, I've gained over ten pounds since I was here last. What can I do?

> Many beginning clients revert. We call this "rubber-banding." I would like to point out to you one very important fact that you have apparently overlooked. In spite of your momentary slipping back into a past bad habit, you tell me your medication level is now at

its lowest point. That should tell you something. You have been successful! You have accomplished something you had been unable to do for years. You don't have to poison yourself. Your Hygienic program is working! Now, you must resolve to take the next step and develop mind control. When the popcorn calls, don't buy it! Take the dog out for a walk, or drink a glass of hot water, or start working on that crossword puzzle. Direct your mind forcibly into some other activity. Resolve, no matter what, to stay on course. Get to the point where you will no longer require that crutch, the popcorn, or any other crutch. You can do it. Don't permit yourself to snap back. You know, we usually get what we want out of life. If you want superb health and all that THAT can mean to you, then you will do whatever is required of you to obtain it, even giving up popcorn!

At one time in this lesson you said something about the body doing its own metabolic balancing. What do you mean by that?

I am glad you asked that question.You see, there are practitioners at large who charge fantastic prices for their counseling. They claim to be able to balance the metabolic activity of their clients by juggling various kinds of mineral and other supplements. One woman we knew had just been released from the hospital after having suffered with pneumonia. Naturally, she felt weak and tired. She was lacking in strength. She got taken in tow by one of these juggling artists. She purchased (from him, of course) dozens of bottles of hormones and enzymes, of vitamins, various kinds of potassium and selenium pills; she took zinc and calcium tablets. In fact, she owned a veritable "health" food store! She was being metabolically "balanced."

After a time, she was filled with minerals, hormones, vitamins, and with a whole host of supplements. She became even weaker and totally confused. You see, in full health, our, body is never confused. In full health, we are metabolically balanced. We have within us suitable amounts of all nutrients, our cells take in the nutrients they require and give off their wastes which are dutifully rounded up, transported to the proper destination and then promptly eliminated. In full health, a state of equilibrium—homeostasis—pertains. This is what the Hygienists mean by metabolic balancing. And, to set the record straight, there is no exact way to determine the precise needs of any human system at a particular moment in time. Our needs change with each nuance of life, with each nerve message transmission. No human mind can possibly prescribe human-formulated doses to meet this changing kaleidoscope of systemic needs. Only your body can do that. Once we begin our own transition into better living, that is exactly what begins to happen. The body begins to balance itself. And without outside interference, it will do a grand job.

My hangup is milk. I manage the fruit meals but I've drunk milk for as long as I can remember. My father was a Physician and he used to bring home a whole gallon of milk for us two kids. Will it hurt me if this is my worst habit?

The childhood script can often prove to be the most demanding of all our life experiences. You see, your experiences and habits in childhood were reinforced by parental authority in which you had complete trust. However, you and I are now adults. We are each writing our current life script, travelling our own life course. We must excuse parental error. We now know that all milk, except breast milk in infancy, is a nonhuman food; that using it can lead to clogged arteries and damaged hearts, to arteriosclerosis and all manner of degenerative conditions. We must also accept the known fact that milk is an indigestible menace. To the extent that you drink it, you will be damaged. If you are willing to accept that damage, and you, of course, at this time have no knowledge of exactly what it might be, then you can go on drinking your milk, you can go on being a child again. You will have only yourself to blame for whatever the damage may prove to be. We sometimes call this kind of reverting,

> "killing softly!"

I recently went to a clinic and the medical staff there put me through the Cytotoxic Testing, It cost me almost $300.00 but they determined I had some 58 different food allergies. What on earth can I eat? They took me off wheat, office cream, off all meat except lamb. Golly! they've taken away just about everything good to eat. What is your advice?

> My advice to you is to consult with an experienced Hygienic practitioner and begin your own transition to better living. In other words, it's time for you to place your body house in order! I guarantee you that if you follow the Life Science road, you can soon forget all about your 58 allergies and, furthermore, you will begin to enjoy every mouthful of food you bite into. What is more, you can forget about medical clinics and their personnel and—even more importantly—about their advice! Your allergies are evidence that your body is fighting desperately to protect you from all these so-called "good foods" you have been eating. My friend, I'm afraid you have been living in a fool's paradise. Remember what we said, "Life is never static." You are at a crossroads now. I hope you'll choose the Hygienic transition road to better living. It is a road that can be filled with accomplishments, with promises fulfilled.

My daughter is so obese that she was recently discharged from her job because she was so slow in her movements that she just couldn't keep up with her co-workers. She was watching her diet rather well, we thought, but when this happened, she defrosted a huge pizza, poured some canned hot sauce on it and now she is on a pizza and hot sauce binge and vomiting all the time. What can we do with this girl?

> In the first place, it's time you stopped your parenting! Your daughter is approaching middle-age, as it is commonly measured. It is high time for you to stop watching over your baby and enter into a new life, to take care of your Self. As for your daughter, the proper thing for her to do would be immediately to stop eating anything until her system settles down. In short, she should fast until the condition rights itself. I would advise her to go to a Hygienic retreat for an extended rest and fast. She would then look better, feel better, would have greater speed and flexibility; in short, she would be better prepared to manage her own life and to leave you free to do the things you need to do at the here and now in your own life course. In any event, permit your daughter to manage her own life and you get on with the business of managing yours.

Article #1: Supplementary Text Material by Guylaine R. Aragona

Recently we received an Answer Sheet, a final examination paper, from a student in New Hampshire, the wife of a chiropractic physician, who is also one of our students. Her comments are well worth our consideration at this juncture. Therefore, we have included them as supplementary reading.

Most individuals play and use their bodies carelessly, believing that the body is made to function on overuse and abuse. The people of this gender will be your McDonald's hamburger joint people; candy and potato chip, canned and ready-made, quick-to-prepare-food eaters, laced with every chemical under the sun. They are the ones that feel great, but cannot perform certain tasks, nor do they possess a normal range of motions with their bodies, only because they are not 16 anymore. Poor excuse! My grandmother was in her 80s and could possibly have still turned cartwheels. Of course, she had her own vegetable garden, which she diligently worked in, and she also prepared all of her meals with most of what her garden produced for her. To bed at 9 p.m. and up at 6 a.m., energetically ready to begin her day, with a family, home and all that entailed a day's work. Now, why is it that in her 80s, she was as fit as a fiddle? Because she was in tune with her body, what went into her body, and with life itself.

These days, people are into trying to make a "fast buck," overstressing their bodies, and putting into their bodies anything that will satisfy "hunger" or just anything at all that tastes "good," such as junk foods (candies, chips etc.). When they don't feel well, they blame it on age, or "the bug that's going around," but never on their own self-abuse. Gradually, when arthritis hits them, they search for relief with a drug or drugs, still without realizing that they have to change their gross habits of eating and living: believing that they will miraculously be healed. Why do for yourself what a few pills will do for you? And, if an organ or some bones can be removed or fused, and one can still continue to function, even yet in gross ways. Obviously most people are brainwashed to believe that they can continue to abuse the body and that drugs and chemicals can cure one's self-inflicted sickness and disease. For shame, that so many people's lives are regulated by "take this pill for your ulcer at 4 p.m.; take this pill for your gallbladder at 4:30 p.m., and be sure you take your mineral pills at 8 a.m. and, before bedtime, at 9 p.m., etc. etc." The money spent on chemicals that your body was never intended to absorb to begin with, causes one's body to work overtime to fight them. This takes away from the body its ability to help itself, its own healing ability. The secret is to teach people how to take charge of their body by proper natural nutrition and proper exercise for their bodies. It will take much to teach them, especially those who do not yet have arthritis, joint degenerative diseases, the fusing of the osseous structures, etc.

All the factors of self-help must be used and this includes feeding one's body fresh raw vegetables, raw vegetable juices as well as fresh fruit juices and fresh fruits. Also included must be rest and sleep, sunshine and warmth, fresh air; cleanliness, internally and externally; eating at regular intervals. I understand that this may be difficult for an individual, at first, but we can start a bit at a time. In my opinion, any vegetable, whether cooked or raw, is better than none, and most especially, better than meats of any kind and a host of junk foods. To break one of such gross habits, takes patience and also, most importantly, understanding, and, always, great positive direction. (Ms. Aragona has presented the task quite well. Such is the familiar pattern of self-abuse that must be penetrated and corrected. And this is why the Plan cannot be static. It must be subject to on-going change and modified from time to time to meet each client's specific needs as best they can be determined.)

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Article #2: The No-Breakfast Plan

Note: Sometimes clients cannot accept the No-Breakfast Plan as originally espoused by Dr. Edward Hooker Dewey, M.D., an early Hygienist who lived in Meadville, Pennsylvania. To help them overcome is difficulty, the following true story as related by Prof. Hereward Carrington, Ph.D., in his fine book, *Vitality, Fasting and Nutrition*, may prove helpful. The story as told related to a Mr. Van R. Wilcox who fasted for 60 days and used no solid food for a total of 70 days.

The result of this fast was that Mr. Wilcox was completely cured of every one of his many infirmities (we counted 10 such depicted in the text!). In so fine a physical condition was he, indeed, such a high state of health had he attained—that he set about walking across the American continent—from New York to San Francisco—a distance of some three thousand six hundred miles, as walked—which remarkable feat Mr. Wilcox performed in 167 days—an average (taking into account the fact that Mr. Wilcox could not walk as the "crow flies") of slightly more than twenty-two miles *per diem*—he carrying, throughout, from twenty to thirty pounds of baggage! During this period, Mr. Wilcox was exposed to dangers and hardships galore; the temperature being at times 125° F. in the sun; at others 13° F. below zero. During all this time, though the physical exertion was as great as it was, *not once did he eat a breakfast*.

... Surely this should explode once and for all the fallacy that a hearty breakfast is required by those doing hard muscular labor—since there is no exercise more taxing than walking, or one that arouses more keenly the appetite.

Note: If Mr. Wilcox had walked at a consistent pace of 4 miles an hour, he would have had to walk for almost eight hours every single day! Apparently, he did just that!

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Article #3: Holistic Approach: Relying on the Doctor Within by John M. Barry, N.D., D.Sc. & Dawn Lyman

You have within you a tremendous capability both to defend yourself against becoming ill and to heal yourself when you do become ill. Medical practitioners have long referred to this capability as your defense mechanisms. These defense mechanisms include your mind and emotions as well as your body.

They include all your physiological and psychological functions as well as all your glands, organs and inner systems. All these functions, glands, organs and systems interact in whatever way is needed for your well-being according to some inner wisdom which is obvious to researchers and practitioners alike, but which is poorly understood.

Dr. Albert Schweitzer called these defense mechanisms your "doctor within" when he advised physicians they would be at their best if they gave the doctor who resides within each patient a chance to work. Your "doctor within" is inborn and functions involuntarily throughout your life to repair injuries and keep you well; or return you to health after an illness. If you give this "doctor" a chance to work, s/he can even "cure" the common cold. S/he can compensate for the loss of a large part of many of your organs, including three-fourths of your liver, an entire lung or kidney or adrenal gland, restoring your functions to nearly normal. S/he restores normal functioning, not because you only needed one lung or one kidney or one-fourth of your liver to begin with and, by some happy chance, just happened to have extra; but because s/he is able to improvise with whatever is left of the injured system to compensate for what has been lost.

Whether you call it "the doctor within," "innate intelligence," the body's immune and defense mechanisms, or whatever, this is the only force capable of healing you of any disease. Only this inborn healing capability knows exactly what is really fundamentally wrong, and how corrections should be made. There is more information stored in the billions upon billions of cells which comprise you than is stored in all the libraries on earth. This information is used for continuous improvisations of your peculiar and specific mental and physical systems. No scientist knows how this works. And, no battery of instruments can indicate how it works. In addition, how it works in your case is entirely different from how it works in others.

You may wonder why you get sick in the first place, if your "doctor within" is so marvelous. Well, even if you weren't exposed to such debilitating factors as pollution, stress and poor judgment as well as circumstances beyond your control (the new baby has colic and you have to go to work after getting 87 minutes sleep), you would still have to deal with entropy, the process by which all things break down into the elements of which they are composed. Because you are subject to all these deteriorating influences, you need to take some action to assist your "doctor within" in order for him/her to maintain your health.

Most health practitioners try to assist your "doctor within" in one way or another. Of the available methods, the orthodox medical approach is the most popular and most widely accepted. Drugs, radiation, surgery, and dangerous invasive procedures have become part of the orthodox medical approach and supposedly are used to assist your "doctor within." And, in many cases the need to assist the "doctor within" is secondary to malpractice liability which usually dictates that doctors provide the "correct" (acceptable to the medical establishment) treatment regardless of expected outcomes. The orthodox approach relies on drugs which in most cases are used simply as symptom-relievers. When a symptom poses an immediate threat to your life, it must be dealt with directly and at once, and drugs are used in such cases as a last resort.

However, trying to outwit the myriad of complex and still mysterious chemical, hydraulic, mechanical and electrical systems which comprise your "doctor within" by repressing symptoms with chemicals is a lost cause, like spraying flies around a pile of manure. As long as the manure is not removed, you will always have more flies to spray, no matter how many you kill. No amount of observing of symptoms or performing of tests will show the entire, united, submolecular workings of the human system. Therefore swatting symptoms with chemical drugs does not remove the manure pile of ill-health causing the observed symptoms. In fact, some symptoms can be caused by the healing process itself, and are just reactions from the improvising used by your "doctor within" in his battle for maintaining health and should not be interfered with.

In addition, both the safety and effectiveness of any drug is open to question. Each drug is tested by its own manufacturer," not by the Food and Drug Administration (FDA) as many assume. Each manufacturer selects the persons used as subjects, selects control groups, designs the experiments, and selects which data it will submit to the FDA. The FDA makes drug decisions based on what the drug company presents as findings about a product from which it hopes to derive a profit; long-term adverse reactions to the drug are never considered.

The orthodox medical viewpoint has emphasis on germs, viruses, and specific abberations rather than on the knowledge that poor health is usually caused by the elements of your lifestyle and environment which contribute to eroding the strength of your "doctor within." Factors contributing to disease are infinitely varied. A partial list might include contaminated water, food or air; improper nutrition; unnatural chemical interference (including prescription and/or over-the-counter drugs); psychological or physical stress; lack of exercise; lack of fresh air; lack of sleep; and allergies including specific food allergies. These disease-causing factors are brought under some control, not by drugs or the technology associated with medical science, but by the actions of farmers, plumbers, legislators, garbage collectors, pest exterminators, food inspectors, and many others. Diseases such as beriberi, pellagra, pernicious anemia, rickets, scurvy, tuberculosis, as well as many of the contagious diseases and parasitic infestations have not retreated in modern industrialized nations because of drug therapy of medical science. They have retreated from improved sanitation, better nutrition, refrigeration, food and drug laws, meat and dairy inspection, rapid transportation of fruits and vegetables, inside plumbing, clean water standards, sewers, proper garbage disposal, more bathtubs, heater-ventilation codes, the forty-hour week, elimination of "sweat shops" in industry, labor laws, etc., etc.

As the methods used by the "doctor within" become better understood, more and more orthodox medical practitioners are turning to a more holistic approach to health. The holistic method acknowledges, in effect, that you can't repair a broken sidewalk without cement, aggregate and water. To repair a sidewalk you need to use those elements of which the sidewalk was made in the first place. You also can't repair a sidewalk under adverse conditions (while people are walking on it, for instance, when the temperature is too low). Likewise, the "doctor within" needs favorable conditions in which to make repairs and the elements of which human tissue is made.

The holistic approach is one that assists the body's defense mechanisms by supplying the proper items and conditions needed for good health. This approach, because it involves your entire lifestyle, requires your knowledgeable participation, since only you are privy to all aspects of your life on a running day-to-day basis. The responsibility for your health belongs to you. A condition of total wellness can be attained only by learning health-building principles and applying them in your life. It is up to you to supervise your own nutrition, sleep, exercise, stress reduction, and mental attitude. You are the one to avoid pollutants and self-destructive habits. You are one that should examine the social and economic factors your life which may be contributing to ill-health. If give your "doctor within" the proper tools and conditions, s/he will provide a state of happiness and harmony within yourself, with others and with the environment.

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Article #4: Pleasures, Instinctive and Acquired

Remember the meanings of joys or pleasures are elative. The inveterate cigarette smoker may insist that he gets pleasure from smoking. But this same man will have to agree that this feeling of pleasure primarily had to be acquired. The first cigarette was everything but pleasant, but in spite of it, by conformity the habit is started. Later, the inevitable effects of drug addiction take hold and the smokers find "pleasure" in smoking the smoke containing the alkaloids.

In a similar fashion, sensations of pleasure can be cultivated from the eating of harmful foods. Think about the candy, doughnut, cake and soft drink habit, all giving relative "pleasures."?

Surprisingly, animal flesh belongs in the same category of providing "pleasure." In this case it is obtained from the meat containing alkaloids, with their stimulating action. It may be shocking to some of us to learn that we are imbibing narcotics, when partaking in the eating of meat.

We have digressed somewhat to establish the meaning of pleasure. The point is knowing that there are several types. Some pleasures are deeply inherent, instinctive and satisfy constructively. Other pleasures are of *relative* significance. They later had to be learned in the overcoming of inborn natural protective instincts. This explains the sickening feeling after the first cigarette or the belching or burning signals uttered by protesting digestive organs. We could also include the resulting disgust most of us experience when passing a butcher shop. The "enjoyment" of meat is definitely a relative and learned pleasure.

What is amazing is to discover our own immense capacities for adjustment. Once the mind has appropriated the truth, an unrelenting change in our feelings surges ahead. Natural instincts again take over, with a reshuffling of pleasure concepts.

Not all of us can benefit from such a reform, directed by our own free will. When I returned from Argentina with the evidence and pictures of Dr. Roffo's cancer experiments, showing the horrible and gory results of smoking in my professional classes, I could always expect a certain percentage of my students to quit the habit.

I mentioned a "certain percentage," why not all of them? Simply the message did not go through, their minds refused to accept it. Remember, only some of us, not all of us, do recognize the truth, when it is presented. When the pupil is ready, the master will appear.

An excerpt from the book, The Health Secrets of a Naturopathic Doctor by M. O. Garten

Lesson 93 - Teaching Your Clients About Fasting

- 1. Introduction
- 2. Energy Flow, Fasting And Mind Control
- 3. The Hygienic Experience
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1. Introduction

Instinctively, every person knows that the living body is maintained by nourishing it. We are all aware of the fact that little children will not grow unless they receive proper food. We observe little ones being stuffed beyond capacity all around us. As a result, many are bloated beyond belief, their small bodies already foul cesspools of rapidly-accumulating poisonous debris.

We are also aware of the fact that unless the human body, child or adult, receives its full quota of nourishment, it will, in time, cease to be; the life spirit will depart, returning to the source from whence it came.

For centuries the custom has been to ply invalids with what is termed, "good, nourishing food," and this often to their undoing for, instead of contributing to an increase in wellness, the food wasted the vitality of the sick to the extent that it proved instrumental in either prolonging the recovery or causing the demise of the person so abused.

Humans, unlike other animals, do NOT instinctively know or understand that abstaining from food can be an effective means for the body to cleanse its stagnant fluids, one wholly compatible to nature; a natural happening which will permit the restoration of a degree of health as predetermined by the potential for recovery that lies dormant within.

In this lesson, therefore, we will examine some aspects of fasting that may have been previously touched upon to some degree but which, in our view, warrant further attention and then, by means of various case studies, we will show how certain individuals became convinced that fasting was worthy of their consideration and eventually became a part of their pattern for transition into a higher level of health.

2. Energy Flow, Fasting And Mind Control

Vital force is essential to recovery. When a person is tired, s/he will eventually be compelled to lie down and go to sleep and, normally, such a one will sleep until such time as the cerebral centers recognize that the body has regained sufficient electrical (vital) force to fuel life's usual activities. In health, s/he will awake in due time. We cannot sleep too much but, obviously, we can sleep too little.

In the last century Russell Thacker Trail, M.D. pointed out that nothing is remedial—that is, conducive to the healing process—except those conditions *which economize the expenditure of the forces of the sick organism*.

Most people agree that the only real curative agencies are those decreed by nature. Hereward Carrington, Ph.D. reminded us that this is so, then we should look to nature: to the animals in the wild, to observe what they do. How do animals live, what do they do when injured or when sick? He further pointed out that, in every instance, we find that when animals live in a congenial environment, they eat their own food; they abhor and refuse all "foreign" food and, in sickness, they, more often than not, refuse food, often for days and, in severe cases, for weeks. Eventually, weakened but recovered from their ailment, they begin to forage for food. Instinctively, animals know when it is time to eat and when they should refrain from eating and thus begin to conserve their bodily energy through the process of sleep. Instinctively, and prompted no doubt by the sensation of thirst, they also drink a far greater quantity of water than they usually do. In other words, in sickness or injury, they resort to fasting. There has never been a time in all of recorded history when man did not fast, for one reason or another: to attain spiritual, mental or physical excellence and, at times, to achieve a worldly objective. Obviously, mankind would not have consistently fasted unless he derived considerable benefit therefrom. We find the rationale for such benefit from what Trail said: namely, that if healing is to take place, then the available vital resources must be permitted to be focused on that effort and not directed elsewhere in all manner of extraneous pursuits.

It is well known that the digestion of food requires a vigorous mechanical effort which can exhaust not only the overworked muscles which comprise the alimentary canal, but also the vital resources in supplying the means of digestion. The process requires a well-stocked larder of secretions and enzymes for the efficient completion of the highly-complex chemical resolutions required to change the larger food molecules into organic molecules of a size suitable for transport across and through the cellular barriers of the mucous membranes and thence into the bloodstream of life.

These secretions are not just *there*. They have to be manufactured, stored and transported, processes which expend vital force. Dr. Robert Beaumont, M.D., in working with the wounded French trapper, Alexis St. Martin, found that whenever the man was ill, any food eaten would simply lie in the stomach for periods as long as 40 hours, during which time it was not digested but rather subjected to fermentative and putrefactive agents. This remains a vivid demonstration of the fact that the control center in the brain knows full well when food should not be taken into the body and sends out the *dictum* by urgent means (via the autonomic nervous network) to cease the digestive effort because there is a greater need in illness: that of physiological rest during which time the resources of the body can be conserved with the energy redirected into more appropriate channels, to the healing of wounded and/or ailing parts.

Dewey, Densmore, Trall, Jennings, Upton Sinclair and others all recognized that, during abstention from food, minimal bodily activity goes on and, consequently, there is little "wear and tear" on the organism in general, a fact which, as a direct consequence, would, under cerebral guidance, permit the fasting individual to subsist on his/her own resources even for a few months, while, at the same time, the necessary energy, supplied through appropriately chosen channels, is directed to the areas where a need exists.

Herbert M. Shelton, in his book *Natural Hygiene, Man's Pristine Way of Life*, quotes Dr. Isaac Jennings discussing a fast being taken by an acutely-ill child, as follows:

> "There is now little action of the system generally, and consequently, there is but little wear and tear of machinery; and like the dormouse, it might subsist for months on its own internal resources, if that were necessary, and everything else favored. The bowels too have been quiet for a number of days, and they might remain as they are for weeks and months to come without danger, if this were essential to the prolongation of life. The muscles of voluntary motion are at rest and cost nothing for their maintenance, save a slight expenditure of safekeeping forces to hold them in readiness for action at any future time if their services are needed. So of all the other parts and departments; the most perfect economy is everywhere exercised in the appropriation and use of the vital energies."

It is this ability of the living organism, and man is no exception, to self-direct the digestion of its own tissues during periods of abstinence from food from outside sources, combined with the inescapable fact that, when ill, animals, including man, tend to lose their appetite and are thus forced into abstinence that leads us to conclude that fasting is a method decreed by nature to conserve body energy by reducing normal activity for the purposes of redirecting available energy to more essential purposes. It would appear that this is a concept and fact of sufficient importance to be brought to the attention of our ailing clients. It is one of those things that makes sense. The fact that fasting is a sensible procedure when illness or injury exist is further supported by another clearly observable phenomenon—namely that, unless the brain cells have been so damaged that they cannot function any longer automatically, up until the point of cessation of cellular activity, death—the mind remains in control of all bodily activity, the autolysis being carried out in a precisely-defined order or urgency: first, the elimination of excess toxic materials which are either already in solution or capable of being made ready for elimination; then, the fatty tissues, wherever located, these to be followed in due course by the disintegration and elimination of wens, tumors, diseased parts in general; healing; all long before vital muscular supports and/or organs are broken down.

The last point which serves to give credibility to fasting as a naturally-given means of healing is that before vital organs even begin to disintegrate, the fasting individual, usually experiences the sensation of hunger which is frequently extremely intense; sometimes, less so. Additionally, the tongue assumes the pink color indicative of a cleansed blood and the secretions begin their more normal free flow.

Often by this time, the individual has been reduced to a skeletal condition. However, it is the amazing ability of this skeletalized structure to commence and *sustain* the rebuilding of its own tissues while, at the same time, the energy grows, that can really captivate the mind.

All these factors combined should put the *coup de grace* to all illogical objections to fasting, which by being voiced at all, demonstrate fully the lack of all logic. The final product, with normal weight established, reveals the extent of the body to restore itself to an amazing degree of wellness. And, amazingly too, is the fact that the exercise of normal bodily functions will actually hasten the process of rebuilding. The entire process, from start to finish, is under exact mind control.

Knowledge of these fundamental organic truths can often assist a doubting client to give over his/her childish misconceptions in favor of adult conclusions, these to be followed, in due course, by adult behavior in that the client makes his/her first initial mind acceptance of the rationale of fasting. Mind control of the total self, more often than not, will open the way for bold new experiences; perhaps even acceptance by reluctant clients of fasting as something for them to consider as they evaluate the options specifically open to them.

3. The Hygienic Experience

As the students of Life Science well know, fasting is not well-accepted by "traditional" medicine, especially in this country; this in spite of the fact that, generally, it is well accepted abroad and this by many otherwise fully-orthodox practitioners. Much of this acceptance in other lands is due to the persistence of Dr. Otto Buchinger, formerly fleet surgeon in the German navy, who had been elevated in 1917 to this high command, one equivalent to that of rear admiral in the U.S. navy.

Upon receiving his appointment, however, Dr. Buchinger was too ill to carry on with the manifold duties which the appointment necessarily entailed. It is said that he was totally incapacitated by arthritis as well as severe gallbladder and liver disorders. Fortunately, for all students of Natural Hygiene, he was referred to a Dr. Gustav Riedlin, one of the earliest of European pioneer fasting specialists.

Under Dr. Riedlin's guidance, Buchinger fasted for some 19 days and found that the arthritic condition had been greatly improved. After a suitable interval, he then fasted again, this time for thirty days, with the astounding result that all his organic troubles had been completely done away with.

Needless to say, Dr. Buchinger became an enthusiastic advocate of fasting and eventually operated two large sanitariums in Germany where records of literally thousands of patients were admirably kept and completely documented. It is said that more than 70,000 people fasted at the Buchinger retreats. Orthodox practitioners confronted by such well-documented case studies began to open their own fasting clinics and spas.

We well remember visiting with a medical professor in Madrid who reported that he had come to a well-known medical college in America to study but left in short order. He said that he was dismayed to learn that medical doctors in this country seemed to know nothing about fasting. All they were concerned with was "gadgets and drugs!" He further stated they they seemed to have no knowledge of "the healing hand" that soothes away all hurts.

In this country, Dr. Herbert M. Shelton has been the leader. Others have followed in his wake: Dr. Vivian Vetrano, Dr. Robert Gross, Dr. Scott. Probably together they have supervised well over 100,000 fasts. Other fasting retreats around this country have supervised tens of thousands more, while innumerable individuals have successfully fasted on their own.

Not all fasters are successful in achieving total recovery, of course, but those who possess sufficient vitality to commence a fast and then to sustain the period of recovery for a sufficiently-long period of time, have achieved what has often amounted to almost unbelievably salubrious results.

Even short fasts, from three to five days, add up in benefits. Last Christmas, for example, we received a card from Rod. If you recall, Rod suffered from arthritis so badly that he could no longer hold a pen or pencil and so was forced to give up his career as an accountant. We first learned about Rod from a client who told us that he had sought relief from pain first in Arizona, then in Nevada; but all in vain. His lack of muscular coordination and the pain just went on and on, even worsening.

Then he was referred to us and began a Hygienic program which, even without resorting to prolonged fasts, just shorter ones, enabled him to go back to work again.

Rod is now home again and on his Christmas note he reported to us that he is doing so well that he was fully able to cope with the extreme cold which buffeted all this last winter. He reminded us of the fact that prior to beginning his fasting the cold weather had caused him great suffering.

This young man began to fast one day a week and then three days every month. What has this fasting done for Rod? Just a few years ago, Rod cried out with pain in our office and asked us if we could help him. Today he is back home again, working and his last message to us read, "I'm doing just fine!"

3.1 How Long Should We Fast?

Experience shows that the fasting period varies from individual to individual. Few persons fast, however, to completion. On an average, fasting clients abstain from all food for from 10 days to two weeks. In some drastic; cases, persons fast as long as 30 or more days before the signs indicate that the internal cleansing and healing has been completed.

In very severe chronic cases, Dr. Shelton found, it sometimes necessary for patients to fast three and four times before experiencing a complete cleansing and healing.

Many Hygienists have found a yearly 10- to 14-day fast highly beneficial. Others fast one day each week and two to three days every month and find this method quite satisfactory. When the fluids of the body are kept reasonably clean and pure by adhering to strict Hygienic practices and principles both in eating and living, then even in today's stressed and polluted frenzied environment, one can maintain a high level of wellness and have amazing vitality compared to the rest of our diseased population with only an occasional cleansing fast of comparatively short duration.

Fasting, it seems to us, has no further need to be proved as a body-accepted and, therefore, correct healing modality. The mechanisms for conducting a fast "come with the design," so to speak, just as the method of cleaning a piece of equipment is dictated by *its* structure. An engineer must know his/her equipment to be a successful engineer. Unfortunately, most humans neither understand nor appreciate *their* "equipment," their own bodies! In the exact same manner the proper method of cleansing the human body is ordained by *its* structure and, therefore, more proper to it than other artificially-conceived modalities as, for example, the blood-letting of former years and the "marvel" of today's technology, apheresis.

3.2 Why Clients May Need to Fast

Since all diseases (excepting of course those due to traumatic causes, injury and the like) are the direct result of abnormal metabolism (which, being ongoing, results in certain chemical changes which, by the very nature of things, cause a gradual decline in cellular efficiency and organ degeneration due to the infusion and precipitation of toxic waste by-products, known to German physicians as ZELLENSCHLACKEN, or *cell cinders*), it follows that such debris should be removed with dispatch and with unerring accuracy and in the order of urgency as best determined by the cerebral powers of the body and not by unproven and questionable powers of man-conceived substance or gadget.

Obviously, if such waste debris were allowed to remain, the entire systemic transportation system would be interfered with, starting first at the more-or-less porous cell membranes where the infusion of debris rapidly begins to set up membrane blockages which reduce the infusion of nutritive materials into the cell and interfere with free flow of arterial blood and its venous return for oxygenation in the lungs. In truth, the whole cleansing of the body is reduced, the endocrine regulation of body chemistry is strangulated and, subsequently, as a natural sequence, every single chemical and/or other cellular work becomes somewhat other than normal.

3.3 Nerve Channels Must be Free

It is not only the free flow of fluids and the possibility of blockages occurring in the arterial and venous channels that are of importance. Still another concern arises, namely, that all bodily activity depends on the free conduit of nerve messages via the nervous mechanisms of the body. Situational problems must be relayed to the central control centers. There they must be evaluated, conclusions reached, and proper solutions determined. Suitable directions to be involved and/or troubled areas must then be transported with precise areas or sites being predetermined. Subsequent follow-up instructions for cells must be carried to wherever a need or problem exists.

Should the sympathetic nervous system be interfered with by any unusual build-up of wastes, the possibility, even the probability, of error exists. The entire body mechanisms could conceivably falter and be subject to error, certainly a matter of grave concern.

To the rational mind, it seems quite obvious that probably every disease to which man is heir can be traced back to this one simple circumstance: that any degree of metabolic abnormality produces an abnormal amount of toxic debris which can build up and interfere not only with the free transport of nutrients to the cells and the subsequent removal of cellular waste but also with nerve message transmission, always with the possibility of single and/or multiple errors occurring either occasionally or constantly, and these being either limited in scope or totally systemic.

If all this be true, and we can see no sound physiological basis for concluding otherwise, then fasting to accelerate the removal both of the waste and its autolysis by proper organic built-in methods which are always under cerebral guidance would appear to be the only proper method to cleanse the system so that free transport through all channels would once again become a reality.

3.4 The Role Played by Water in Fasting

Water is, of course, the greatest of all solvents. Having access to pure distilled water is necessary to a successful fast. All the diseased parts, already "burned up" by a most carefully-controlled autolysis, all the systemic poisons can thus be dissolved in the water and flushed out of the body, no longer a threat to life.

3.5 Fasting "Cures" Nothing

It is important for students to understand that fasting "cures" nothing. Its sole purpose appears to be to permit the system, through physiological rest, to lessen its expenditure of energy, to reduce any buildup of metabolic waste by-products to a minimum, and then to divert all conserved energy resources to certain tasks which have been selected through cerebral evaluation as being needful of a more concentrated effort just at this time. In this manner, autolysis of inferior parts and the elimination of collected waste debris can be accelerated and systemic equilibrium, the recognized hallmark of good health, can be more quickly established.

It is at this precise point, when systemic balance has been achieved, that disease ceases to be a problem and a condition of wellness takes over. As Dr. Allan Cott, psychiatrist, says in his book, *Fasting: The Ultimate Diet*: "Fasting is certainly not a panacea for all ills, but it may be effective in treating many more varieties of sickness than orthodox medicine is ever likely to concede."

Dr. Buchinger found the following illnesses either improved or were totally eliminated by fasting and insisted that the merit of fasting should be considered in all such conditions.

3.6 Dr. Buchinger's List

1. Obesity, chronic underweight, diabetes in initial stages
2. Rheumatic disorders of joints and muscles; sciatica
3. Heart conditions
4. All circulatory problems involving blood vessels such as high or low blood pressure, hot flashes, many symptoms of aging
5. Stress and nervous exhaustion
6. Skin diseases of all kinds
7. Diseases of the digestive organs
8. Diseases of the respiratory organs
9. Kidney and bladder diseases
10. Female disorders of many kinds
11. Allergic conditions including hay fever

12. Eye diseases such as chronic iritis, retinitis, etc.
13. Conditions which follow venereal diseases or thecondition itself
14. The many forms of glandular disturbances: ovarian, thyroid, etc.
15. Periodontal diseases
16. Fasting in readiness for operations and for better and easier recovery afterwards
17. As a preventative measure (to prevent cancer, etc.)
18. Diseases which have their origin in under-nutrition and malnutrition
19. General fatigue, spring-fever.

There are probably many other reasons for fasting. We present the following for the consideration of our students:

3.7 Other Possible Reasons for Fasting

1. To attain spiritual insight, mental acuity, sensual acuity, increased perceptual awareness, etc.
2. To lower the cholesterol level.
3. General body clean-out.
4. To give the digestive system a rest.
5. In the case of wounds, to give the body time to heal.
6. To relieve tension.
7. To sleep better.
8. To regulate the bowels and provide better elimination through this channel.
9. To slow the aging process.
10. To save money in many, many areas of life.
11. To feel and look better, younger.
12. To improve one's sex life.
13. To help a person eliminate smoking, drinking, and/or other addictive habits.
14. To reduce or totally eliminate pain.
15. To provide rest for all organs, muscles and systems; to restore vitality and full energy flow.
16. Just to save time (the average person spends three hours a day and more in preparing, serving and eating his/her food!)

Dr. Shelton pointed out that with disorders of the alimentary canal, fasting removes three sources of local irritation, namely:

1. The mechanical irritation brought on by particles of food that come in contact with the raw inflamed mucosal linings;
2. The mechanical irritation which results from the vigorous contraction and expansion of the walls of the stomach and the wrinkling of the surfaces as they receive and handle foods; and
3. The chemical irritation caused by the secretion of strong acid gastric juice.

Dr. Shelton maintained that in such disorders the fast should be continued until systemic renovation has been completed. It seems logical that these same conditions should pertain with all disorders affecting the entire canal including, for example, the miserable condition of colitis which can cause individuals to become extremely nervous, irritable and, at times, almost hysterical due to headaches and other discomforting symptoms that often accompany this ailment.

3.8 Fear of Fasting

The fear of fasting is widespread due (in great part it seems to us) to what amounts to medical hysteria whenever the subject comes up. Few clients, in fact, will have ever even *heard* of fasting as a valid means of restoring health. We ourselves had never heard of it in this connection until many years after we had begun our own worldwide search for improved health.

Out of many, many thousands of medical treatises and books on all manner of diseases, methods, opinions, statements and whatnot written and disseminated in this country, fewer than one percent probably even mention fasting as a means of recovery from illness. If the subject comes up at all, it is referred to as "starvation," which is enough to "make the hair stand up on end," as the saying goes. It is only in recent years that some physicians have found merit in treating obese patients in this manner.

The reasons for this unwarranted fear are, of course, obvious: negative pre-programming, the prior conditioning about fasting as being something "far out;" a total lack of education about fasting. What people do not understand, they fear. Therefore, persons who are ill and desirous of once again experiencing the euphoria engendered by complete wellness, need to become more knowledgeable about the subject and especially about how a series of shorter fasts but, importantly, a more prolonged fast, might benefit them.

Dr. Ragnar Berg, the celebrated nutritionist and Nobel Prize Winner, stated that he knew of fasts that lasted over 100 days and that he also had supervised or controlled fasts up to as long as 40 and more days, while he himself often fasted as long as 21 days while continuing to work 11 hours daily either in his laboratory, actively engaged, or at desk work. Innumerable stories, both documented and undocumented (in this case from reliable sources) witness to the fact that we need have no fear of either dying from hunger or from not knowing just when to terminate a fast. However, newcomers to Natural Hygiene, for the most part, have to go through a developmental process before they can cognitively accept fasting as a rational experience for them to consider, a healing measure of nature which can accomplish only good.

The mental condition of the fasting patient is of utmost importance to success. All negative thoughts, all fear that worries and depresses the mind, should be eliminated. It is of crucial importance that, before undertaking a fast, the client be well-schooled. If not, should s/he experience any unpleasant and unanticipated symptoms, s/he is likely to magnify the seriousness of what is happening and even to become panicked into terminating the fast too quickly, thus possibly undoing much of all of any benefit accruing to the fast.

This is particularly true of the new fasters. Even though they may be somewhat knowledgeable about the subject, mentally they will perhaps unconsciously anticipate trouble, this because that which they are presently experiencing is so entirely foreign to all that they have yet known. They can become anxious, uncertain, even perturbed, and especially so if not well-schooled.

In all cases, therefore, it is our view that clients should be well-educated in the fast before undertaking one—except, perhaps, in rare circumstances when, at the discretion of an experienced practitioner, an immediate fast may be indicated. The question arises then as to how best to impart this information to the client.

Sometimes we must do so abruptly. For example, just last evening we received a call from out of state from a friend of many years. He wanted to bring his wife to Tucson so that we might devise a suitable diet for her. On inquiry, however, we learned that about a year ago she had received a diagnosis of lymphoma of the parotid gland on one side of her throat and that she had been subjected to radiation and chemotherapy and was presently in, the hospital to have biopsies made of new swellings which had appeared in her throat and right breast. She had-been advised by the supervising oncologist that he feared that the lymphoma had already begun to spread throughout her body.

It was our sad duty to inform this gentleman that, at this late time, just improving the diet would have minimal effect. Because of the seriousness of her condition and the unfortunate "treatments" she had received, probably the only chance his wife had to recover any degree of improved health would lie in her resorting to a prolonged fast. And, knowing the complete confidence this woman has in medical procedures and in her physician, we very much doubt if she will accept our recommendation. However; there was, in this case, no time for delay.

4. What We Have Learned Thus Far

Thus far, we have brought forth the following points for our students to consider:

1. People do not know instinctively, as animals do, that abstaining from food can be helpful in acquiring a higher level of wellness.
2. The rationale of fasting lies in a controlled diversion of energy flow from ordinary duties by keeping these to a minimum through enforced physiological rest, and then directing of all thusly spared energy resources by the autonomic nervous system to the area(s) where healing is most needed.
3. The only real curative agencies are those decreed by nature. Fasting is such an agency, this fact being witnessed and confirmed by design and results achieved following its application!
4. A fast is self-directed.
5. All vital parts, including the brain, are spared in fasting, with the mind remaining clear, until cessation of all systemic activity.
6. Following a prolonged fast during which the individual may be reduced to the skeletal structure, the body has the ability to reconstruct, and this in a more perfect manner than prior to the fasting experience.
7. The salubrious results of fasting have been well-documented. Of this, clients need have no doubt.
8. Not all fasters receive total recovery.
9. While fasting can be a useful means of recovery in a wide variety of illnesses, it is not to be a panacea for all. We have, therefore, listed those conditions which are known to have been greatly improved when fasting was resorted to.
10. Fasting is a means of removing cellular debris which when allowed to accumulate can produce certain adverse chemical and obstructive changes which can be destructive of a high degree of health.
11. Pure water is essential to a successful fast.
12. Fasting should not be considered as a "cure."
13. Fear of fasting is widespread and, therefore, it is encumbent upon the practitioner to teach his clients about fasting because all anxiety, all worry and ungrounded fear can negate any benefit which might accrue to the faster. The mental condition of the faster must be positive for the fast to be successful.

5. The Learning Process Can Vary From Person To Person

After we have had several consultations with a client and arrive at the conclusion that a fast would be beneficial to him or her, we introduce the subject as quickly as possible. Probably every practicing Hygienist has his/her own way of acquainting new clients with the manifold possible benefits that may accrue to an individual who fasts.

We go over the various points and information which we have practiced. We encourage our clients to ask questions. At first, of course, few know just what kinds of questions to ask, but we observe that as we go along, clients begin to ask intelligent questions. We present them with copies of articles about successful fasts, especially of persons who have been restored to a higher level of health who previously suffered from the same identical condition as the client; or, if we do not have such, of related cases.

For example, suppose a client suffers from a stubborn rash. S/he will be greatly cheered if s/he reads about the successful healing of another person similarly afflicted after taking a fast of 10 days. This client may even be inclined to begin his/her own fast.

We suggest books for the client to read, easily read books such as the following, many of which are available inexpensively in paperbacks:

1. Dr. Cott's book, *Fasting, The Ultimate Diet* previously cited.
2. *Fasting Can Save Your Life!* by Dr. Herbert M. Shelton.
3. *About Fasting* by Dr. Buchinger, previously cited.
4. Dick Gregory's *Natural Diet For Folks Who Eat: Cookin' With Mother Nature*, Harper and Row, Publ. Inc.
5. *Natural Hygiene: Man's Pristine Way of Life* by Dr. Shelton
6. *Vitality, Fasting and Nutrition* by Hereward Carrington, Ph.D. available in a reprint from health research, Mokelumne Hill, California
   Others by Densmore, Sinclair, and other Hygienists.

Life Science in Austin, Texas, can suggest other books and supply the same to interested students. The Carrington work is for the more serious student.

Some students respond quickly to their new knowledge, others less so. A few will even begin short fasts on their own. With reluctant fasters, patience is required. A very few will not accept fasting as a valid and effective means of restoring a higher level of health until forced by circumstances to do so. To illustrate just how a number of clients were able to surmount the barrier of fear and come to accept the concept of fasting and, eventually, to fast, we follow with some actual case studies. As always, these studies represent true examples but, for obvious reasons, we have changed the names and some of the exact circumstances. The first case represents a very reluctant faster.

6. Case Studies

6.1 Case Study—Alex M.

When he first came to our attention, Alex M. had just celebrated his 51st birthday. His immediate problem was obesity coupled with a sense of more-or-less constant fatigue. He was also disturbed about the rather sudden appearance of a circular band of very visible capillaries which underscored the rib cage in the abdominal area.

Alex was a difficult patient to work with. A professional man, highly intelligent, comfortably placed financially, he was confident of his own expertise in certain scientific disciplines, including biology and chemistry. Reluctantly, therefore, he conceded that perhaps there were some areas of healing of which he had less knowledge than he had previously thought. But he was, at least, willing to listen and to learn.

As time went on Alex gradually adapted well to a Hygienic diet. He began to exercise and even occasionally worked out at a spa. He was able to reduce his weight from about 225 pounds down to a slim, trim 173 pounds and admitted to having the vitality of a man at least 20 years his junior.

Alex was very proud of his accomplishments, and with good reason, because adapting to Hygienic living had meant a complete turnaround both in his thinking and in his habits. The gourmet eating of his past had to be replaced by an abstemious well-chosen-and-combined 80% raw food intake. Sheer willpower enabled him to give up salt, meat and bread. Giving up sweets proved to be a major obstacle but we overcame it by permitting him one very unhygienic indulgence once a week namely, a huge hot fudge sundae complete with real whipped cream! How Alex looked forward to Fridays. This was HIS day!

But, you know, this strange technique worked! It wasn't too long before Alex confided that those hot fudge sundaes didn't seem to taste too good anymore; in fact, they kept him awake all night with his stomach and bowels growling and churning. So, on his own, Alex decided not to give in to his pathogenic desire for hot fudge sundaes and other processed health-destroying sweets.

However, fasting was another matter. In spite of reading the literature on the subject and also in spite of his acceptance of the fact that natural methods had already worked what amounted to a miracle of healing in his case, he still refused to consider fasting as something he should do. The capillary ring, so noticeable on his skin under the rib cage, and other symptoms which seemed to indicate the probable existence of a deranged liver, continued to concern him but not to the extent that he would consent to a fast as a possible means of restoring better living function and perhaps even doing away with his disfiguring ring.

Alex's refusal to fast lasted for almost six years. We saw him from time to time. He kept on his program. In fact, he told us that he had finally converted to eating just two meals a day, one of these being a fruit meal and the other a vegetable salad. When we saw him, we could scarcely reconcile his appearance with that of the obese "problem child" we had first encountered. Alex had become quite a Hygienist, but he had still not fasted, not even for a single day in all those years.

Then it happened! Alex began to lose weight. The pounds began to roll off him like water off a duck's back. He couldn't stop losing weight. He came to us almost in a panic. We back-tracked. We again explained to Alex about housebuilding; about how nature will first tear down the old before building the new and better house. We once again reminded him that nature will have its way, all in due time.

We reminded him of some of the previously-learned facts about fasting and postulated the thought that if he had fasted originally, this might all have been over long ago in short order and that he would have long ago had his brand new house.

This concept made good sense to Alex, but would he fast now? Again the answer was a negative one. Alex would still not fast. He decided to eat nuts and sweet fruits in abundance, to begin weight-lifting in earnest now. That would do it. Of that he was confident.

About three months later, Alex was back. His body had refused to give in to his desires, his wishes, *his* dictates. Nature would have none of the nuts or sweet fruits, it seemed. He hadn't gained a pound! Instead, there had been a new and highly-disconcerting development: Alex's back, sides and rib cage had burst forth in blossoms! He was literally covered with hive-like lesions, some the size of a small saucer. They itched and itched, unbearably so. At times, he could neither sit nor stand still in comfort.

He was able to sleep but fitfully. Alex had reached the end of his resistance. Alex consented to fast, but he would do it *his* way.

He first fasted for 24 hours. He waited a month and then fasted for 36 hours. The blossoms continued to annoy. So, Alex decided to try a three-day fast and found that the itching had lessened considerably and the lesions had grown smaller. There, seemed to be some healed areas in the midst of the larger lesions. Our client was pleased with himself. So, a week later, he began another fast, one of five days duration. At the end of this longer fast, the lesions had completely healed. Even the capillary ring appeared much less noticeable.

Then it was that Alex confided to us that actually fasting wasn't too bad after all. He thought he might even try it again sometime!

Alex' case study demonstrates that some clients will be most reluctant, due to their previous negative programming, even to consider undergoing a fast. We never know at the outset what we may encounter when we begin to talk about this subject of fasting. Many clients will not fast until compelled, like Alex, by unexpected developments, to do so. However, let us point out that, in spite of his reluctance to fast, during the intervening years, Alex had become much more knowledgeable about the subject of fasting and about what to expect during the fasting experience. In other words, he finally had become so knowledgeable about fasting that when he began to fast he was *mentally* prepared for whatever uncomfortable symptoms might appear and fully confident of the fact that fasting would bring to him only salubrious results. It was his knowledge that cast the dice, so to speak, in favor of performance.

His former fears, although unfounded, yet real, had long since evaporated to be replaced by willingness, albeit reluctant, to follow nature's way of dealing with physical, mental and even spiritual problems and concerns.

The lesson for Hygienists to learn from this case is that of the need to have patience, not to give up, even though, at first, a client may refuse absolutely even to consider the fast as a probable methodology in his own very special case. Every change for the better will produce curative changes within a sick body, even though they be small and, for the time at least, unnoticed. In the end, small changes all add up and eventually produce major health benefits. Just so, the constant repetition of a thought, an idea, a concept, even about fasting, will leave its imprint and may eventually do away with surface acceptance and change it to cognitive acceptance. Cognitive acceptance is usually followed, in time, by correct and positive performance. In the final analysis, therefore, through knowledge, even the reluctant client may conclude that his or her own return to health may be hastened if s/he does undertake to fast. S/he may then even follow through and take action.

6.2 Case Study—Gladys G.

Gladys G. provides another example of delayed fasting, but for a different reason. Gladys became a private student about two years ago after having been referred to us by another client. At first, she took our course in applied nutrition and then decided that she could benefit from private consultations.

Gladys was fully aware of the fact that she was seriously ill, suffering as she was from a weakened heart, at 5' 4" she weighed only 85 pounds. She had also almost reached the point of complete exhaustion. Her general appearance showed a woman whose whole constitution was gravely debilitated. Full recovery seemed very problematical, so much so that we even hesitated to undertake her reeducation in the ways of natural healing.

However, we agreed to do what we could. Obviously, our client was too debilitated to go on a prolonged fast at this time. There were also other family considerations which made fasting impossible, at least for the time being.

Gladys was inclined to be a "symptom-searcher," a trait characteristic it seems of many highly-debilitated people and especially if they are inclined to be somewhat neurotic. At each consultation, Gladys would come armed with a long written list of day-by-day minor aches and pains. Not one would be missed! For example, if her left eyelid happened to be somewhat itchy, or puffy, that fact would go down on Gladys' report.

However, there was one thing that worked for us as we began to teach Gladys about Natural Hygiene.

Since she had originally come to our attention upon the recommendation of a fellow church member in whom she had complete trust (in fact, her minister), she was inclined to take everything we said as "gospel," no matter how strange, at times, our words must have sounded to her. Thus it was that she followed instructions religiously.

Gladys faithfully took her mid-day rests, performed all suggested beginning exercises, attended to her regular sunbathing and was especially careful in formulating all her meals according to our instructions. Additionally, she studied her assigned lessons every day.

This client's progress was slow, but steady. Even her friends began to compliment her upon how well she was beginning to look even though she remained quite thin.

But still Gladys was reluctant to fast, her immediate family being extremely hostile to this idea because they thought her too thin, although in all other ways they were extremely loving and supportive. However, we continued to talk about the possible benefits accruing to fasting. From time to time, during our consultations, we would bring up the subject and hand our client a case study to take home with her to read and think about.

A whole year and a half went by. One day she came all smiles and revealed that for the entire preceding week, she had been able to manage very well on just two meals a day. Gladys was very proud of this accomplishment, so we began to write on our blackboard, for her to visualize all the several "successes" she had achieved since we first met. They included:

1. Eating well-combined foods.
2. Eating better-quality food, much of it organically grown and up to 80% of this eaten raw.
3. Exercising more now than formerly.
4. Foregoing all snacking, all "junk" foods.
5. Adopting—and adapting to—a frugivorian diet, eschewing all animal flesh and all animal-derived products.
6. Rarely eating bread or any other type of cereal.
7. Avoiding all legumes, except those she sprouted.
8. Rarely, if ever, eating anything grown under ground.
9. Socializing more than she had been doing.
10. And now, adopting the Two-Meal-per-Day Plan.

Gladys beamed as we examined the list, a fact which inspired us to make her even more aware of how her newly-acquired lifestyle had been instrumental in bringing her many major health benefits as well as important personal health-promoting changes which would bear fruit in future years. With her active cooperation, we began to list them on her blackboard:

1. For six months now she had not taken a single dose of medication.
2. She was now able to sleep all night long, something she had not been able to do for many a year.
3. She was no longer symptom-searching because she understood that symptoms were the evidence of on-going healing within.
4. Her nervousness had been considerably reduced. Even her family, loving as they were, found her easier to get along with.
5. All signs of edema were gone.
6. She rarely coughed up mucus now, except for some slight amount when she got up in the morning.
7. She was now involved in many church projects and making a full contribution in that work where once she had been compelled to sit on the sidelines and watch.
8. She had developed a natural-looking nice pink color, this replacing her former wan and pale look.
9. She no longer had recourse to such "crutches" as vitamins, minerals and other supplements.
10. She no longer drank tea, coffee, or soft drinks of any kind; just pure distilled water.
11. Obviously, Gladys had recovered a considerable measure of her lost health.

The time was ripe. We suggested to our client that having made such wonderful progress through her initial timid steps into Natural Hygiene that now perhaps was the ideal time to take a bold new step: why not fast for just 24 hours one day every week? We wrote on the blackboard: "A beginning fast—24 Hours—from one evening meal to the next evening meal. I CAN DO IT!"

Buoyed up by her successes, Gladys agreed to try. And try she did, for when she came back after a six-week interval, she reported that "it wasn't as bad as I thought it was going to be!"

Probably the biggest surprise of all to this client and to her family was the fact that she had gained two more pounds, and this on but two meals a day with one day each week lived without her eating any food whatsoever.

Our client's family was at a loss as how to explain this miracle. Our client herself was so enthusiastic at this point, that we knew it was time for her to set a new goal: for the next month, she was to fast now for 36 hours once every week. Gladys eagerly complied and fully met the challenge. For the next six months our client followed this fasting schedule, fasting for 36 hours each and every week. As a result of her total fasting experience, she achieved some remarkable health improvements:

1. All heart palpitations and spasms were done away with. She reported that she no longer was able even to feel her heart beating when she lay on her left side at night.
2. No digestive disturbances of major import. In fact, she reported that her stomach felt "at peace."
3. There are no visible signs of edema where on first visit, her legs had resembled the so-called "piano legs" we so often observe in obese people (and remember that Gladys was emaciated at that time with the edema embarrassingly noticeable).
4. She rarely even has to clear her throat now. When she first began her timid way into Natural Hygiene, she had a severe bronchial condition.
5. She now weighs about 94 pounds and feels confident that she will now continue to gain until her weight becomes normalized. But even this small weight gain represented a 10% improvement.
6. She is full of smiles now. Her former distressed and worried look has entirely disappeared. She knows that, at long last, she has brought herself in tune with nature's ways and that they will not let her down.
7. Her vitality continues to astound not only herself but all those who knew her "back when."

However, in spite of all the above remarkable improvements, this client has agreed to continue on her present regimen until such time as her family agrees that she would benefit from a longer fast. Because she has made such splendid progress, all of us anticipate that the presently ongoing family opposition will soon melt away and it will not be too long before this lovely woman will be on her way to an even longer fast. This is a determined woman in many ways, and a highly-intelligent one, too. Remember that she accomplished all of these short fasts while surrounded by the anxious worried countenances of her devoted, but unschooled, husband, children, brothers and sisters. We are fully confident that one of these days, in the not-too-distant future, Gladys will call to tell us that she has done it: she will have, at that point, taken her first three-day fast!

In this case study, we see vividly illustrated how family opposition can retard a client's adapting to a fast. However, this did not stop the learning process. It did not stop our client from moving forward because the knowledge spurred her on to performing in small, hesitant, but fruitful ways. The initial forays into the fasting experience were taken without apprehension on her part. She knew fully what to expect and so was prepared. The results were as anticipated.

6.3 Case Study—Dr. J., a Ph.D.

Doctor Joe weighed some 295 pounds on first visit. He was a graduate of many colleges and universities, a man of diverse talents. He had been directed to us, as is usual with most clients, by a former student. He said he had been looking for someone with whom "he could feel compatible." He felt we might satisfy his requirements!

Because of his intellectual bent, we immediately started Joe on a study program. We made no specific recommendations as to either his eating habits or his lifestyle, just assigned him a certain number of pages to be covered within a certain time frame. When he had completed each assignment, we discussed and analyzed what Joe had read. Being skilled in speed reading, our client turned out to be a voracious student, gobbling up the information as fast as he received the materials. Therefore, it was necessary to reassign, from time to time, certain studies whenever we felt he had skimmed over them too rapidly for full cerebral acceptance of concepts.

While Joe had started out basically as a skeptic, he began to see that the principles and practices espoused by Hygienists were both intellectually acceptable and scientifically sound. He began to study the physiology of the digestive system and to pore over anatomy books. But, even though several months had passed, during which time we had made helpful suggestions as to the ways and means whereby our student might change his lifestyle and reap certain benefits thereby, he had not, as yet, made his personal commitment.

Finally, however, he did. He decided to shift into a more sensible health program, made an appointment with us and requested that we set up a regimen precisely tailored according to his specifications! Since this was, of course, a very unusual procedure, we delved a little deeper.

It seems that Joe had decided that for him to make an immediate changeover into a strictly Hygienic regimen would be too trying. He would, therefore, take 1 1\2 years to achieve his goal, at which time he would weigh in at 210 pounds, be muscularly fit and superbly healthy!

We cautioned Joe that, because of his obesity and several previously diagnosed conditions, including a slight hypertension, digestive troubles, and some liver impairment, that he might not fully achieve his goal in such a short time without having recourse to a fasting program. Joe, however, was convinced that, for him, all things were, indeed, possible.

Joe was a gourmand, delighting in exotic foods. But, in spite of his obesity, his grossly-inadequate eating habits and his health impairments, our client was an extremely vital man. He possessed many good habits. He was happily married with a wife who was so supportive of his efforts that she immediately agreed to join in the adventure. Since he was semi-retired, age 62, and she was also a woman of leisure, they decided to devote all their efforts to accomplishing the goals Joe had set out for himself.

Therefore, at the outset, we designed a tentative regimen for both to follow. Initially, they were to give up all processed, canned and frozen foods. All sugared goodies were immediately taken off Joe's favorite foods list. Instead of having meat of some animal-derived product three and more times a day, as had been their custom, their intake of this kind of "food" was to be limited to one serving daily.

A walking schedule of 30 minutes per day was set up, plus stretching and flexibility exercises for morning "wake-up." Neither Joe nor Julia, his wife, had previously followed any particular exercise program; in fact, both had lived extremely sedentary existences.

Because of his obesity, Joe was to take two rinse-downs daily under the shower and this without fail. (We remind our students that most obese people have a pronounced body odor due to the fact that fat so often serves as a storage vault for toxins.) Both of these students were encouraged to forego their intense studying now in favor of more exposure to fresh air and the great outdoors. They talked things over and agreed that one month would be the correct interval to overcome their first hurdle; that this would be acceptable risk-taking. No further changes in their routines were put forth by us at this time.

In 30 days, Joe and Julia made their report in person. Every suggestion had been followed precisely, except for one. They had decided to review all their studies thus far and had set aside 15 minutes each. morning for this purpose. (We have several couples who have since adopted this same routine and have found it amazingly helpful.) Joe reported that he had lost only about three or four pounds but both said they felt much improved and were sleeping better.

Our couple decided that Phase Two should now begin and that this, too, would be adhered to for one month. It was agreed that they would now reduce their coffee intake to one cup per meal from their customary two or three, and to drink it now without sugar. They would consume no other beverages except distilled water. Salt would be restricted also and used now only on their meat allowance which was to be reduced at this time to only four times a week. We mutually agreed that these steps as outlined would prove helpful. Additionally, they were to extend their walking now from 30 minutes to one hour daily. On leaving they were given an assignment: they were to read Dr. Shelton's book, *Fasting Can Save Your Life!* They promised to do so.

Before the month was up, Joe and Julia telephoned to make an earlier appointment. They were excited about fasting. Joe had lost a full ten pounds, the first time he had really been able to accomplish such a weight loss without "starving" himself, as he put it. While not yet mentally prepared to fast, they both wanted to get on with their program. A fast? Well, that was another matter. That would require considerably more study and personal evaluation.

So, we made some new assignments. They were to study all about food combining and to plan their daily food intake according to a three-meals-per-day format and to keep a daily record of their food intake for purposes of review by us.

The formats suggested were:

1. First Meal - A variety of like fruits (up to three different, but compatible, kinds; plus celery.
2. Second Meal - A large salad with either a baked or steamed potato, or baked brown rice.
3. Third Meal - Medium Salad
   Steamed green vegetable(s)
   Protein

For the protein meal, they were to restrict their flesh intake now to but two servings a week approximately three ounces of either lean lamb or poultry. One day per week, they could have either coddled or poached eggs or cottage cheese. The remaining four days of the week they were to serve their choice of any of the following: one whole medium avocado, four ounces of their choice of pecans, walnuts, almonds or Brazil nuts; or two tablespoonsful of sunflower or pumpkin seeds.

As a learning experience for them, we requested that they keep a food diary which we could review together. They agreed that this might prove helpful.

It is not necessary at this point to tell how Joe and Julia progressed each month and precisely what changes were made other than to say that within eight months, they were eating only two meals per day, Joe had reduced to about 250 pounds and both he and his wife were well pleased with their progress. Neither had experienced any undue healing crises although Julia had suffered from an uncomfortable itching sensation for a period of a few weeks.

Thus it was that Joe and Julia agreed it was now time for them to begin to fast, but they would do it on their own and would not go to a fasting institution, this in spite of our recommendation that they would be better served by doing so.

Shortly they successfully accomplished their first three-day fast. Julia reported that on the third day she had fainted and had immediately taken some fruit juice and thus did not quite complete her fast. Once this was accomplished and behind them, they agreed that they were ready to proceed on their own and advised us that they would report in to us every three months.

And so they did, most faithfully. They progressed from three to five days and then to seven. Julia fasted for seven days first. Then they took turns. As one fasted, the other stood by, ready to step in should the need arise. However, all went exceedingly well. Joe amazed us all with how well he stood up during these weeks. He had so much vitality, as a matter of fact, that while fasting five days he was able to work in his garden for hours on end, even though he had been advised it would be far better for him to conserve his valuable energy reserves for the healing effort.

At the end of 18 months, Joe weighed 205 pounds. He had reached his pre-set goal, but he now realized that his original ideas about himself and how nature works had been somewhat in error and that it would now just be a matter of time until his own self dictated what his normal weight should be. Both he and Julia looked at least 10 years younger than when they first began this new adventure into the fasting experience. They were now confirmed Hygienists and were fasting 36 hours every week.

We have presented this case study to illustrate that sometimes we will have clients who are determined, for one reason or another, to "go their own way," to some extent. While they may lean on the practitioner in some matters since they do respect, to a certain degree his/her judgment, background and experience, they still have such explicit confidence in their own intelligence always to make correct choices, that they become somewhat difficult to work with. As practitioners, we must recognize that highly-intelligent individuals are somewhat locked in their egos; they are often difficult to work with. We have a choice to make: 1. To dismiss them as beyond our ability to cope, or 2. To help them as best we can through education and thus minimize their errors.

If we choose the latter course, one we personally prefer since such persons represent a real challenge, then we must guide carefully and have patience and understanding. Generally speaking, their innate intelligence and willingness to learn will lead them to make more correct choices than otherwise. And making incorrect choices, as any experienced Hygienist can testify, can be a great learning experience!

6.4 Case Study—Susie and Bill

In relating clients' case studies, we rarely use correct names. All matters discussed between the client and the practitioner should remain private. However, the people are real even though their identity remains their own private space. Their problems were their own as were their solutions and results—all were *very* real. We can all learn from their experiences, from their triumphs and from their rare defeats.

Susie and Bill are to be commended. They have diligently worked and their bodies have accomplished an amazing return from severe long-established chronic conditions to a superb state of health. They have accomplished this, too, without the continued guidance of a Hygienist except for an occasional consultation plus periodic telephone counseling sessions.

Susie, like so many other women in their middle sixties, suffered from a painful arthritic condition which had caused her to retire early from her work as a dress designer. Bill had a rather severe skin ailment which had bothered him from time to time for many years: a type of granuloma. Susie and her husband had been on medications of various kind for many years.

With this couple, the wife was the leader. She insisted that Dr. Robert do a bionutritional blood test analysis and profile for each of them. She next began to take a class in Applied Nutrition and was soon followed in this effort by her husband. It was not long before Bill became just as devoted to health-building as Susie.

Their first initial changes were made in meal planning. Bill began to garden. When possible they drove to ranches in and around the Tucson area to pick fruit and obtain fresh vegetables which they did not grow themselves.

Susie bravely took the first 24-hour fast. Bill held back, a bit reluctant to take this "drastic" step. Next, came the 36-hour fast, then a series of three-day fasts. Susie took them all in her stride and began to notice small improvements. Inspired by Susie's example and her improvement, Bill finally began his own fasting schedule. He really was brave: he began by skipping breakfast! But, it wasn't too long before they were both taking turns, fasting from three to five days. They carefully monitored one another while fasting, recording temperature, respiratory rate, and pulse according to a rigid schedule:

1. On arising
2. At noon
3. At bedtime

The first five-day fast was taken by Susie and she found it more trying than her previous shorter fasts in that, on the fifth day, she experienced so much pain that she broke the fast abruptly and while still in pain. As a consequence of this error, she found it extremely difficult to regain the weight she had lost both during and subsequent to the fast. She reported that she also felt very tired at times, much moreso than she had felt before.

About six months ago Bill fasted for five days and just recently reported that he was, at that moment, on the third day of his second five-day fast.

This couple have been on a Hygienic program now for over four years. Needless to say, both have accrued much benefit from their learning experience. Susie has made a complete recovery from her arthritis. Her vitality is simply amazing, the admiration of all her friends and relatives. Bill's skin ailment is well under control now but he is not completely free of lesions. He weighs a trim 135 pounds. Both look extremely well and happy.

They are both well-pleased with what following a sound Hygienic program coupled with periodic short fasts has accomplished for them and are only too happy to share their experiences with others whenever we schedule a lecture or have a potluck. They are very caring people and demonstrate it in their smiles and willingness to give the gift of health to others. They are unstinting in their praise, too, for the ones who, from time to time, guided them during their transition. Recently we were their guests for dinner.

While at the restaurant, we chanced to meet another nonHygienic couple whom we know. With a beaming smile, following introductions, Bill said, "These people have given me 20 more years to live and enjoy my life!"

It is results like these that we practitioners can impart to hesitant clients. In and of themselves they can be a learning experience with great value. Additionally, the method, the steps taken by Bill and Susie may prove useful to other individuals and/or couples from time to time. With Bill, remember he started by missing his first breakfast!

6.5 Case Study—Ethel

Ethel, like so many of our students, began her Hygienic debut as a student in one of our public courses. Rather quickly, realizing her need, she became a private student.

Ethel was afflicted with many ailments, including extreme nervousness (she was almost hysterical), rheumatic involvements, skin problems, constipation, adrenal insufficiency, digestive troubles including passage of enormous quantities of gas; additionally, she was extremely depressed and enervated. There were also family troubles which were emotionally quite trying and no doubt these had contributed in a major way to her rather neurotic state. At times Ethel just didn't appear to be a participant in the real world, but lived instead in a closed society of her own making.

In her middle 40s, Ethel had been on a medical merry-go-round for over 20 years. She had had it all! However, fortunately, she had escaped surgical intervention, possibly because for the last 12 years she had been under the care of an elderly chiropractic physician who dutifully kept her "propped up" with hormones and vitamins and other supplements and did not insist on her seeing a medical doctor. While debilitated to the extreme and somewhat confused, we felt she had sufficient vitality on which to build and, in the end, this conclusion was verified by the happy results which, in due course, followed.

This particular woman began her fast in the late summer. For the better part of a year she had been under our care. She had gradually been introduced to a program which included improved nutrition, exercise and all the other Biodynamics of Life as and when they could be utilized, including having been, from time to time, schooled in the art of fasting.

Our client first began with a series of 24-hour fasts. She then went on the Transition Diet for a period of two weeks. Our students will recall that this regimen combines juices with two fruit meals per day. She rapidly advanced to three-day fasts, all of which were extremely well-tolerated by her.

During this time Ethel's condition had steadily improved until the time came when we felt she was in a condition to warrant a longer fast at an institution under expert guidance. Ethel, fully realizing the fact that she had improved steadily under some simple Hygienic care after a fruitless search for improved health for over 20 years, was eager for this new adventure. Arrangements were made for her to fast at Dr. Shelton's Health School and off she went.

We had asked this particular client to keep a diary. We were especially eager for her to do so because of her long history of being on various medications, including cortisone, various antibiotics, and hormones.

She had also taken much aspirin and other pain killers and had been on megavitamin "therapy" for the last 12 years. No medication or supplements of any kind had been taken during the previous six months.

We recount her experience in her own words because they give us a rather vivid account of what can happen during a longer fast and especially when drugs have been taken for many years, but it also demonstrates how this one woman, well-fortified with knowledge about fasting, was able to go on in spite of all that happened during and subsequent to her initial longer fast.

6.6 Ethel's Diary

First Day - Ate my last meal at noon.

Day Two - My case history was taken.

Day Three - The second day of my total fast. I am starting to feel very weak. My chest feels very heavy. I can hardly breathe. The lymphatic glands under and down my arm ache terribly and my left knee has been aching all night. In fact, I had to apply heat to it all night. I'm awfully hungry.

Day Four - Unable to sleep. Too much pain. Pain in my knees, my chest, my hips and lower back. I crawled out of bed, got a blanket and wrapped it around me and huddled under a pile of other covers. I also had a heating pad and hot water bottles all around me. Chills, pain and more chills. I'm really hungry now but don't much fancy eating anything. Just too much pain.

Day Five - I ached all over, all day. No sleep. Same program as last night. Hurt too much to write any more.

Day Six - Ached all night again. Only got an hour of sleep. Don't feel hunger at all today. Sat up most of today. My legs don't ache quite so much when I sit up. In bed, I can hardly stand them.

Day Seven - Went to lobby. Slept really well last night. Awoke about 4 a.m. Legs at it again, ached. Sat outside a while today and then took a steam bath for about 30 minutes. That made me feel very weak. Went to bed and stayed there all afternoon. When I woke up, I found my stomach all covered with spots. Surprisingly enough, I felt real good this morning.

Day Eight - Golly, am I weak! Still have rash. I had a nose bleed this morning, too. Only got up twice today. Knees and hips real painful. Heating pad helps some, but not much.

Day Nine - Feel pretty good, but awfully weak. Sat outside some in the sun. For the past three days, these pimples have been itching and I have had nose bleeds off and on, too.

Day Ten - Feel fine. Sat in the sun for almost a half hour. And then in shade for several hours. Good day!

Day Eleven - Woke up with sore gums. They got little bumps all over them. Sore throat, too, and a fever sore on my lip. Can't control the gas. It seems to come out through the vagina and rectum both. Sometimes it just piles up in me and its hard to expel it. Pimples on ray stomach again and now on my legs. My lips are very sore.

Day Twelve - The eleventh day of my fast. I feel very weary, very tired. Pimples are all over my stomach and now in the vaginal area. Some of them are forming pus heads, but we haven't seen any pus. Received a thorough examination today, which really relieved my mind.

Day Thirteen - Had my first bowel movement and it was very odoriferous. More breaking out on my legs. I am so awfully weak. I could hardly make it back to the bed after that trip to the bathroom. And then I kept turning and tossing. My stomach is aching just awful. Did manage to crawl out of bed to fix a hot water bottle. No one else around. After that I fell asleep. I slept until after 4 and then I sat up a while but had to go back to bed again. So terribly, terribly weak.

Day Fourteen - I have been fasting now for thirteen days. I am so tired. My chest still hurts bad.

Day Fifteen - Day 14 of my fast. Very weak and tired. Haven't had to use any blankets now for the last two or three days. No real pain today. Just very, very weak.

Day Sixteen - Broke my fast.

As the student can see, this fast was concluded before the return of hunger and even before her tongue had cleared or she had experienced any return of vitality. She remained for another week at the School. She knew she should have remained longer to permit a fuller recovery but, for financial reasons, she had to return home.

However, she immediately called us and, under our guidance, she carefully followed a prescribed regimen which emphasized rest. She adopted a greatly restricted all-raw-food diet which consisted of two mono fruit meals plus one salad meal composed of four vegetables, two of which were lettuce and sprouts. Every two months, she fasted for seven days and after six months, she undertook to fast for ten days and this on her own.

It might prove of interest to our students to observe what happened in the days immediately following her return from Shelton's School.

Day 1. Before I got through with my lunch, I had a bowel movement that filled the commode. I was sick at the stomach for the rest of the day. Dr. McCarter told me to stay in bed and rest.

Day 20. Swollen feet. Bad sinus trouble.

Day 21. Feet still swollen. Nauseous. Had watermelon for supper. Still have those pimples on my stomach. Dr. McCarter tells me to be patient, that they'll soon heal.

Day 22. Swollen feet yet. Pimples on stomach and legs again. My eyes just feel sick and I have diarrhea.

Day 23. Feel pretty good today.

Day 24. Feel pretty well.

Day 27. Didn't feel at all well tonight. Ate a lot of melon. Too much, I guess.

Day 28. Been feeling well, at least better, up until today. Felt "icky" after my noon meal of lettuce and nuts. Had BM three or four times during the last four days. Feel terrible tonight. Had some more watermelon.

Day 29. Slept outside for almost 3 hours. My arm hurt. Stomach ached. Had to use the hot water bottle again.

Day 30. Didn't feel well all day.

Day 31. Fasted. Didn't know what else to do. Dr. McCarter said it was okay. Slept two hours. Weak. Finally had BM. Felt better.

Day 32. Stomach hurt all day.

Day 33. Stomach fells better. Didn't eat this morning. Had avocado, alfalfa sprouts and tomato for lunch. For dinner, the same. Did eat a few nuts later on.

Day 34. Stomach feels better. Light lunch. Just nuts this evening. Felt quite well today.

Six Days Later. Fasted for three days. Stayed in bed. Not too bad.

First day after the 3-day fast. Felt good.

Second day after the 3-day fast. Felt great! Better than I have felt for the last 20 years. Just absolutely GREAT!

Ethel continued to make so much progress that even her friends began to comment on how well she was looking. Her complexion became radiantly "alive." Her voice, which had been high pitched, developed more quality and depth to it. She had a sparkle about her that was entirely missing before she began to fast.

Much of the follow-up discomfort this woman experienced might well have been avoided if she had been able to continue her original fast at least until all her pain had disappeared and, better yet, of course until the return of hunger. As it was, only a partial cleansing of a highly-toxic body took place and this, too, while the poisons were still in flux, but, as we have seen, in spite of all her pain and discomfort, this woman had been so well-prepared for her fast, that she persisted and continued her Hygienic transition. Within the year, she was back at Shelton's and fasted for another 14 days, this time with little or no discomfort.

How does this client feel about fasting? She has continued to fast one day every week, three days once a month and, every two months, she fasts for five days. In fact, we have to put the reins on her to keep her from fasting too frequently. She "checks in" every three months at which time we evaluate her experiences and her progress. Instead of sledriding down hill as she had been doing all those previous years, she is now confident that she is on the right path, using nature's own methods and tools. She has become radiantly beautiful and, if it were not for her still existing family disorientation, she would be at peace, not only physically, but also mentally and spiritually. Under great odds this woman has accomplished a small miracle. She has successfully confronted her Self, has weeded out all the worms of doubt and, with deep conviction, has removed herself not only from the bondage of the current mass hysteria but also from her previous addiction *to her own pet beliefs*. She knows with a certainty that is unshakeable that she is one with nature and thus fears nothing that nature has to offer. She has learned the laws of life and they are serving her well.

6.7 Case Study—Rachel—Her Story

We will let Rachel tell her own experience with fasting. She tells it so much better than we could ever do because she tells it from her heart. When this was written, Rachel was in her late sixties. In her own words, this is Rachel's story:

> "My name is Rachel. I have been asked to speak about my experience with fasting and its benefits on the body. And I'll tell you how I learned about the Shelton School of Health where health is built, not bought."
>
> "I'll start by telling you how it all began. In early January of 1979, I started bleeding from the uterus, and hoping that it would go away. After it stopped for a while, I did nothing. In February, a friend asked me if I'd like to attend some nutrition classes given by Dr. Elizabeth McCarter, and after finding out the fee, I said, 'I can't possibly afford it!' My friend, however, told me that the first class was free, and said, 'Why don't you go?' So, I agreed.
>
> "At this class I was convinced of all the things I was doing wrong for my body and, after attending all the sessions, I was convinced that this was money well spent.
>
> "While Dr. McCarter spoke she also told us about Dr. Shelton's book which she carries with her in these sessions, and how she recovered her own health some fifteen years ago by following the rules outlined in his book. She had learned about the importance of fasting and its help in building the body back to health. (Editor's note: It was actually considerably later that we learned about Dr. Shelton and about fasting, but it was about this time that we began our search for healing.)
>
> "At one of the classes my bleeding had again started, and I asked Dr. McCarter what I should do, and she said, 'Fast and rest.' I went home, missed one meal and my husband, Al, wouldn't hear of any more of that. My bleeding stopped again, until the first of May, when it started again. I knew I had to find out if something was the matter, so after three doctors from May

11th to the 14th, I was to have a DNC on Thursday, May 17.

"On the 19th, the doctor called to tell me, 'You have cancer! We'll set a date for an hysterectomy as soon as you have an IVP, lower GI, and X rays of the bladder, chest, etc' 'The works,' as he put it.

"Again I called Dr. McCarter and told her I didn't want to go through all of this as I had had two major surgeries in the past and problems with both. Since her talk in class I had been wanting to cleanse my body by fasting, but never thought I'd ever have to do it, but I could see now was the time to consider it. So, I sought the Lord's guidance in prayers. These are the very words that flashed in my mind:

'Abide in Me.' 'Greater is He that is in you than he that is in the world.' And 'I will purify you, I will cleanse you, I will make you white as snow.' I was so thrilled and surprised as I had wanted my body cleansed, and felt this was my answer from God.

"On Tuesday night I finally told Al about my condition. He was shocked and wanted me to have the surgery. Instead, I presented him with three alternatives since I felt this was my body; that I, too, should have a choice. I told him about Tijuana and the laetrile therapy, and about Dr. Shelton's School of Health in San Antonio, Texas. The third choice was simply to continue to lie around and rot.

"Al said, 'Not Tijuana!' And thus it was, our choice was to lead me to Texas.

"I called Dr. Vetrano at the school to see if they could accept me and, when she heard about my problem she advised me not to have the X rays and all the rest but to 'come as soon as you can.' We set the date for the third day after that. So, I cashed in all my stocks so as not to worry my husband with anything. I had enough to buy my plane ticket, a few travelers' checks and to cover my stay at the School.

"On my arrival I felt strange. Here I was alone, in a strange town, and down in spirit because of all the opposition from so many people including most of my family, something which hurt me more than my condition. Besides never having fasted in my whole life, I can truthfully say that I was really frightened.

"... Feeling the way I did, I told one of the doctors there that I wasn't sure this is what I wanted and, in fact, I called some friends who lived in San Antonio to come for me. While I waited, however, two ladies who had finished fasting talked to me about it and said, 'Since you have come so far and it will do you so much good, you ought to stay.' My worried friends arrived and I asked them to sit down with me to talk about it. They listened quietly and when I had finished, I told them I felt much better about it all and would stay. It frightens me now to think that, in a split second, I could have thrown down the drain all I had set out to do for my body, and this experience alone was a worthwhile lesson for me. I thank the Lord again for helping me and keeping me there.

"I was not to begin fasting for two more days, so I decided .until then to interview the patients and get some information I wanted. When you fast, you are to remain quiet, talk little, walk slowly, etc. Let me tell you about some of the people I interviewed that day.

"One lady, only 25 years of age, showed me a small lump on her hand which she said had been as big as an English walnut, and after fasting 27 days, this was all the remained. She stayed two weeks longer and all of it had vanished. She left one week before me and returned the following Friday night to bring me a bouquet of flowers from the florist.

"Another lady, I'd say in her forties, who was in a wheelchair with muscular dystrophy, the wife of an M.D., who came against her husband's will to fast and had finished seven days of fasting. Soon after I came she had discarded her braces and was walking. She was so excited, as all of us were, when she told us she hadn't walked in years. She called her husband and he didn't believe her. She was so thrilled with the results of the fasting that she was on her second seven-day fast when I left.

"One man and his wife had just finished a 30-day fast. Five years ago they had been there. He is an M.D. They found cancer in his lungs and had scheduled surgery. He heard about the School and decided to try it. They also fasted 30 days and rested 30 days, went back home for more X rays and his lungs had cleared.

"An older man from Puerto Rico has been coming to the school since 1954. As I talked to him I could see the small print in the book he was reading—and without glasses, too.

"A lady in her seventies, her son an M.D. in Texas. She lives in New York but also has a home in Germany. She came against her son's wishes because she had doctored with five physicians for years with fungus in her ears, under her nails, and her heart bothered her. She wasn't worried too much about her nails, just so she could get some relief for her ears. Well, in seven days of fasting, her ears and nails both cleared up. And she also had had hemorrhoids ever since her son had been born. She sunned these daily in the Solarium and she said that they, too, had dried up. She will go home a happy person.

"One of my roommates was a young girl, very stout who had fasted 27 days. She lost fifty pounds, and she had also had a yeast infection—whatever that is—and it had also left her. When she returned home, she called to see how I was. Everyone at the School was so nice, just like a big happy family, all there for one purpose, to get their health back.

A man in his late 60s drove all the way from Indiana. One day I was sitting in the lobby while fasting and he came up the steps two at a time. I commented, 'You can tell you are not fasting.' He said, 'Oh, Yes! I still have another week to go for my 30th day!' He stayed until the day I left.

"I could go on and on. About 100 people from all over the world were here. My fast was fourteen days and I felt that I should have gone on to at least 21 for nature had not told me to quit: my tongue was still coated and my throat in back didn't tell me I was hungry but the lump in my breast the doctor wanted to take out when I had the DNC had disappeared.

"We had so many young people there fasting, which made me happy that they are learning so early in life how important your health is. In the lectures we learned what to expect during fasting, which made it easier for us. I had no problems since I gave up coffee after Dr. Elizabeth's classes and I took no drugs. Your body will smell, your mouth will fill with a salty, bitter saliva; your legs and parts of your body will ache, a backlash from those drugs in your past; the urine will darken, and many other things might happen. But, it will all be for good. You will have to shower more often and brush your teeth. You will not be given drugs, enemas, pills, coffee, liquor, cigarettes, cooked food, milk—nothing except pure water, pure fruits, vegetables, and nuts—raw—the last three only after you have finished fasting. You are to remain the same time longer as the time taken to fast, in order for you to recover

> properly. This is important, I found out.
>
> "Wouldn't it be nice if all the surgeons who have patients ready for an operation would say to them, 'Go home and fast for fourteen days and if you still need surgery, then we will operate.' Just think of how many would not need that surgery! For, by fasting, you rid your body of the toxins that are causing your problem in the first place, and when surgery takes place, your organs are removed, but you still have the poisons to cause more problems, for still more organs to be removed. Besides all that, you will be given more drugs and shots and pills and hard telling what else which also adds to your problem.
>
> Some of the churches, not mine, are building their own hospitals. Wouldn't it be nice if these were used as Schools of Health, like Dr. Shelton's, where we might go and cleanse our bodies, and keep our organs? I purchased Dr. Shelton's tapes. I'd like all of you to hear them. He tells it like it is. (Wonderful to use at group meetings—the Authors.) "This is the way I feel about sickness:
>
> 1. Seek God's guidance first.
> 2. Fast. This is mentioned so much in the Bible.
> 3. Eat the fruits, vegetables and nuts just as He gave them to us—raw. If only we will do this, we will live a healthy life.

We have let Rachel tell her own story because it demonstrates so well some of the points we have made in this lesson and in our lesson on the elderly. Not all, of course, but most of our clients are at least of middle-age, most are older. They bear the imprinting of all their past days, months and years. They all, even the very young, come to the practitioner with their private hidden fears. Prior to their seeking Hygienic counseling, many have been engaged for years in a life-and-death balancing act, trying this, that and the other "cure." Many, if not all, have had significant psychological problems, chief among which have been depression and varying mood swings. Many of their friends and relatives to whom they look for support respond negatively, even to the point where they judge them to be crazy. It becomes the job of the practitioner to show them they are not.

Few practicing healers, regardless of in what discipline they may work, comprehend that long-term illness of itself has a devastating effect on the emotional well-being. Multiple stresses arise and they certainly do not go away when first the client enters a Hygienist's office. In fact, they may well multiply. Suddenly, they are offered hope to replace despair; action to replace inaction. All this can be stressful, too.

All this can be especially true when it comes to fasting. Just as Rachel indicated, thinking about the possibility of not eating is a totally new experience. Such a thought can actually terrify timid individuals. But, have our students taken note of how Rachel's fears were quieted by hearing other people talk about *their* experiences with fasting? What she heard broke through the psychological barrier and prepared her mentally and emotionally. In fact, she went so far as to anticipate the benefits accruing to her by fasting. She began to build up positive mental images of future wellness, these in and of themselves, being conducive to good results.

Clients must be prepared by the practitioner to accept fasting as something which will specifically help *them*. Rachel was prepared before she went to Shelton's School, but she retained hidden fears. Clients can be helped across inner barriers by individual testimonies like Rachel's (it was given by her at one of our group meetings), by classes such as the ones Rachel attended, these being offered to the public for a fee. We hope our students noticed that the first class was offered FREE! Case studies such as we have cited often prove very helpful in acquainting clients with what fasting has to offer and, of course, Hygienic literature offers a wide range of these.

And, did our students observe how varied the fasters were in Rachel's account? How different were their problems but, in every instance, through fasting, they obtained favorable results. Did our students also note that many, like Rachel, encountered family resistance which they had to overcome? And did our students observe that the fasters received emotional support and guidance from other fasters? These are among the many valuable lessons we can learn from Rachel's account.

We kept in touch with Rachel for a year or so but have now lost contact with her. We know that she periodically continued to fast on her own and became an enthusiastic supporter of the Natural Hygiene way of life.

Rachel was prepared to accept fasting as an opportunity for her to recover her own higher level of health, rather than a means of depriving her and placing her life at risk. Our society wants instant "cures," of which there are none. They are fascinated by the magic of a heart transplant, for example, and fail to look beyond the implant to the years of worry, concern and always-present fear of sudden death from rejection by Self. It takes someone very special to take the steps that Rachel took to overcome the psychological buzz-sawing to which our people are constantly subjected on all sides. It also takes someone very special to guide troubled clients into and through a successful fast. This is what Rachel did and this is how she did it:

1. Being frightened by a personal physical problem, she took a course in Natural Hygiene; others seek solutions elsewhere.
2. During her class sessions, she learned how to eat, and how to live so that the precise needs of her body would be met.
3. She learned about the Toxemia Theory and about the seven steps in the evolution of pathology.
4. She learned about fasting and decided she loved herself enough to try this method of body cleansing.
5. She decided to make a change, to desert orthodoxy: the proposed surgery, the X rays, the drugs, in favor of Nature's own way of cleansing—self-autolysis; she decided to fast.
6. She began to plan. Step by step she made the necessary arrangements, prepared her family, got her finances, together, etc.
7. She began to work her plan.
8. She persevered and was successful. Her life, like so many others who have preceded her, is no longer being lived in the shadows of fear. That can be the priceless reward of teaching our clients all about fasting.

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7. Useful Assigments For Reluctant Fasters

Reluctant fasters are child personalities in adult bodies. They are prisoners of prior imprinting. With such it may be useful to make the following assignment:

1. Write down how much you like yourself and tell why. Be specific.
2. Are you scared of the future? If so, tell what is bothering you.
3. Would you like to change? If so, why?
4. Tell how you would like to change. For example, if you suffer from disfiguring skin lesions, you might like to get rid of these. Put this down. Would you like to be more mentally alert? If so, that should go on your list, too.
5. Do you have any method or plan at the present to bring about the changes you would like to make? Tell us about it.
6. How do you think you can accomplish all this?

7. Have you given any thought to fasting as a means of helping you to change? If not, why not? Can we assist you to make a decision?

These are just sample questions to assign from time to time as you work with clients. Getting private thoughts, desires, ambitions down in writing can often open the door to Action so that the bridge between the desire for something and the *accomplishment* of same can be successfully travelled.

In working with your clients remember, too, that short-term pay-offs are pleasurable and very important to your clients. They need to be made aware of them from time to time. Also, they should be aware of the fact that while small successes *do* add up in time, the ultimate health benefits will accrue only to those fully adult persons who desert their media-inspired, culturally-fostered and lifelong patterns of living and choose, intelligently and with dedication, the life-long rewards which the fasting experience will certainly bring.

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8. The Elderly Client And Fasting

In a previous lesson we have commented that those few persons who survive to an advanced age in today's polluted and frenzied environment, are the "tough ones." In order to survive, they have demonstrated not only physical stamina, but also mental stamina, this being witnessed by the very fact that they have, if mentally sound, successfully overcome all the many and varied kinds of emotional assaults that can arise to trouble all of us as we travel on that train that seems to gallop us all through life. Each problem situation as it arose had to be evaluated by these people, and then dealt with as they saw fit.

The elderly clients who seek the advice of a Hygienic practitioner will, in most instances, listen carefully to what they hear, they will read the printed materials carefully, will listen to the stories by others in group meetings and in lectures, but then they will reach their own conclusions, whatever these may be: they will either find merit in their new knowledge or will discount it as not worthy of their trust.

If, in their view and according to their past indoctrination, they find their newly-acquired knowledge sound, they will be more inclined to follow the Hygienist's recommendations; if not, they will be reluctant, hesitant to do so. With emotional reservations, they may adopt whatever regimen is set forth.

Many times clients will come to the practitioner exhausted, both physically and mentally but, nevertheless, they will have in reserve sufficient strength to resist change, especially if it is too abrupt. Therefore, we have found it advisable to advance rather slowly with our elderly clients. This is especially so when we believe that eventually a fast may be needed to bring about a successful resolution of a particular condition, say a chronic ailment of long duration.

In such cases we suggest the advisability of a prolonged fast immediately but then we "back away," offering an alternative regimen which begins with simple dietary and other suggestions. We then proceed on a planned program of detoxification that is even more prolonged than the one detailed in the lesson on hair. However, we do proceed as circumstances seem to indicate the time is at hand to move forward.

8.1 Transition into Fasting by the Elderly

Step One
An all-fruit day once each week, each meal to consist of one, two or three compatible fruits. Examples supplied to each client as, for example:

Oranges
Oranges and strawberries Grapes
Bananas
Bananas and dates, etc.
To be continued for two weeks.

Step Two
An all-fruit day once each week with no more than two fruits to be served at all three meals

To be continued for two weeks.

Step Three
TWO all fruit days per week, one of which is now a mono fruit day, the other permitting a variety of two fruits per meal

To be continued for two weeks.

Step Four
One mono fruit day per week

One partial fast day—only two fruit meals permitted on this day

Thus, two days per week are now divided between a mono and a two-fruit-meals-per-day regimen

To be continued for one month.

Step Five
One mono fruit day per week.
One 24-hour fast day per week.
To be continued for one month.

Step Six
One mono fruit day per week

One 36-hour fast day every other week

To be continued for one month

Many elderly people will progress this far but will not progress any further. With a few, the practitioner may find them prepared emotionally to advance as follows:

Step Seven
One mono fruit day.

One 48-hour fast every other week.

Step seven should be followed for several months after which it would be appropriate to suggest that the client now fast one day each week and perhaps even a three-day fast once a month.

Using this step-by-step progression, the student will observe how easy it would be, should it prove necessary, to put a client on "hold," until such time as s/he would feel comfortable; or even to back track a step, should that prove necessary. Using this method demonstrates to the client that you are working with him/her and in his/her best interests. Few elderly clients appreciate being "pushed" into strange and unfamiliar territory, which fasting undoubtedly is, too fast. We must always strive to work within their levels of acceptance.

Few experienced Hygienists will permit an elderly client to fast at home, on his own, for longer than three days or longer than ten days even at a fasting institution under close supervision. The reasons should be obvious:

1. Their bodies bear the imprinting of many years of incorrect living. It is impossible to predict what biological storm might erupt to throw an unknowledgeable and uneasy client into a panic

state, always a dangerous situation, which could even prove fatal.
2. The reserves of the elderly are generally limited and it is often exceedingly difficult for an older person to regain the weight lost during the fasting period.

Thus it is that we should be extremely thorough in our instructions and careful in working with clients as we teach them about fasting. In fact, it is far better to be cautious to the extreme than to risk negative responses, either emotional or physical. This is true with all clients but especially important when working with the elderly persons who seek our help.

9. The Learning Experience

This lesson on teaching fasting to clients is intended as a learning experience for practitioners, a growing. Its intent is to open up avenues of thinking which can then be translated into methods to be used in the instruction of newcomers to fasting.

As our students have no doubt observed, we have not tried to hide the fact that, at times and with seriously-ill and/or highly-medicated or neurotic individuals, the fasting experience can be quite trying. This you should know.

It is our belief that everything we teach should be firmly rooted and have its bases in physiological, biological and anatomical truths and that the more the practitioner knows about the mysteries of and the many possible experiences and/or problems possible while fasting, the better prepared s/he will be to teach clients about this important healing aid.

There are several aspects to be considered in teaching our clients about fasting. In order, these are:

1. First orientation
2. Personal needs of each client
3. Personal adjustments that may be required as the client considers the possibility of his/her resorting to a fast
    a. Overcoming fear
    b. Overcoming anxiety and the loneliness of the fast itself
    c. Making necessary economic adjustments
    d. The obtaining of comfort while fasting
        I. Physical
        II. Emotional
4. Due consideration of past indiscretions and the extent of the existing physical decay as they may influence:
    a. Length of fast—the determining factors
    b. Intensity, extensiveness, and possible frequency of healing crises while fasting, as well as kind of symptoms

Each of these subjects has been addressed in some degree, many in an oblique manner as revealed in the several case studies of fasting clients.

9.1 Be Prepared

In teaching clients about fasting, it is well to be prepared. It is our feeling that our students are better prepared in this respect than students in any other healing discipline. However, we follow with some basic guidelines for students to consider as they work with their clients.

1. Be prepared. Know your subject and have some very definite points you wish your clients to consider at this time in learning about Natural Hygiene's principles and practices.
2. Cultivate a listening ear. Hear what your client's specific concerns are, not what you may *think* they are. Identify them as emotional? Economic? Real? Or fancied?
3. Be explicit in explanations. Don't hem and haw about or evade answering questions. Be open and direct, not evasive. If you don't know, say so but be sure you attempt to find the answer and then communicate your answer to your client.
4. Encourage your clients to ask questions about fasting and related subjects. They may reveal hidden fears and anxieties which can be cleared up at the onset of the learning session. Questions may also provide a grand opportunity for the practitioner to suggest certain reading materials to the client. His interest in a particular subject can then be enlarged and addressed.
5. Don't cover too much at any one session. Decide on specific aspects of fasting you wish to cover and then try to "remain on target." For example, a series of discussions might well address the following topics «and in the order given:
    a. What is fasting? How does it differ from starvation? Historical background and some of the reasons why people have fasted in the past, and also in the present.
    b. Why should a person fast? What is meant when we say that the mind is in control?
    c. Who should fast? Dr. Buchinger's list and our own list of other reasons for fasting may be a good place to start.
    d. A follow-up of "c" with various case studies to be considered at the session and then taken home by the client for re-reading.
    e. Where are suitable fasting facilities to be found? How much does it cost? Type of facilities, what to expect, etc. All information given should be as specific as possible.
    f. Healing crises while fasting. What happens within the body?

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10. Questions & Answers

I fully understand that fasting would help me with my sinus trouble. I also suffer from constipation and digestive troubles although both of these are responding to my improved diet. However my family, and especially my husband, are totally against my missing a single meal, never mind going on a prolonged fast that may last two or three weeks. How can one resolve a problem like that?

> Family opposition such as you describe may not be capable of full solution. From time to time we have family group meetings. If your husband would come to some of these, he might learn something about fasting and eventually give his consent for you to embark on a prolonged fast. If not, then continue on your present Hygienic path, being sure to meet all your body needs adequately. Miss a meal occasionally, several if and when you can. Healthful practices add up, in time, to major health benefits. It will just take you longer.

Will fasting help a person with a mental condition?

> It all depends upon the underlying cause of the mental condition. If, for example, it is due to some kind of mechanical malconstruction, then it is doubtful that a fast would be of much, if any, benefit. However, if the sickness has come about through unhealthful eating and living practices which have in turn produced an inner toxic state, then the fast might be conducive to healing. It would all depend, of course, upon how much irreparable brain damage had

occurred. However, in any case, a fast is worth trying before other, perhaps more dangerous, practices (such as surgery, hypnotism, and the like) be resorted to.

Isn't the fear of fasting an irrational fear?

It may well be, but it can be very real to the person thus afflicted, so real, in fact, that it can prevent his ever beginning a perhaps badly needed fast or it could actually produce great harm should the person who is overcome with fear nevertheless attempt to fast. This is why we emphasize the need not only to acquaint clients with the fasting concept but also to school them thoroughly before they undergo even a rather short fast. We should remember that best results are always obtained when a client has explicit faith in the fasting procedure and, also, in the practitioner.

Why is it that fasting is beneficial in some conditions, but less so with others?

That is a good question and one that perhaps needs to be addressed more in our studies. People are different. Diseases, with a few exceptions, all have a common cause, namely a toxic state of the body brought about by multiple errors in living and eating, these sustained over a varying amount of time by each individual and in differing ways and intensities. The greater the number of assaults, the intensity of the assaults, the kind of morbidity developed —all such will determine the nature of the condition and the extent of wasting of vital force which has subsequently ensued. Now if nerve tissue has been completely destroyed, it will be irreparable. Once braindamaged, always brain-damaged. If bones have been grossly abused, then full recovery may be impossible. Just as individuals differ in their respective backgrounds and life experiences, so will the forthcoming results of a fast differ. Additionally, the attitude of the fasting person will influence, either for good or bad, the results of a fast

However, let us emphasize that, regardless of the nature of the illness, if the individual embarks on a fast by first becoming well informed about the fast, what to expect from the fast, etc., s/he will receive benefit from it in many ways, chief among which will be a greater systemic peacefulness. Even in terminal cases, the patient's last days can be made more comfortable when the fluids of the body have once been cleansed.

I am still at a loss to know just how we can tell when a fast should be broken. Can you perhaps clarify that for me?

Most Hygienists will agree that it is impossible to tell, in advance, just when to break a fast. It is important to make this point clear to your students. Ideally no time limit should be set forth at the onset of the fasting experience. The fast should, and again let us say, ideally, continue until certain definite signs appear. The return of natural and usually quite acute hunger is probably the most important sign that the need to continue the fast has ended and that the person should now begin to take in food. This is a sure sign that the digestive system is ready to receive, process, and absorb nourishment and, further, that the system is ready to assimilate the nutrients as received at their final destinations, the cells. There are also other signs, such as the clearing of the mucus overlay from the tongue, the return perhaps of a more normal pulse, etc. The individual body should be the sole determiner of the precise time to break the fast simply because it will give forth with these reliable signs, signs which should not then be ignored

Whenever a fast is broken *before* nature's clear signs have indicated the need for termination, then we should understand that while nature has cooperated with us thus far, a *complete* cleansing has not, as yet, taken place and that more remedial work will have to be

> undertaken at a later time. I think that much of the post-fast discomfort that Ethel, for example, experienced and the fact that she had to undergo a whole series of fasts for a period of some years before she experienced the resurgence of health for which she was looking, was due, in large measure, to the fact that she broke her fast far too early, not because she wouldn't have been willing to go on, but purely because of her economic limitations.

What do you consider to be the most important role of the practitioner when it comes to the fast?

> That question bears right down to the subject of this lesson. Our role should and must be to acquaint our clients with fasting, to tell them about the possible benefits that might accrue to them through fasting, to inform them about the possible symptoms that might arise during the experience, and WHY they may occur, and how such can be helpful rather than harmful; etc. In other words, we should help our clients to understand how fasting might help THEM to recover from whatever ails them.

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Article #1: Health Secrets of a Naturopathic Doctor by M.O. Garten

"Cell Cinders" As Causes of Diseases

The European terminology of "cell cinders" as cause of disease most accurately drives home the point. It is generally agreed that civilized eating practices make all of us prone to overeat. It is said that up to the age of twenty, a man can eat as much as he can—up to forty as much as desired and after that he should eat as little as possible. Hippocrates made the statement that "if a sick person is fed—one feeds the disease. On the other hand, if the sufferer is withheld from food the disease is fasted out." How true, as I have observed in thousands of cases.

The disease process begins most gradually, but insidiously. In metabolism we find two stages, one of building up—the other of tearing down. The latter stage is the guilty one. Foods are not completely torn down and eliminated as formerly mentioned. Uric and carbonic acid remnants may undergo crystallization, obstructing metabolism. Cholesterol may clog lining of vessels and capillaries, where in some cases it may create starvation in the midst of plenty. Calcium carbonate may infuse joints, muscles or vessel structure, bringing on arthritis, rheumatism or hardening of vessels.

The "Towel—Salt Water" Experiment

For best illustration, let us take a small towel. Let us dip this fabric into a solution of salt water. The towel is permitted to dry after which we will find a drastic change in the appearance and "feel" of the material. No longer does the towel feel soft and pliable—it is now rigid like a board and feels hard and brittle. In the immersion, the salt water saturated through the fabric as a liquid but in the drying process changed into crystals. On closer examination we would find the crystals over, under and around every fiber.

Such is the case as so pointedly termed "cinder infusion" by the European experts as bringing on a ravages of disease.

Secondary Changes that Happen

It is axiomatic that Secondary changes usually occur as the result of this cell strangulation. Tissues, organs or glands become diseased and undergo degeneration. Necrosis, (tissue destruction) is frequently observed in post-mortems. This, incidentally, may explain the disagreeable stench given off by some chronic cases during the fast. Putrefactive changes can also be noticed which explains the body odor. *The entire disease origin problem gravitates into the symptoms of blockage. Remove the obstruction and the channels and fibers of life throb into renewal activity and good health*.

The living organism must maintain its oxidizing mechanism in order to keep from dying. During the fast, the food now must come from within. The body economy now can accomplish chemical changes so perfectly as being unmatched by any other laboratory process. Uric acid can actually be transformed into protein, from whence it came. Cholesterol is reconverted to fat—carbonic acid changed to starch or sugar. It is the great transformation or operation without the knife which takes its course with the greatest of precision.

The Process of Autolysis

The process of autolysis (*self* consumed) is inaugurated. All tissue components, not essential, are oxidized or burned in order to maintain life. This is the incredible manifestation of higher intelligence taking over command.

Many alterations can now be observed in the entrance to the digestive organs. Most noticeable is the coated tongue and disagreeable mouth odor. This unpleasant emanation does not come from the newly-displayed phlegm but mostly from the lungs. Here we find body chemistry in a noble effort to bring about elimination of hardened infusion, liquified by the fast. This cleansing is carried out predominantly by the blood and lymph stream, using kidneys, bowels and skin as an exit for the dissolved waste products.

The sometimes obnoxious odor could also come from partially-degenerated organs undergoing dissolution. Last, but not least, the odor generally also originates in the colon, the great "sewer pipe" of the body. Sluggish bowel action and impacted fecal material could contribute by the production of noxious gases which in turn reach the lungs through osmosis to be removed to the outside through the breath. While fasting, it is advisable to stay away from people as much as possible. The coating from the tongue should be removed twice daily with a stiff toothbrush.

Action of the Stomach During the Fast

Under a complete fast, where only water is consumed, hydrochloric acid production is greatly reduced. This is the one significant improvement to the juice diet in which stomach acidity is not always retarded. Consequently, hunger sensations may become prolonged, making the juice diet more difficult to withstand.

The first two or three days of the fast are the most trying to go through. After that, most hunger pangs disappear after which the individual seems to "float," strangely feeling free of many disagreeable sensations in the abdominal region. Buchinger reached this stage only after the fourth day when he stated that "everything became quiet on the Western front." Rumblings from fermentations lessen; all organs appear to greatly appreciate the new well-deserved rest.

An important change in the stomach is its shrinkage during the fast. The normal healthy stomach in an adult is supposed to equal the size of two fists, holding a little more than one pint. That this is not the case in us "civilized" beings can be attested by all surgeons or morticians. I have seen stomachs in post-mortems measuring several times the normal size. Such distended stomachs have exceedingly thin walls resulting in defective function. In the prolonged fast, the shrinking process of the stomach goes on and stops, whenever the normal size has been regained.

The Gallbladder

Here we may find drastic reactions to the sudden withdrawal of food. Secretions of gall continue to accumulate in this reservoir, in some cases in an increased tempo. The solution may often regurgitate into the stomach, giving rise to temporary spells of nausea or vomiting.

The Pancreas

In the fast, the pancreas reduces in size. The functional integrity of the digestive portion of the gland is greatly enhanced. The endocrine part (Islands of Langerhans) often becomes so reactivated as to reduce implications of diabetes.

The production of hormones or digestive ferments is somewhat sluggish immediately after the fast. It may take several days to bring about normal secretion, explaining the importance of breaking the fast correctly.

The Small and Large Intestine

The small intestine also shrinks in both length and diameter. The colon, besides shrinking, undergoes a decided reorganization.

About 75%, or three quarters, in the amount of stool is made out of bacteria, dead or alive. It is interesting to learn that the colon may become completely sterile in a ten-day fast. Still more significant is the problem of impacted feces. A British surgeon once made the statement that the average man carries with him such hardened bowel wastes to the extent of between several ounces to as much as *fifty pounds*. I have seen colons on the marble slab practically being rigidified with uneliminated retained stool. Only a small opening in the center permitted passage of some bowel content.

During the fast, the impactions clinging to the colon wall loosen, and copious stools are passed. This is one of the most perplexing experiences to a faster, when no food has been ingested.

Heart and Blood Vessels

The heart again assumes normal shape in the fast; vessels become freed of their clogging infusions (cholesterol). The average size of a well-fed "civilized" heart is enlarged, which is now being corrected.

The vessels and capillaries of the heart (coronary) receive a most thorough cleansing, restoring normal fluid circulation. It is also possible that the fast could absorb scar tissue formations in cases of rheumatic heart conditions. How else could one explain the amazing improvements achieved by the fast in such cases?

As to abnormal blood pressure, it is amazing how quickly and efficiently the fast comes to the rescue. High pressure ratings lower from day to day—most likely due to the absorption of cholesterol. In the case of abnormal low pressure, the explanation is more difficult. Undoubtedly, the adrenal glands are involved, where functional integrity is brought about by the fast.

The Pulse

The pulse is usually increased at the start, then falls below normal as the fast continues. Rates may vary from forty to one-hundred-twenty beats per minute, which may become erratic from time to time.

Should the pulse remain irregular for longer periods, or when extremely low or high pulse rate prevail, the fast should be broken.

The Blood

While the quantity of the blood volume is reduced in proportion to loss of body weight, the quality of the blood is greatly improved during the fast. It is amazing to observe the gradual increase in red cells in the blood picture.

Dr. Weger and Dr. Tilden reported cases of pernicious anemia where the red count doubled in periods from one week to twelve days. The abnormal high white count had also been reduced two-and-one-half times during these observations.

The primary reason for anemia accordingly is not nutritional deficiency, but cellular obstruction in organs and glands preventing utilization of the food. The blood-building mechanism in bone marrow, liver, spleen, etc., is put into a higher degree of perfection by the cleansing action of the fast. This does not mean that nutrition is of no consequence to the relative state of the blood. This, however, is always secondary—improper body chemistry coming first. This is why many top European sanatoriums inaugurate dietary reforms with temporary food withholding.

The Lungs

The gradual absorption of mucus from the miles of hair-like tubes in the lungs make deep and effortless breathing a most pleasant experience to the faster. The voice becomes clear and resonant.

The fast does provide an excellent opportunity to practice deep breathing. In some of such experiments it was established that the volume of breath intake (air) doubled. In connection with skin brushing with dry brush, great improvements in the general oxidizing mechanism of the body can be attained.

The Skin

The skin as well as the teeth are the parts that reveal a true indication of body condition.

With the lowering of metabolic efficiency, the skin becomes pale, then and dry with development of many folds. Secretions of perspiration lessen with an increasing difficulty of keeping warm.

During the fast, the skin resumes more effectively its role of body cleanser. Perspiration may become odoriferous as it may carry dissolved particles of uric acid, decomposed cells, etc.

One of the most gratifying effects of the fast is the observance of changes of the skin. The once shiny cigarette paper appearance, particularly on extremities, changes over to a more velvety texture, the skin loses its shine and many folds, and becomes thicker.

The Kidneys and Bladder

Constituting the great filter apparatus of the body, it can be seen that the kidneys participate greatly in this new effort of body reorientation. At the start of the fast, the urine is invariably dark in color, strongly acid in reaction, and of high specific gravity. Dissolved uric acid, phosphates and bile pigment are making up the ingredients responsible for the relative "thickness" of the urine. The odor may become offensive.

As the fast progresses, the color of the urine becomes lighter, being less odoriferous. This improvement in urinary characteristics is in direct proportion to the amount of cellular waste being "melted" out of the body structures. It must be remembered that next to the colon, the kidneys carry the largest load in the removal of metabolic waste from the body.

To fully appreciate the benefits bestowed by a fast to the urinary system, one should follow a typical case. A male patient came to me, complaining of constant burning sensation in region of bladder. The patient submitted to a twelve-day fast, after which all burning sensations disappeared and the man slept through the entire night.

Buchinger made a thorough study of this kidney-bladder phenomenon and broadly speaks of specific antibodies produced by the body during the fast. Accordingly, the fasting organism in its concentration on worn put or diseased tissues, manufactures certain "medicinal" agents from the diseased organs to be used in the healing or repair of such organs. This protective mechanism partially explains seemingly impossible correction of long-existing disease processes. Other investigators have corroborated Buchinger's assertions and claim the faster's urine to be virtually a healing concoction.

Incidentally, Buchinger's first patient, a woman physician, aborted a handful of kidney stones after an eleven-day fast.

From the book, Health Secrets of a Naturopathic Doctor by M.O. Garten

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Lesson 94 - Exercise And Children

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1. Introduction

With today's current trend of "sit-down" activities, America's facing a grim reality—our youth population is not as physically fit as we thought it was. In tests done to determine strength, endurance and physical ability today's youth scored very poorly. It is not uncommon to read about a teenager succumbing to a heart attack while performing intense physical training. Passivity has a strong foothold on the youth of today. With the availability of video games, television, computers and all the other leisure devices, our children are gradually becoming less and less capable of sustaining any substantial physical activity.

Many children who dwell in the large industrialized cities throughout the U.S.A. (and elsewhere) are being deprived of experiencing the "real" outdoors. They have no working knowledge of nature—no connection whatsoever with wildlife and many could not even tell you where the food they consume came from.

It is very disturbing to think that the vast majority of our youth are daily ingesting pseudo-foods and would rather die before they sample some wholesome foods. The parents in today's fast-paced, make-a-quick-buck society are relinquishing their obligation of protecting and taking care of their children and are oftentimes leaving their children's dietary needs to the whims of the junk food manufacturers and physicians who are less informed about nutrition than even they are. It is no big surprise when our children are constantly placed on the treadmill of visiting doctors to having no stamina at all in accomplishing the simplest physical task.

Parents, your children are being victimized and so are you. It is time you grab the reins and take control! Don't allow the manufacturers of trash foods to pollute your children's bodies, nor their minds.

You need to pay close attention to the types of foods you buy, the types of influences that your children receive and last but not least you the parents should be setting the prime examples for your young ones. This includes a rigorous exercise program that you can include your children in.

Natural Hygiene recognizes the value of physical fitness and advocates it as one of the main essentials in life along with a diet of fresh, raw fruits, vegetables, nuts and seeds; fresh air; sunshine; pure water; etc. Natural Hygienists teach that your child needs to spend most of his/her time in an environment that promotes healthful habits and is conducive to building strength and stamina and endurance. This environment would be one where the child derives pleasure in using his/her body to its maximum potential. The sooner you start providing this environment, the better.

2. Exercise From Birth To Adolescence

2.1 Different Stages of Development

2.1.1 Infancy: Birth to First Birthday

To a lot of people the mere suggestion of exercise for an infant brings all sorts of reactions. But a factor that has been long ignored is that behavior patterns established early in life tend to be self-perpetrating. The child is much more likely to be receptive to physical activity if exposed at an early age than a child who is not exposed at all or much later. As parents then, the job of insuring your child's total well-being is entirely yours, and it is crucial that only the best quality of input is directed at your child.

Today children are being shortchanged. In this increasingly demanding society where both parents are forced into the workforce just to "make ends meet" children are viewed as mere appendages—as tax writeoffs of extra expenses. They are not viewed as replacements for the previous generations to carry on the work of tomorrow. If they were, they would be treated with more dignity and be allowed to grow and learn in a natural environment.

Most children nowadays are sentenced to spending the day inside artificial environments called day care centers. On the way to and from there they spend strapped into carseats. When they go out, instead of being allowed to walk they are strapped into strollers and rolled down the street. At home when mother and dad have no time for baby, he or she is placed in a mechanical swingset, a jolly jumper, or a playpen to keep out of mother or dad's way. This allows the parents to catch up on all they were unable to do all day because they had to be away at work. In this type of situation a child can scarcely grow to be supple and strong as when I was a child. I (and most people in my generation) grew up able to run and play all day to my heart's content. I got plenty of fresh air and my heart got a good workout. Most of the mechanical contrivances to imprison children were not yet invented. Also parents did not have to work so hard to earn a living as the cost of living was not so high as today—generally the mother remained at home with the children to teach them how to grow.

In many cases now the only muscles that are developed in infants are those, in their jaws and mouths. They're constantly being fed as a pacifier as it takes less effort to feed them than to indulge in physical activity with them. Parents, the key word is active. A child needs to be allowed to stretch and move him/herself without binding. Encourage him/her to crawl and make other physical motions.

The First Six Months: This time is spent getting acquainted with your newborn, giving love and warmth. It is also a good idea to move the infant about while holding him/her to get s/he familiarized with motion. Even though the child might seem floppy at first, don't be alarmed. With practice certain exercises will stimulate the muscles and strengthen them.

Besides merely moving the infant about in your arms, use gravity to produce physical activity in your baby. Hold your infant in the air horizontally, face downward. S/he will instinctively use the muscles of the neck and trunk to support the head and body against the pull of gravity. You can begin this activity as early as four weeks and as the weeks progress you will notice a remarkable difference in your child. S/he will be able to raise the head, arms and legs on his/her own.

Remember that at birth the strongest muscles are in the back of the neck. The child is better able to support its head when face down than face up.

By ten weeks you can start pulling the child up by both arms slowly. At first his/her head may bob about a little, and that due to a lack of control in that area, but with continued effort more strength is gained and more control of the neck and trunk will be noticeable.

Another activity is holding the child in a standing position so that s/he supports his/her own weight. The infant pushes with its feet against whatever surface (your lap, the floor) it is stood on. This activity can be started early for maximum benefit—by the time your child reaches around 26 to 28 weeks. Such maneuvers will be rewarded by your child being able to make bouncing and dance-like movements which will lead to the child cultivating the habit of carrying his/her own body weight. Your child will sit earlier, crawl earlier and walk earlier than most children whose parents haven't taken the time to properly exercise the child. S/he will also have much better control in these activities.

At the end of the first six months when the infant gains the strength and ability to sit, be sure that s/he is well propped up at all times. Also the use of the arms and hands shouldn't be restricted to allow the muscles in those areas to be developed.

Most parents today with all the demands placed on them by society are finding less and less time to spend with their children, and are often inclined to purchase "time-saving devices" that are pawned off as aids to mom and dad and junior. Contraptions such as mechanical swingsets, jolly jumpers, walkers and mechanical rocking chairs to name a few. These devices encourage passivity in children and should be discouraged. They give the child a sense of movement coming from some force other than him or herself. As a parent it is imperative that you make time to see that your child receives all the physical activity possible. That is the key—allow your infant to fully experience freedom, freedom from diapers and other binding clothing whenever possible, freedom to explore the environment, freedom from all mechanical contrivances and restraints. Again, as a parent it is your responsibility to inspire active exercise in your children and with the practice you gain in the first six months of your child's life, your next six months will be even more fun as the effort you had put forth is now being rewarded.

As your child begins to show signs of more physical development such as crawling and creeping, you can add to his/her exercise by providing pillows and large cushions to his/her path. This will teach your child to crawl over obstacles and further develop the muscles. When s/he begins to stand and walk (which varies from child to child—usually within the range of 8 to 13 months), s/he will find other uses for the pillows and cushions. A child might use pillows for carrying toys around or any number of uses s/he might conceive. This process helps the child to develop muscular strength and a feeling of accomplishment.

As your child's ability increases, you will need to use your imagination more to maintain his/her interest. Here are a few suggestions: Pile larger stacks of pillows to form a tower, provide a large cardboard box that could be used as a tunnel or a house, etc.

At this age you can also try the wheelbarrow. This exercise is quite simple. Place the infant on a comfortable surface face down. Lift the bottom half of his/her body holding the child by the waist or legs around the ankles. On the onset the child might not respond, but soon will try to support his/her own weight with the arms.

Now as your child develops you must consider the matter of child-proofing your home. Some parents attempt to restrict their child's movements around the house as a means of insuring noninjury to child and damage to their valued possessions. This usually ends up in frustration for both parents and child.

It has been my experience that the sanest thing to do is to child-proof your home or apartment. What does child-proofing mean? It simply means that your house will not be a smorgasbord of temptation to the now mobile child. Everything you don't want your child into or that may pose a danger to him/her must be placed out of sight and out of reach plus a few other safeguards. Example: Place a gate near the stairways as the child has no concept of danger of heights at first. Remove all floor lamps, floor plants, covering electrical outlets, etc. My experience is that all the things you cherish when placed out of sight and reach can make for a more relaxed environment for the child and the parent. The child will be able to explore at his own pace without restriction of physical activity. Another important piece of advice—each year children are poisoned by household chemicals, paint removers, insecticides and other harmful health hazards. If you do use these, keep them in a well-secured area preferably where they're locked up. If living Hygienically, however, very few chemicals will be around the house (exceptions may be those used for hobbies and crafts).

Parents, exercise caution when it comes to the well-being of your youngster. Don't settle for cliches from so-called "experts." Be conscious of all phases of your child's growth and development. At this stage of development mother's milk is the optimum food. In discussing physical health it is imperative that the subject of diet be brought into play. Besides lack of physical activity, the conventional diet of high fat, high protein and high calories is a main contributing factor of juvenile obesity and other maladies. During the Vietnam War autopsies performed on the U.S. soldiers showed that the vast majority had the beginnings of heart disease. The majority of these soldiers were no older than twenty-two years of age. Disease does not always appear immediately. It tends to be cumulative. The common notion that if it doesn't harm me right away all is well, is deceptive. Remember all things take time to develop, even disease. The sooner we adapt a healthful lifestyle, the better the chances are of continuously enjoying our lives.

2.1.2 Toddlerhood: One to Three Years

This is the time which your child is fully experiencing his/her strength and skills. The entire world is at his or her command. S/he is constantly doing things that meet with parental disapproval. It might seem like the child is totally oblivious to anyone else's needs but his/her own. But the truth of the matter is that the child is exercising his/her independence, which can be very annoying at first. Your usual pace is slowed down by your child's insistance in taking care of him/herself. It will eventually soak in that this will be the way things are going to be, and it is the parent who will need to adapt in order for the child to grow. Let your youngster run, climb, hike, ride a tricycle—anything that will promote physically-motivated activity. At this point the best you can do as a parent is to encourage the child and to create a sense of enjoyment in what s/he is doing. Playing to exhaustion is a natural state for a child. However, we are programmed from our youth to feel that it is harmful to be exhausted—to sweat and get sore or experience any kind of pain from activity. Strenuous activity (play) that causes perspiration has been suppressed vigorously in this society. There are even campaigns by large deodorant manufacturers denouncing sweating as something abnormal and they've invested millions of dollars to promote such misinformation.

So parents, the ball is in your hands, and your goal now is to continue to provide inspiration for your youngster. Some children need less attention in this area than others. My sons need little inspiration to exercise. They are three and six years of age and have the energy of two cyclones which keeps my wife and I on our toes and in shape.

Remember to play hard whenever you play. The benefits are countless. Not only will you get yourself in shape, but you will instill an attitude of positivity toward physical activity in your child. The example parents set for their children now will determine his/her outlook on life in the future. So now is the time to start the exercise program for you and your children that you have been putting off for so long.

I also recommend that when you engage in physical activities that they be done outdoors as much as possible. It doesn't matter what the activity, when done in the fresh air it provides a great exchange of carbon monoxide and I oxygen and strengthens the lungs. But not every day will the weather be perfect and for those days when you might be forced to be indoors, you can pass the time and continue developing your child's well-being with some of these exercises:

The Back Lift: This is an excellent exercise for your toddler as it develops strength and flexibility in the back and shoulders and it is easy to learn. To execute this exercise your child should sit on the floor with legs out in front. The legs should be flexed moderately at the knees so that only the feet and buttocks are touching the floor. He/she then should lean backward placing the arms behind the back with fingers pointing backward and away from the body. From this position the child lifts the trunk off the ground supporting his/her entire weight with the feet and arms. This posture as stated before will strengthen the back and shoulders, ankles and arms. Incidentally this exercise can also be done outside, weather permitting.

Your youngster will need your enthusiasm and guidance in doing exercises. Keep the exercises varied and short to enhance the period spent doing physical activity. As your youngster matures, more of his or her time will be spent outdoors at least part of the year, depending on the region you're living in.

It is common practice for parents to restrict outdoor activities during the winter months. This is not very wise because the child should be enjoying the cool fresh air that the winter brings. Another practice that is common is for the parent to overdress the child believing the child will "catch cold" if not bundled up. This bundling renders the child totally immobile—the child resembles a blimp ambling around the playground not being able to fully experience the outdoors. I've observed that children after a few minutes of hard play begin to shed layers of clothing naturally. From this I have come to the conclusion that if the child is dressed for movement and is allowed to remove clothing as needed, the body will generate its own heat on the strength of the physical activity the child is engaged in. When the weather is cold, it is wise to treat the situation as a normal occurrence. Let your child experience it and save yourself some aggravation by dressing your child so warm, that s/he is unable to move and comes indoors not knowing what to do with him/herself.

2.1.3 The Preschooler: Three to Six Years

This phase of your youngster's life is when s/he begins to demonstrate skills such as talking, limited reasoning abilities and more concern for others. S/he is capable of executing oral instructions but still likes to have a guide handy to take him/her through the paces. Your youngster is now developing a personality. Your child will let you know his/her dislikes and likes. S/he is forming attitudes and character that will serve him/her throughout the rest of his/her life. It is very important to recognize this and to instill only positive attributes.

Your youngster's motor skills are now well defined and activities like swimming, skating and running are more to his/her liking. S/he is now ready for vigorous activities and delights with being offered challenges. This phase of your child's life is important as are all phases of growth and any wrong programming will have to be deprogrammed in the future to accomplish any progress. Parents, be aware that girls are also entitled to develop strength and endurance, courage and all the benefits that go along with physical activity (more on this further on in the lesson).

Your youngster's body is now capable and functional and should be exposed to activities that will promote strength, endurance, coordination and conditioning. If you are like many parents, you will be entertaining visions of a star athlete in the family, but it will do you well to put such thoughts in the background for awhile. Let your youngster enjoy the pleasures of being active without great expectations. Running is a very good way to introduce your youngster to sports/fun activities.

Swimming is another excellent activity. At this point in your child's life it is important to be conscious of his/her limitations and you should not try to push the child beyond his/her capabilities. It is a good idea upon engaging your youngster in any sports activity that he or she be provided the proper clothing to begin with. Loose-fitting cotton clothing is necessary to allow for movement and the skin to breathe. Also an ill-fitting shoe could cause much discomfort and contribute to the child not being able to sustain any prolonged activity.

Remember also that your youngster enjoys the outdoors and that every effort should be made to see to it that s/he gets an opportunity to experience rain or snow, to touch, feel and be a part of the natural weather processes. At this time skills that your child has already developed should be built upon. To add to his/her basic abilities keep in mind at all times that childhood should be fun. So whatever activity your youngster is engaged in should be approached with an attitude of fun. This will minimize the chance of him/her becoming bored and disinterested and eliminate the need for parental pressuring to excell. Also don't stand by and criticize how your child is doing. This can cause your child to lose interest.

Your main function as a parent/coach is to monitor which phase of your child's daily exercises needs more attention. This can be determined by the following: How does s/he use the body to jump, run, drag heavy objects or do chin-ups, sit-ups, push-ups, etc. These exercises promote strength and are within your child's range of capabilities and should be encouraged. Watch your child progress in these and make suggestions to the child as to what exercises need to be improved, whether the back should be straightened, which ones should be done more, etc.

The above-mentioned exercises can be classified into two groups: resistance and nonresistance. Resistance exercises are when the muscles are made to contract against an applied load, such as in weight training. Nonresistance exercises, on the other hand, are natural and involve the body to work against gravity with no outside items necessary. Within these two groups are subgroups: isometric and isotonic. Isometric exercises involve the muscles shortened by the tension of the exercise but does not contract. Isotonic exercises cause the muscles to contract under constant tension.

Nonresistance exercises are safer than resistance exercises, but are not as effective when it comes to building strength since the pull of gravity is the only load against the child's body. This type of exercise is limited by the size of the child and child's potential ability. Another plus for nonresistance exercises though is that it can be started at any age including infancy.

Resistance exercise training should not be introduced until age nine or ten and only after your child has been involved in nonresistance training to firm up the muscles and tendons for stress that is involved in a resistance exercise program. Remember nonresistance exercises are performed without the use of added load or resistance. Gravity and the child's weight are the only load on which the muscles work and requires minimal supervision. These, of course, can be performed by boys or girls.

Push-ups are one of the many nonresistance exercises. To execute the child lies face down and flat on the floor, hands next to the shoulders and palms down. Legs should be straight back with the heels together and the toes on the floor supported only on the hands and toes. The child should then push the body straight up until the arms are fully extended and the elbows are straight. The youngster then dips down by bending at the elbows until the chin and chest barely touch the floor, then straighten up again. It is important to keep the spine straight while performing push-ups—don't allow the tummy to sag to the ground. For a variation of this exercise place hands about two hands widths to the side of the shoulders.

Sit-ups are another excellent nonresistance exercise. The child lies flat on the back, hands clasped behind the head, legs bent so that the thighs and legs form a right angle with each other. The soles of the feet should be flat on the floor. Next s/he lifts up the trunk, curling the neck, shoulders and back completely off the floor. S/he then leans forward, touching the elbows to the knees. For added stress, the exercise can be performed on a slant board with head on down end. It is necessary to use a strap or a bar if your slant board is not equipped with one. This will prevent the body from slipping down the board. Also, the slant board should be used only after some degree of strength has been obtained by the child in doing sit-ups from the floor.

Knee bends are good as well. The youngster stands straight, feet about shoulder width apart. Hands are to be clasped behind the head or neck. S/he then squats down to an almost sitting position or below, keeping in mind not to drop the buttocks all the way down. This will flex the knee joints and create stress on the cartilage and ligaments in the legs. The child then returns to the original standing position straightening the legs at the knee. Placing a box or chair behind the child will aid the child from squatting too low. Caution should be exercised with this maneuver. Attempting to increase stress by squatting to a full deep knee bend position can be injurious to your child's knee joints.

Performing this exercise to maximum capacity can be boring and difficult for a child. To avoid these pitfalls, on this particular exercise you could determine the quantity of repetitions by the child's age times three.

Back to resistance exercises. The muscles work on a specific load while shortening. The muscles contract against an immovable object and develop tension but do not shorten. Programs that are classified as isotonic include weights, rubber bars, springs, etc. In this program the youngster performs the absolute maximum number of repetitions possible beginning slowly and gradually working up to eight and then to twenty repetitions. As the weight increases, the repetitions decrease. It is important to note that many repetitions with moderate weight increases muscle size moreso than it adds strength. Performing with heavier weights increases the strength but you need to decrease the number of repetitions. So selecting a weight load that would permit a large number of repetitions is the way to go for large muscular appearance. Caution though: these exercises should not be introduced until your child starts showing physical signs of adolescent development.

2.1.4 School-Age: Six to Twelve

Ah, time for the youngster to be out in the world experiencing as an independent individual. Physically, the school-age child begins at the onset to lose the first baby did tooth and culminates with an appearance of a pre-adolescent growth spurt. The body is now taller and trimmer, height is increased by 30% and weight increases by as much as 100%. During this period the body proportion becomes more adult-like. The legs are not as short and the head is not as large as before. Along with physical growth comes proportionate strength increase.

Also noticeable is the six-year-old's improved coordination, balance and motor skills. The child at six tends to be restless and is better at starting a task than finishing it. This should be taken into consideration when you contemplate your child's exercise regimen. When the child is nine or ten, his/her capacity to follow through is a lot more developed. This will make it easier to introduce a routine and have it fulfilled. The youngster is now more prone to think in terms of long-term goals and what is involved in attaining them. This is the time to begin serious athletic training if you are so inclined.

The six- or seven-year-old is still introspective and shows an interest in imaginative play, which soon dwindles. The five- or six-year-old is usually cooperative and eager to please his/her parents but by ten or eleven the influences of persons outside the household tend to diminish the authority of the parent, i.e., teachers, coaches, peers, etc. The ten-year-old child might suddenly, seem resentful toward the parents control but might take advice from a total stranger better than his/her parents. This is a process that although it may be disturbing to the parents is all a part of the growth process. In some children it occurs at ten and in some it occurs during adolescence. Another thing that oftentimes occurs at this age is your youngster may develop a hero worship stage (normally not the parent) which can be a positive stage providing the hero is of good moral character and possesses positive attributes.

You may wish to involve your school-age youngster in some physical activity outside the household. Example: Enroll him/her in a karate class or a dance class, etc. A word of caution is in order here. A child's attitude at this phase is shaped by his/her friends, coaches, relatives, teachers, etc., and this leaves the child open to all sorts of inputs. He or she is at the mercy of others who are not the parents.

I can remember my childhood sport experience quite well. I played baseball, basketball, soccer, did relay running and broad jumping. Because what I did I was good at, I was constantly sought after to play on some team or the other. Now all this was exciting until I grew older and realized that everyone always expected the best from me. One of my teammates went on to become a professional baseball player for the Minnesota Twins, but when I got older I lost interest. I can still remember the disappointment everyone displayed when I decided against pursuing a career in baseball. I learned real young that when you are good at something you are never allowed to be a mere human anymore. As long as you're able to bring in a home run or stop a run from being scored, you're fine. But once you fail at an attempt, everyone forgets and you stand alone. That's a terrible feeling—especially for a youngster. I have added this bit of history because I have seen perfectly rational parents get very excited over a simple baseball game which their child is involved in—this places a lot of stress on a child.

Another factor to consider when involving your youngster in sports is injury. This is one of the many causes of deformity in youngsters today. Children are forced in little league to perform tasks that they are not ready for, i.e., pitching for long innings can cause permanent damage to the arm of the child who has not yet fully developed his/her arm. Mistakes like this one are committed oftentimes for the entertainment and pride or ego boost of the parents.

2.1.5 Adolescence: Twelve to Eighteen

This is the age of rapid change. Your youngster is now experiencing a remarkable increase in strength and body shape. It is time for primary and secondary sexual characteristics to form. In boys a deeper voice is developed, facial and pubic hair as well, etc. With girls pubic axillary hair, enlarged breasts, broader hips, etc., develop. Along with outward physical signs there is also the onset of menstrual flow at about the age of thirteen to fifteen (younger in the less healthy, older or not at all in very athletic, healthy girls) and in the male the production of sperm occurs at this time.

Adolescence is a time for self examination and concern for worldly affairs. Great concern is placed on the adolescent's role in society. How s/he fits into peer relations is now more in the foreground than ever. It is not uncommon for your youngster to perform crazy and sometimes dangerous stunts to gain overall approval from peers or to impress a member of the opposite sex. At this point all that energy should be channelled into more constructive endeavors, namely physical fitness programs and other health-promoting activities. Example: swimming, skating, tennis, etc. Experiencing physical fitness brings excitement and joy to the youngster as well as respect for the body and health. With the adolescent who strives for fitness, engaging in the health-deteriorating practices of tobacco, liquor, drugs, etc., that are so common among our youth of today, are of less appeal than to someone who is less health oriented.

Again, this time proves to be difficult for the parent. The youngster continues to disregard his/her parents well-intended advice. Like in the earlier stages of the child's development, this is an expression of independence from parental influence and is quite normal. As a parent, your only solution is to offer guidance when requested.

If your child is involved in sports, the instructor will assume the role of surrogate parent in regard to career choices, advice, etc., and you should work closely with him/her to insure your child's total well-being. In adolescence the parent once again will notice the youngster's weight change rapidly. Infancy and adolescence are the only times in life that one produces fat cells and once these cells are produced they remain forever. Dieting shrinks the cells but, doesn't eliminate them. An overweight teenager is a sad sight as this will continue throughout life without the individual constantly monitoring his/her weight. Current statistics indicate that the average American is more overweight than ever in the past when people did more physical jobs for a living. The reason for this national weight problem, of course, is lack of exercise and the overeating of high-fat, high-protein, highly-processed foods.

It is recommended that as your youngster gets older s/he be introduced to fasting. Fasting is a natural and time-honored means of providing the mind and body with rest and recuperation. As the body rests while not having to digest, absorb or metabolize food, it is freed to go about its business of self-cleansing. The blood, the kidneys and the entire intestinal system rids itself of accumulated waste. The brain and nervous system refresh and retune themselves also. Hints on fasting: you should start with a very short and slow fast, say twelve to eighteen hours and gradually build to forty-eight hours. That is the safest and sanest approach to take when dealing with a teenager. Fasting means absence of food or drink, except pure water which should be consumed as needed. Avoid prolonged physical exertion (brief exercise is okay). Avoid long exposure to the sun or heat. Rest. The fast should be broken slowly, starting with fresh-squeezed fruit juices followed by solid foods a few hours later. The meal should be complimentary to the fast, i.e., long fasts should be followed by a small meal and vice versa.

One final note: In adolescence your child might be more prone to find solutions to problems in his/her own way. If you will recall, you probably did the same thing. I know I did. Some problems are less urgent than others but to your teenager all are urgent. And today's make-a-buck philosophy makes the teenager a prime target for all the fads that are currently swamping the market. Parents, everything that your child will ever be starts with you!

2.2 Other Factors Exercise and Females

Women in the U.S. have been handicapped by the old misconception that women are not supposed to do physical activity. This misinformation has served the U.S. males well in keeping their women in the background. I have lived in other societies where the women were allowed to take more control of their lives and they had fewer problems when they arrived at child-bearing age. The American female generally arrives at child-bearing age not being physically or mentally fit which explains the high incidence of congenital deformity that occurs daily in the hospitals throughout the United States. Most American women have difficult pregnancies and childbirth largely due to a lack of physical conditioning.

It has been standard practice to allocate less dollars for female physical education and athletic scholarships than for males (if any at all). It is finally dawning on the North American society that both girls and boys have the same physiological needs and the only difference is that girls have been excluded from any type of physical training programs.

2.2.1 Sleep

Sleep is an individualized process and can only be determined by the way the child functions throughout the day. If during the day the child appears irritable or sleepy, that child should nap. In studies done in the U.S., it was found that children who are active need less sleep than say a child who is passive and lacking in mental stimulation. So sleep then is determined primarily by the degree of, activity, diet and mental condition of the child. Most youngsters dislike bedtime as they're afraid they might miss something. It is often a battle of wills to get them to bed. The best thing to do is to establish a nightly routine of showers, dental hygiene and bedtime stories. This works quite well with my sons. Of course, a different routine is necessary with older children. You need to work out a program of sleep patterns that works for you and your family.

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3. Conclusion

It is important to encourage your child to indulge an opportunity to be physically active. Help your child become involved in a sport of his/her choice. Develop interest in sports as a family. Do specific exercises with your child to help him/her supplement normal physical activity. Run or jog at least three times a week as a family.

Discourage the use of junk foods. Try not to keep foods you don't wish your child to consume in your house (rather than prohibit it). Read all labels carefully and educate your children to do likewise (not necessary if eating only raw fruits and vegetables—no labels). Follow a Hygienic regime of proper diet and lifestyle—consumption of fresh, raw fruits, vegetables, nuts and seeds; take plenty of fresh air and sunshine; and exercise.

Here's to a future of continued good health to you and your family.

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4. Questions & Answers

How does a family of four with both parents at work all day manage to follow an exercise program?

Ask yourself this question: am I going to allow my family's health to deteriorate which will be more costly in the long run or am I going to grab every opportunity I can get to engage in physical activity? It should be quite clear what the answer to this question is. Here are a few suggestions: Instead of watching TV in the evening, spend an hour or so going for a walk in a park or forest nearby your home. Take time on the weekend to go bicycling with your family. Enroll at a fitness center. These are just a few things you can do-to safeguard the health of your entire family. I'm sure you could think of others. Just eliminate a passive activity from your daily routine and replace it with an active one. Your family will love you for it and you'll all feel great!

My son shows no interest whatsoever in physical activity. He just wants to watch TV all the time. What can I do?

As far as the TV is concerned make rules as to how much television he can watch each day. When the amount of television has been watched, he is to do something else. Your child's lack of interest could be for many reasons. Find the reason. He might be the type of person who needs to be inspired or motivated. Or perhaps he had an injury which you are unaware of and has pain. The type of diet your child consumes also plays a key role. On tests done with athletes, those who were placed on a diet of natural and wholesome foods performed better and had more of a desire to do so than those on the conventional diet of processed, adulterated foods.

My son seems to sleep less now that he is enrolled in a karate class. Is this okay?

You have absolutely nothing to be concerned with, it is perfectly normal. You see the more physical activity the body gets, the less sleep it requires. This is great for your child. He will now have more time to indulge in the activities of his choice.

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Article #1: Exercise for Baby by Dr. Herbert M. Shelton

It is unfortunate that we have so long depended upon physicians with their drugs, their condoning and encouraging of bad habits, their fear of exercise and their anti-natural approach to all the problems of life and have not given more heed to the physical educator with his more natural approach to life. We are paying a terrible toll in suffering and premature death for our faith in the destructive agencies of physicians and our rejection of the constructive things of nature.

The physicians have established, for our guidance, a whole series of false (and low) standards based on averages of abnormals and, then, they have resisted everything that will assure true (and higher) standards.

To the everlasting credit of Sylvester Graham, Drs. R. T. Trall, Geo. Taylor, Chas. E. Page, and others who were the real pioneers in the *Hygienic* movement, they made a study of physical education and employed its principles in their care of both the well and the sick.

Beginning at birth with a program of physical education for the baby, Dr. Page insisted that babies should be placed face-down upon their beds and not upon their backs, as was, and is, the rule. He insisted that they developed better and faster in this position. When an infant moves its arms and legs in this position it does so against resistance. Merely kicking the air with its legs and waving its arms while lying on the back offers no resistance. I have watched an infant push its way across the bed lying face down, at only one week of age. Here is real exercise; exercise that calls for vigorous use of the muscles, especially those of the legs and thighs. The infant will raise its head, shoulder, hips and thighs backward, thus giving vigorous exercise to its spinal muscles. The beauty of the cords of muscles on each side of its spinal column is matched only by those of the strongman.

Suppose from birth, kittens, puppies, calves, colts and chickens were placed on their backs and never permitted to use their legs for anything more vigorous than merely waving or kicking them; would these animals ever walk? If young monkeys and apes were placed on their backs and not called upon to use their legs and arms, if they were not also forced to swing by their arms, what slow development we would logically expect! Why must we continue to hamper the development of our own young by placing them on their backs and keeping them there?

Dr. Tilden, after years of employing this plan, wrote in his *Care of Children* (1916): "Place the baby on its belly (Dr. C. E. Page's method), and allow it to stay on the belly rather than on the back. The Page method works out well. Children walk and run much earlier.

The fetal spine is a flexed spine. To bring it into a position of extension and hold it there requires the development of the spinal muscles. The wiggling and squirming of the infant, while lying face-down, develops the spinal muscles as they cannot be developed if it is placed on its back.

When the baby with well-developed spinal muscles comes to sit up, and it will do so at a much earlier date, it will sit erect, because its muscles will be strong enough to hold it erect.

I have emphasized the development of the spinal, arm and leg muscles that takes place in the prone position. It is necessary that I mention that the side muscles and the muscles of the abdomen are also called into vigorous action by the movements of this position. The strength of these muscles also helps to hold the baby erect when it sits up.

Does this mean that the child should never be placed on its back; or, on its side? By no means. It needs the vigorous, spasmodic kicking of its legs and flinging of its arms to develop these. All of its muscles need and must have exercise in various ways.

Crawling, or creeping, calls for a certain amount of strength in the muscles of the arms, chest and shoulders. This strength is developed faster if the baby is placed on its face and allowed to use its arms against resistance. The baby will learn early to lift the upper part of its trunk with its arms. Also, it will early learn to draw its legs and thighs up and assume the knee-chest position. All of this strength and use of the muscles must be acquired before it can begin to crawl.

There is more involved in the exercise of the baby's body than that of muscular development. There is also mental development. The baby learns to do things. It becomes conscious of its muscles and of its powers. Muscular consciousness is gained faster if the muscles are employed against resistance than if the limbs are merely flung wildly about. Neuromuscular coordination also is gained more rapidly if resistance is offered to the movements of the parts of the body than when no resistance is offered.

The period in which the infant crawls is one during which the trunk muscles and those of the arms and legs and thighs are strengthened. Especially the muscles of the abdominal wall, lower back and shoulder girdle are strengthened by the act of crawling.

Play pens, now popular with ignorant and lazy mothers, are an evil influence in the lives of babies. Babies confined within the narrow railings of these abdominal prisons have no incentive to crawl far, thus they miss this much needed exercise.

Dr. Page contrasts our methods of caring for babies with those employed in nature in caring for puppies, kittens and the young of other animals. We hold the babies, carry them, put them in baby carriages, coddle them and make of them little tyrants that are constantly demanding attention.

"The young of some species," says Page, "are, upon occasion carried by their parents from one point to another; but beyond this they furnish their own transportation. Their parents roll and tumble them about, more or less, for mutual pleasure; but in the main they are from the beginning forced to rely upon themselves. Everywhere among animals we observe the same thing: the young are never overtended. They have no baby carts in which to spend a great part of their time, to their physical disadvantage; like our pampered baby aristocrats. They are not taught to sit down with a box of playthings in front of them to prevent them from being tempted to make their way to distant objects. If they chance to see anything they want, it never comes to them. It is Mohamet and the mountain every time; the creature and the thing never come together, except through the exertion of the creature! Hence they grow lusty and strong and healthy. They earn their diet, and therefore it is digested and assimilated. Their frames are covered with well-knit muscles—not a continuous fatty tumor, with scarcely any sound muscles beneath. In short, they are from the very outset, kept in 'condition'."

This emphasis upon exercise for infants needs to be re-stressed. They need to be rolled and tumbled about as do the other little animals, and they and their parents derive as much sheer joy from this as do the lower creatures.

In *The Hygienic Care of Children* I have emphasized the evils of toys. Babies do not need and should not have these playthings. They need opportunity for activity—for exertion.

The normal baby is able, at birth to grasp a pencil or other appropriate object in one hand and hang from this, holding up the weight of its body with but one hand. In "authoritative" works on babies we are told that they soon lose this ability. This is true, however, only if they are not permitted to use their hands in this manner.

Physical educators are agreed that hanging by the arms affords the best type of activity for the development of the chest, shoulder girdle and arms of the child. I can see no reason why this activity needs to be delayed until the child is three or four years old. It may be started at once—at birth. A good strong grip developed early in this way, will save the child many falls and injuries a little later. The infant of two months will delight in holding on to your fingers and by the use of both arms and legs, doing deep knee bends and squats.

We have an unfounded fear of permitting a baby to stand on its legs before these are "strong enough to support its body." There is no better way of strengthening the legs than that of permitting the baby to use the legs against resistance in this way.

By the third month, the normal baby, will hold on to your fingers, stand up and raise up on its toes. Babies are not ' the frail little animals we seem to think and they are as fond of activity as puppies and kittens.

It is perfectly true that babies are more helpless at birth than most young animals and this period of helplessness lasts longer than it does in animals, but the principles of proper care for both groups are the same. Babies need exercise and they need to be permitted to do things for themselves. How are they to learn to do things for themselves if these are always done for them? I know a nineteen-year-old girl who does not know how to tie her own shoes, because, and only because, her mother or others have always done this for her.

Lesson 95 - Exercise In Sickness And Recuperation

- 1. Introduction
- 2. Activity Is Required
- 3. Positive Versus Negative Thinking
- 4. Physical Exercises Suitable For The Bedfast
- 5. The Role Of Feelings
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1. Introduction

While only too often neglected and even rejected in the past by many orthodox practitioners as being correct procedures to be employed in the treatment of the sick or as valuable tools capable of hastening restoration of health during periods of recuperation, the many possible forms of exercise are now receiving increasing popular and professional acceptance.

Where once patients recovering from surgery were often kept confined to their beds and permitted only limited movement, they are now often encouraged to leave their beds and to walk up and down the hallways or about their rooms. Physical therapists are frequently called into service when the physician in charge deems it advisable as in cases where paralysis constrains movement.

We understand that both the arthritis and muscular dystrophy foundations now pay for hydroexercises for persons suffering from these ailments. Groups of patients, under the guidance of a therapist, perform certain movements while immersed in a swimming pool. They report feeling much improved following these planned exercise sessions. Hydrotherapy was much employed during the last century by hydrotherapists, most of whom were devoted practitioners of Natural Hygiene. Modern orthodoxy was reluctant to adopt it but is now utilizing hydrotherapy to a limited extent.

However, even now for the most part, invalids and the elderly, especially those confined in nursing homes, languish in their beds. Individuals and practitioners alike have not as yet learned to appreciate fully the value of exercise and activity in sickness and in the restoration of health to those persons who are no longer, suffering deeply from some ailment but who, as yet, have not made a full recovery.

Hygienists have long recognized that exercise is essential both in sickness and in recuperation. In fact, George S. Weger, M.D., believed that positive exercise was contraindicated only in profound states of enervation or in cases of inflammatory fever, or cardiac depression." Dr. Weger had his fasting patients do tensing movements for periods of from ten to thirty minutes, depending upon the vitality and muscular vigor of the person.

Hygienists contend that rest and exercise are twin requirements of a healthy life, one being dependent upon the other and of equal importance. In sickness they are often far more important than food. This latter concept is the exact opposite of the prevailing notion that weakness requires feeding and that both the quality and the quantity of food should be increased. As a result, patients are fed much and often while activity is neglected.

Strangely, orthodoxy does not seem to learn from the fact that, more often than not, those patients that are fed the most, if they progress at all, recover more slowly than those who either are fed abstemiously or fast altogether, assuming, of course, similar circumstances and conditions.

Orthodoxy fails to realize that just because a certain quantity of food is eaten does not *necessarily* mean that the same amount has been assimilated and utilized by the body for reparative and healing functional activites. While the sick can perhaps digest a certain amount of food and absorb it into the system and then even transport it through its many channels, there is no guarantee that it will be assimilated by the cells and put to constructive use.

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2. Activity Is Required

For food to be beneficial to the sick, the conditions which encourage assimilative powers must prevail; that is, there must be activity commensurate to the nutritive intake. Otherwise, the food will promote further toxemia, and thus the intensity of the illness. It does so by encouraging further enervation and thus weakening cellular functioning capabilites. All wasting of vital force in this manner is anti-vital.

Exercise, carefully planned and judiciously employed, serves to direct the nutrients to those areas where they may be needed most. When a demand for nourishment is issued by a certain part, area, muscle or group of muscles, the appropriate response will be forthcoming and the need will be filled. Healing and repair will be facilitated.

However, when no demand is put out, the cells do not receive the nutrients required for the more extended efforts of healing and repair, or even for simple upkeep, and can make but feeble efforts toward this end. Thus, the period of recovery can be not only prolonged but also less thorough, leaving the patient vulnerable to relapses should he be subjected to unusual stress demands.

Dr. Herbert M. Shelton has stated that "many invalids fail to recover their health, even though all other factors are favorable, simply because they could not be induced to take 'sufficient or appropriate exercise.' "

Shelton goes on to say that while numerous other methods are utilized to increase nutritive acceptance by various parts, none of them are as effective and devoid of harmful consequences as muscular activity. "None of them are so prompt, none so localized, none so economical of vitality."

He further contends that "artificial agents and measures employed for this purpose occasion other actions and induce irrelevant changes and needless vital expenditure. These methods involve a harmful and uncompensated expenditure of the patient's power."

Exercise, to the contrary, represents a compensated expenditure of vitality in that the important tools required for healing and repair are delivered right to the premises where they are most urgently needed and this takes place in exchange for a minimal loss.

Without such proper and regular delivery of supplies, cellular function will remain half-hearted and even faulty with the whole process of recuperation prolonged and, as previously noted, perhaps not as solidly constituted.

Where artificial stimulation, rather than exercise, is employed, it does not take much imagination to decide whether or not the effect on the body will be enervating or conducive to healing. Whipping organs and parts by using medications, for example, has the effect of expecting plants to grow without providing the proper soil.

But, when the individual is sick and his functional abilities reduced and these are stimulated by means that do NOT result in enervation, then better function can be expected. As function improves in certain weakened areas, the effects are felt throughout the entire body, including the mind, and these effects are good effects.

Exercise and activity are stimulative in kind but they are proper stimulants. The Law of Dual Effect, in a positive way, is in effect. The exercise requires energy, true, but it stimulates the kind of activity that is conducive to the restoration of health. The use of medicines and other types of enervating modalities does not bring any compensatory values to the individual but, to the contrary, either introduces or causes to be formed certain toxins which add further encumbrance to an already enervated body.

2.1 Exercise and the Arteries

The arterial vessels, large, small and microscopically tiny, are extremely numerous and capable. As is well-known they carry necessary supplies to and from the cells, wherever located, and then collect and eliminate the discarded metabolic wastes via nearby, strategically located, venous channels.

Not so well-known is that there are two areas within the human body where these vessels are especially numerous and capable, namely in the brain and in and around the organs where there is much vital action, those parts where important vital action is constantly taking place; where changes important to recovery occur. For example, in the liver.

In sickness many of these vessels are either constricted by calcareous deposits or by malformations of one sort or another, such as twisting or bulging in spots. Important to this discussion is the fact that these same arteries are capable both of being enlarged, if too small, and diminished in size, if overly large.

If an arm in which the muscles have become wasted through disease is habitually and vigorously exercised, the arteries slowly begin to expand and the muscles soon become more fully developed. This is a natural happening. Exercise creates the demand for nourishment. The clear signal of need is relayed to the cerebral centers which correctly interpret the signal received, decide on an appropriate response and give forth with certain directives which are relayed to various organs and systems concerned with supply. The necessary nutritive response takes place with lightning speed.

Sick and hurting cells receive glucose for fuel, to maintain body heat; necessary fatty acids and amino acids for rebuilding and repairing purposes; vitamins, auxones, enzymes, hormones, minerals—all the supplies required both to maintain organic function and to improve it and, above all perhaps, to revitalize the nerve force, so necessary for full recovery. All are received on demand.

The twin companions of the arteries are the veins which are even more numerous and entwined than the arterial divisions. By incorrect habits of living and eating, the veins become clogged and deformed. In such a state, the venous web cannot adequately remove toxic wastes and thus the toxemia continues to mount and the deterioration of the body to accelerate. Exercise can intervene and hasten the elimination of the health-destroying toxins. As the blood becomes less sticky and viscous, as the veins themselves become enlarged and less malformed, the channels open and transportation of wastes begins to improve, as does general wellness.

2.2 Muscular Activity Creates an Appropriate Response

The human body is constructed and designed in such a way that muscular activity in any particular part will immediately call forth a response by the autonomic nervous system directing energy and supplies appropriately enough to those organs, tissues and cells being moved, there to be used for constructive functional purposes. Blood and nerve power are directed to those areas where a demand exists.

In other words, if the invalid is encouraged to move the fingers of his right hand, the cells comprising the muscles and other parts in that area will receive an appropriate response: they will be fed and toxins will be gathered up and removed. All such appropriately fed and cleansed parts will increase both in substance and in wellness.

Illustrative of this phenomenal organic wisdom is the fact that scientists have long recognized that the physical capabilities of a mature individual may be very much dwarfed if his vigorous play life as a child was limited and almost in an exact proportion, all other things being more or less equal. Sick and weakened adults must deliberately choose to exercise if they would enjoy its health-promoting benefits.

Their previous usually sedentary lifestyles have undoubtedly contributed greatly to their present state of diminished health and vigor.

2.3 Specific Benefits of Exercise

As humans age and vitality is lessened and when they are ill, exercise is very much needed, even though this idea may be contrary to popular thinking. Exercise is essential to keep the heart and lungs in good condition, to keep the blood and other fluids replenished and their movements active. Exercise is needed to improve the digestion and to encourage elimination of the toxins which have brought the patient to his present unfortunate state, to create the demand for nutrients to be directed to specific areas where the most need may exist.

2.4 Need for Balance

The chances for recovery are enhanced when a careful balance is maintained between feeding of a diet well adapted to the patient's present impaired state, if feeding be indicated at all; rest in an amount and a kind, including physiological rest, as to increase energy flow for healing and reparative purposes; and, finally, exercise and activity geared to the present capacity of the patient to accept and as specific needs may require as, for example, a stiffened knee or elbow, or other damaged or weakened part.

When given a well-chosen, easily-digested diet with the foods properly combined in simple combinations or served in mono fare, if permitted to rest when the body signals its need for sleep, and when certain parts of the body totality are exercised regularly and in accordance with capacity to accept, then the patient can expect full recovery so long as sufficient vitality yet remains to initiate the recovery process and then to sustain it for a long enough time to accomplish the objective.

If insufficient vital power remains and the patient is greatly debilitated, his vital force nearing exhaustion, recovery may be initiated but perhaps not be sustained sufficiently long to achieve the desired results. In that event, of course, exercise would be contraindicated, since it would serve only to deplete the systemic resources even further and thus it would be more in keeping with organic reality to postpone forcing the activity until such time as the improved vitality gives a different and more positive signal. In such a case physiological rest might well be a more immediate need.

2.5 As the Strength Improves

As clients become stronger, the exercises should become more vigorous and more complex—involving more muscles over a wider area and to a greater depth—and the activity extended for a more prolonged period.

Various types of exercise should be incorporated gradually into the daily program and should be utilized in the mornings and evenings as well.

2.6 Slow is Best

However, exercise should not push development too far or at too rapid a rate. The goal should be not to harden the muscles and create extraordinary mass but rather to keep them well shaped, supple and flexible. All excess, even in bulk, is anti-health. Moderate, intelligently-used exercise will provide the greatest efficiency to accomplish the desired health benefits while excessive exercise can only serve to waste the vital force for no good purpose.

In sickness moderation is extremely important, especially when the patient is greatly debilitated. We shall presently see how exercise may be utilized in a gradually more complex series of movements with greatly debilitated patients as the energy flow increases and capacity improves.

But we should bear in mind the admonition of J. H. Tilden, M.D. that the muscular system and the liver are allies, that exercise, even though it be limited, will use up energy (sugar) and this the liver furnishes. Tilden points out, and validly so, that if the muscular system, even in sickness, is *not intelligently worked*, the liver will become engorged with glucose, or the glucose will be fed into the circulation for excretion by the kidneys, a definite waste of nutritive material as well as vital force, a loss the patient can ill afford without receiving compensatory value in nutritive "gold."

We are all reminded by the admonitions of the Doctors Robert Walker, Sylvester Graham, Russell Thacker Trall, Shelton and others that in caring for the ill and incapacitated, we must always bear in mind the needs and *capacities* of the patient. Just as with food, exercise should be geared to these three considerations: 1. Constitution, 2. Present condition, and 3. Ability to perform or work. To do otherwise would be contrary to the best interests of the patient and would, in all likelihood, retard his progress, and perhaps even bring it to a halt.

We should remember, too, that nerve depletion precedes the illness, it does not follow it. Therefore, the primary requisite for recovery is rest. Only when the body is well rested should activity be introduced. Otherwise, exhaustion will follow and make full recovery unlikely. When a person attempts to do anything too fast, he inevitably experiences a negative nervous system impact. Therefore, in working with persons suffering from any degree of diminished health, and especially with highly-debilitated patients, we must avoid all temptation to push too much activity upon them or to make the exercises too complex or to extend the exercise periods overly long. In such cases, slow is *always* best!

Graham states our thesis this way, "A certain amount of exercise or labor is ... as essential to the highest welfare of man, as food or air. By a rigidly abstemious diet he may live on, with an exemption from actual disease, and perhaps attain to what we call old age, with very little active exercise. But in such a life he can never know that vigor of body and mind, that perfectness of health, that vivacity and buoyancy of spirit, that habitual serenity and cheerfulness and high enjoyment of which his nature is capable. But we have seen that every vital action is attended with an expenditure of vital power and waste of organized substance, and that every vital function necessarily draws something from the ultimate and unreplenishable fund of life. Hence, so far as voluntary exercise or labor is necessary to the most healthy condition and perfect functions of the human system, it is a blessing; and beyond that, it is in some measure an evil; for in proportion to the excess, life is always shortened, and the body predisposed to disease."

2.7 Exercise, a Natural Tonic

Modern therapeutics employ tonics of one kind or another to stimulate the body. They fail to realize that all such stimulation is accomplished by raiding the vital resources of the body and especially its vital force. The ultimate result of such foolishness is, of course, the inevitable wasting of the body even though a *temporary* feeling of well-being may be experienced. This is only the top of a sine curve. The deep valley will be sure to follow!

Exercise, on the other hand, is a natural tonic, one unfortunately that is generally overlooked. The same salubrious effects can be achieved and more healthfully so, by the employment of proper exercise and pure air. In keeping with organic reality, there just is no other way conducive to a resurgence of health. All other agencies and means employed in an attempt to restore health, while they may temporarily relieve the symptoms, will, in the long run, actually aggravate the condition and shorten the lifespan.

3. Positive Versus Negative Thinking

Thus far we have been addressing the issue of physical activity, the moving of muscles. However, there is another form of activity which is perhaps equally important, if not more so. We refer to mental activity. This can be both health-enhancing and health-destroying.

The sick are often depressed. They have a negative attitude toward life and living. They tend to find fault overly much with almost every aspect of their life. This negative imprinting has a profound effect on wellness. As J. H. Tilden, Weger and others have said, discontent and general lack of poise can be instrumental in poisoning the entire system. Understandably so, a lack of poise is a direct result of years of piling up poisons through erroneous living. A vicious cycle is initiated which gnaws away at wellness, since all such negativity spawns even more poison.

Sometimes the measures employed by the client to relieve his own inner anxieties wear on the people around him. In turn, they react negatively which further impinges on his emotional well-being. In such an event the client turns his mind inward and concentrates his efforts in such a manner that he begins to conjure up and magnify all kinds of symptom complexes.

We worked with one client a few years ago who was a master at turning inward and discovering all manner of supposed negative happenings, all a result, of course, of her improved lifestyle and diet. In fact, this habit became so intense with her that she began to keep hourly and daily records of passing variations in her condition even down to such minute happenings as a tingling in a certain finger tip or a passing itchiness behind an ear, the correct ear and area being again precisely identified. In the beginning she filled page after page of notebook paper with this kind of detailed information. Rejected outwardly by her peers, she had turned inward to make Self important.

However, this kind of attitude can kill. In this case we had to direct the woman's attention to more positive things in order to promote more positive responses. It is important always to raise the clients' own self-esteem first, by making positive things happen insofar as their general feeling of health is concerned and second, by imparting to them the concept that they are *in charge*, that they can bring about whatever degree of health they wish to achieve and that it all can be accomplished by learning the requisites of organic existence, how to impart them to the body and how to live in accordance with them, and then actually doing it! This is mental activity at its best.

Elsworth F. DuTeau, in an article in *New Age*, entitled "Positive Thinking," shows how important the acceptance of personal responsibility can be when he states, "There are those who during their income years have a good life. Then, after those years ended, they find a gradual erosion of their savings and security through inflation and misfortune, even having to sell their home to obtain capital to sustain them and provide the necessities of life. For them, self-pity and bitter, passive, resignation only deepens their gloom. It is then that they need positive thinking and action more than ever. They must know what to salvage, where to go, what to do to reconstruct their lives. They can't just stop *doing*. They, through positive thinking and action, must *persevere*. They should remember that there is no failure except in no longer trying, no defeat except from within."

If we, as practitioners working with the sick and ailing, can impart this concept of positive thinking PLUS action—the doing—the working effort to build health—performing by Self—to our clients, the results will be salubrious beyond our fondest expectations.

Small successes are very important in this connection. Every small improvement intelligently conveyed to the clients will become incorporated into their thinking and help to initiate a more positive attitude. A series of such small successes will, by directing the thought processes from their former depressed and defeated pathways into more constructive channels, actually give birth to a resurgence of vital force which can then be directed computer-like by the individual's own cerebral centers to those areas where need is urgent.

Supplied with the necessary nerve energy and as nutritive transport is powered and nutrients arrive, the cells respond with revitalized effort, healing and repair proceed at an accelerated rate, the state of health rapidly surges.

Without the proper mental attitude, unless the mind is re-directed into positive channels, unless it actively foresees the future well-being, unless the positive vision of euphoric joy and happiness are written on the subconscious, the ill will proceed thus far—perhaps even enjoy some measure of improved health—but they will never enter into that rare condition of perfect health as described by Graham and previously quoted in our discussion.

The mind can be active both in a negative way which produces negative results, and especially where one's health is concerned; or, it can be active in a positive way, not only anticipating but actually producing favorable results.

Thus, it becomes the happy duty of the practitioner to plan a program to bring about this necessary change—a more positive thinking on the part of the sick and to encourage a like mental metamorphosis among those persons who may have made thus far only a limited recovery, for one reason or another, and now need not only instructions as to what and how to do and behave, but also that essence of superior health, *Inspiration*, an inner rebirth of accomplishment already achieved or easily capable of achievement. Such is a primary principle of vital improvement, the importance of which cannot be overlooked.

Unfortunately in the care of the sick orthodoxy attempts vainly to disassociate the rest of the body from the mind. This cannot be done because they are by the very nature of design, one, a single entity, symbionts which can favorably or adversely affect each other.

Both the body and the brain are subject to precisely the same laws of organic existence. Obedience to these universal laws governs the vital powers of the body and the manifestations of that vital force, whether they be perfect or something less than perfect.

This is a principle which cannot be denied and one that should be primary in Hygienic thinking. Orthodoxy is wrong when it does not actively encourage positive thinking on the part of the sick. Enter into any hospital ward and view what is transpiring there. Bells ring, sounds of all kinds intrude and confuse. Nowhere is there any careful addressing of this primary need of the human soul. And yet, a constructive attitude, an active acceptance by the mind of the POSSIBLE, the fact that full health can be attained by adherence to organic law, this is of primary importance in recovery, probably as much so as the will to live.

We listened to a woman today who revealed how, for three months prior to her annual physical, she became engulfed by terror, so much so that she became unable to deal with her customary obligations and duties. Instead of anticipating a healthful life for ALL of life, she "knew" that sooner or later at this yearly ritual, she would hear that she had "caught" some horrendous disease! This engulfing fear made her nauseous, irritable, headachy and, as she put it, she became "completely unglued." Fear not only gripped and strangled her mind, but it also grasped in its tentacles her physical body and soul.

When the mind has been rendered enervated and distraught by an incorrect manner of living, the physical body will be equally and just as deeply etched. If the thoughts be wrong, the entire organic domain will suffer and to the same extent regardless of how well we may do in other areas. Instead of neglecting this "soul power," as is common among orthodox practitioners, we Hygienists should become better informed. We need to study, and understand more and more about human behavior and learn how to encourage greater depth and breadth of understanding of principles on the part of those who seek our aid as to the amazing possibilities that await, the fact that a lifetime of great joy, happiness, achievement, personal satisfaction and perfection of health are there to be had. But, *they must be earned*! The mind plainly controls exercise and health, but equally activity and health influence the mind. All are symbiotically intertwined.

3.1 Words Alone May Not be Sufficient

Admonishing any person, and especially one who is ill, to think more positively may not accomplish a changeover from negativity to a more hopeful, forward-looking life-script. Most sick people have a tendency to look inwardly, not outwardly; to today, this moment, rather than to the future except in negative ways. Many ill persons are filled with a doomsday attitude and develop the "Poor Little Me!" syndrome.

It is time for such people to shift into health. They must be taught that they are *not* helpless and hopeless, that health can be destroyed, to be sure. They have already proved that. But it can also be built! But to accomplish this, they must accept the reality of organic living, namely that all their troubles, whatever they may be and however intensive and extensive, have their origin in toxemia which itself came about through enervation and that enervation was the inevitable result of disobeying organic law, either through ignorance or deliberately.

Due to their enervated state, sick people are often child personalities and must be led. Since most are also novices at Natural Hygiene and do not think as we do, nor have our knowledge, their minds must be fed. They must be taught that all behavior has pay-offs. Bad behavior in the life script means illness and suffering. Good behavior, as evidenced by adherence to the immutable laws of our organic existence, carries its own immense rewards: the keys of life that open the doors to all of life!

Sick people often need to grasp a new concept, too; that the attainment of a higher level of health represents a long-term pay-off and cannot be compared to the short-term "relief" that so soon fades away. This latter is a transitory thing which only compounds error while the planned, long-term building contract that we make with ourselves is an on-going growing step-by-step series of small successes which, in the end, add up to full attainment of our goal.

We can impart to the sick and ailing that they have an opportunity now, at this moment, to make a choice: to continue their present downward path that all their medicines and treatments had failed to stop, or to reshape their lives. They can be made to realize that, sick as they may well be, they still have certain strengths and that these can become stronger, that positive choices expand the mind and facilitate construction (the healing and repair); that they can "get around" this sickness that binds them in their chains by activating their minds and thus enter into a new and much more enjoyable dimension of living, one in which they will begin once again to feel together and solid.

As this feeling grows in depth they will experience a growing sense of inner peace. Once they come to realize that all of life awaits, that the world can benefit by their presence and by what they have to contribute—at that moment, they will be well!

The knowledgeable Hygienist realizes that successful recovery can often depend on the establishment in the mind by the client of the importance of certain long-range health goals; that temporary inconveniences and/or hurts must often be abandoned or laid aside to accommodate more worthwhile long range objectives. Often such a motivated person will say, "I can bear it!" When the sick persons can do this and refrain from settling for "relief" in favor of real health, they make their strengths stronger and lessen the importance of their present symptoms. These then no longer cloud their mind to the actual healing that is taking place.

Persons who are able to make this transition learn to speak to parts of them that are in need and with a positive voice. They develop a higher perception and appreciation of their own body's capabilities. They know that they possess a power to focus in on themselves in such a manner that healing begins to accelerate.

Learning that we can get around our bodies with our mind can be a powerful vital force. It can help us to break down long-standing habit walls and make a place both in our minds and in our physical bodies for new and healthier patterns of living that will make our future journey into health shorter, easier, and, above all, rewarding beyond our fondest expectations.

3.2 Getting Out of the Self-Destructive Phase—the Mental Rollover

For recovery to be assured, clients must move their minds out of and away from the self-destructive phase of their past that may have thus far restricted their progress. For example, persons who have believed all their lives that germs and viruses are primary causes of disease actually have child minds and exaggerated egos. Egos so powerful as to believe that "they" can do nothing wrong will be reluctant to accept cerebrally the fact that their present debilitated conditions are direct results of errors, errors that they themselves perpetrated and this over a long period of time and in every aspect of living.

This is a monumental admission for some ego-centered persons to make. Those who are able to move out of this self-destructive phase will be successful in recovering wellness; those who do not, will fail.

Then there are those individuals who live in the past. Such as these must do some mental gymnastics. Their minds presently are constrained by regrets: *If only* I had done thus and so, or *If only* I had not done *that*. Or they may even say, "*As soon as* I do this, that or the other, I will be well!" But, they constantly fail to move their minds out of this nonactive mental vise which constrains all progress into a more active stance: from *going to make* the required changes and adjustments because they lack an active, forward-looking mind into motivated *performance*, the actual *doing* of what is required of them if they are to achieve their objective, that peace of body and mind which can be experienced only in total wellness.

In order to move the mind into a state of willingness to write a higher and better life script, the student of Natural Hygiene must actively decide WHAT s/he wants to do. S/he must first establish the objective. The. mind must move out of the past and begin to create *mentally* an *entirely new life*. This kind of mental gymnastics, known as the *Mental Rollover*, requires graduated changes:

1. The DECISION that the past was lacking in some respects and, specifically in this discussion, that health was less than perfect.
2. The change in ATTITUDE, moving from ego-centricism to a less-dominating role—that of a penitent, of course, but a forward-looking penitent, one who can participate in change.
3. A change in THINKING and here we refer to the development of the mind to such an extent that the client begins to open hidden recesses and exercise cerebral capabilities, these having been long neglected insofar as addressing the physiological and biological needs of the body were concerned.
4. Establishing in the mind that the client is no longer grasped by the "Poor Little Me!" syndrome because s/he is now and always was someone deserving of a far better life, can actually do it and, not only that, but can do it on his/her own, all by *him or herself*. This is the final change, UNDERSTANDING that life is not a dress rehearsal, but the here and now, a reality in the making. There is no magic about living the healthy-life; it simply requires knowledge about what to do and then the follow-through, the doing. Understanding that you ARE, that there is a hidden potential that lies deeply within all of us and also that there, within us, rests the person we can *be*, is perhaps the ultimate mental activity that can cause an actual birthing and future development of that presently sleeping, but potentially healthy, being to awaken.

The changed activated mind can create, cause and control the becoming of the soul. In understanding lies the key, the cerebral acceptance of the fact that our future is actually our present, that what we do and accomplish this day will bear fruit tomorrow. If what we do today is health-promoting, then we will, on the morrow, become healthier.

This then is what is required for patients to move into health, to move out of the Self-Destructive Phase. Before meaningful progress can be hoped for, they must first of all make this *Mental Rollover*. They must stop playing the popular game of *Victim*, they must establish firmly in their subconscious their own self-worth. They must shift their minds into high gear, begin to think through their problems, figure out realistically what they need and must do to change their present state of diminished health into a higher degree of wellness and then begin to appreciate the fact that to achieve their objective it is reasonable and truly scientific for them to start by meeting their known physiological and biological needs, and that while certainly they will be called upon to initiate continued and vigorous movement of muscles and bones, they will also find it necessary to activate their mental processes. They must develop the willingness to learn new things, entertain new ideas, and develop new concepts.

Someone has said that most people would rather do anything else than *think*. To achieve whatever goal has now been established, the novice Hygienist, the one who desires above all else to achieve a high degree of health because s/he knows that everything else s/he may enjoy and experience of goodness in this world will be of his/her own making, the one who wishes above all to leave the Self-Destructive Phase as represented by the past, into a new and more promising dimension of life, must now fully activate the mind and learn to *think* in an expanded way and a higher plane.

3.3 How to Plan for More Positive Mental Activity

There are probably as many ways to stimulate positive mental activity in clients as there are individuals. Rarely will we be able to actually intrude into the herd to obtain our clients. Those persons who do seek our help can usually be divided into three classes:

1. Those who seek our aid in desperation, having exhausted all known traditional sources;
2. Those who wish to keep their feet firmly planted within the herd but have a faint recognition of the fact that in Natural Hygiene there is something of value that they may possibly put to good use in their own lives, although they remain, at this moment, uncertain of what that may be or how it may be applied by them; and
3. Those persons who, perhaps by chance, become exposed to Hygienic principles and practices and become convinced of their soundness and resolve to learn more and perhaps even to apply it in their own lives.

The practitioner will soon learn that there will usually be but limited success in activating the minds of the first group. Members of this group may progress to a limited extent but, at the first health crisis, even though it be minor, they tend to seek "relief" for whatever ails them. They thus revert back to their former ways even though they may feel that the practitioner has their best interests at heart. Their minds have been too well-programmed in orthodoxy to make the giant leap required to become true Hygienists.

With members of our second group, the ones who are reluctant to renounce totally the ways of the masses, the practitioner can often achieve a fair degree of mental activity. There will be acceptance of concepts and principles, but limited application with the health benefits being commensurately curtailed.

The third class will become the achievers, the performers. With open active minds, they will challenge concepts, analyze them, reject some and accept the best. These they will incorporate into their personal plan for living, their plan for the future. In these persons, the Hygienic practitioner will find his/her rewards, soon learning to classify clients and be able to arrive at a fair approximation of just how much a prospective client will be able to achieve in new mental activity in the days that lie ahead. It then comes down to "how best to achieve results?"

3.4 How to Encourage a More Positive Mental Attitude

Since in this limited discussion we do not have time to develop ideas and minds," we will simply list some of the ways and means of mind activation that we have used and found applicable in many instances. They may then be weighed, evaluated, rejected or utilized in practice as they may or may hot prove useful with individual clients.

1. At each consultation it may prove stimulating to present a pre-planned orientation which deals with a topic, idea, problem, concept, etc., which, in the opinion of the practitioner best pertains to a particular client. For example, with almost all clients, it will prove highly motivating to introduce them to the concept that chronic disease represents a long and traceable biological

evolution. Another thought-provoking (activating force) idea to consider is that disease is self-caused. This gives the practitioner and the client the opportunity to explore the four categories of causes of disease: Poison Habits, Emotional Causes, Excesses in Lifestyle and Diet and Deficiencies in Lifestyle and Diet and to see how these may relate to a client.

2. Relate all topics, ideas, problems, etc., which are discussed specifically to a particular client. In this manner, the client begins to think about how s/he may have arrived at his/her present sorry state. S/he often actively begins to sort out life errors, a prerequisite for making correct decisions in the future.
3. Group discussions should be sponsored as time and opportunity permit. Here new clients can come face to face with more experienced students and in sharing with them enlarge the learning experience.
4. Tape recordings. These can be listened to either at group meetings or in the privacy of the client's home. The practitioner may either keep a lending library of these tapes for individuals use or make them available for group meetings. Clients may also be encouraged to purchase certain tapes which the practitioner considers worthy of a particular client's attention. Tapes can reinforce concepts learned elsewhere.
5. Reading. Clients should be given printed matter in the form of short discussions deemed of particular value to a client. A practitioner may operate a lending library for a fee or s/he may simply recommend certain articles and/or books to clients.
6. Seminars that clients may be encouraged to attend.
7. Conventions where the client may have an opportunity to become acquainted with the widespread interest in Natural Hygiene, with persons whom s/he may only have read about but whose opinions s/he values, and meet and talk with individuals who may be in various stages of recovery from a similar ailment.

Clients who participate in as many of the above kinds of activity as possible will find their minds expanding. Their acceptance of new ideas will also grow and, in due time, the salubrious effects of this kind of positive imprinting will be experienced throughout the entire body, in every organ and system and, importantly, in the mind as well.

A stagnant mind will soon atrophy and become little more than diseased tissue. But, a mind that remains active, constantly challenged by new ideas, thoughts and concepts will grow and expand in health. Learning about the true science of life and healing (Natural Hygiene) can fill this basic systemic need.

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4. Physical Exercises Suitable For The Bedfast

Health is impossible without exercise. This pertains to all persons but especially so to bedfast persons who, if not exercised, will grow weaker with each passing day.

All bedfast individuals should either exercise every day on their own following a well-planned sequence of movements as presented to them by a skilled practitioner or, if incapable of voluntary movement, have their muscles and bones moved by an attendant as need suggests and capacity to accept permits.

The best way for bedfast patients to begin an exercise program is to use *tension exercises*. These should be followed faithfully and methodically in a planned sequence. Proceeding in this fashion accomplishes more than just muscle participation. George M. Weger, M.D. points out in his book, *The Genesis and Control of Disease*, that exercise assists in "the development of self-control and self-discipline, which are so necessary to those who wish to acquire poise and to become master of self." As J. H. Tilden and others have pointed out, superior health is impossible without first developing poise.

Tension exercises are simple to perform. They can be performed in depth or shallowly, in a prone position or sitting up, either in or at the side of the bed. The arms, legs, abdomen and neck can be used.

Each person should exercise in this fashion at least twice each day, every day, in the morning and evening. The time devoted to tensing will depend on several factors: the willingness of the person to participate, the client's age, vitality, muscular ability and willpower. Unless the client is in an extremely weakened condition, s/he should start with from five to ten minutes devoted to tensing of muscles.

Weger reminds his readers that to obtain the maximum good, the muscular contraction should be positive and the mind should be concentrated on every movement. It should be willing participation. Otherwise the exercise will prove of little value. The time spent in this voluntary activity may be increased as progress indicates with fifteen minutes per session being advisable but with thirty minutes being the maximum.

Other Movements. Progressive movement of muscles in the following recommended sequence:

1. Flex fingers (bend at joints) of both hands simultaneously starting with a count of five and building up gradually to a count of twenty-five.
2. Clenching fists and proceeding as above starting again with five reps.
3. Making a circle with full hand in motion. Increase reps to 25.
4. Reverse circle and repeat.
5. Holding arms straight out in front of body, with hands parallel to the bed or floor, move to right and then to left keeping arms still.
6. Assuming same position, bend at wrist and move hands vertically upward then follow with a downward thrust so that tips of fingers point at the bed or floor.
7. Bend arms at elbow and bring in to side of body. Thrust forearm forward while simultaneously flinging wide the fingers. Repeat.
8. Repeat forearm thrust outwardly and to the side. 5 to 10 reps.
9. Bend arms at elbows and raise shoulder high. Now thrust vertically to the ceiling flinging wide the fingers. 5 to 10 reps.
10. Lie prone in bed. Pull shoulders up to ears several times.
11. While lying prone, flex toes forward, then backwards
    Do hot bend the entire foot, just the toes. 5 to 10 reps.
12. While lying prone, bend the entire foot forward pointing the toes. Return to position and then pull the toes back toward the legs. Repeat with 5 to 10 reps, or more.
13. Keeping knee of right leg straight, raise to vertical position. 5 to 10 reps.
14. Repeat with left leg.
15. Move right leg parallel to bed and out toward the right. Repeat using the left leg and moving it to the left. Increase distance and number of reps from 5 to 10.
16. Simple rotation exercises first with the arms while in an upright position, then with the legs in prone position. Be sure to keep elbows and knees straight. 5 to 10 reps. These can then be followed by rotating the shoulders.
17. Face exercises may be included, such as grinning, yawning, blinking, and screwing the mouth from one side to the other.
18. Neck exercises should be done two and three times a day: turn head first to right, then to left; pull head forward to chest and then as the strength and vitality improve, resistance may be given to these movements by exerting an equal and opposite pressure by holding the palms of the hands against the head. The head may also be moved first down to the right shoulder and then to the left.
19. Place a blanket or pillow under the shoulders thus allowing the head to fall back. In this position a number of movements may be carried out as, for example, raising and lowering the head;

moving the head in various ways as in rotating; tensing and relaxing of the abdominal muscles; kneading of the muscles of the abdomen using the fingers or the knuckles.

20. In a reverse position with blanket or pillow under chest and the client on bended knees, move body to full upward hump and then downward again.
21. Sway body first to right and then to left while in the same position.
22. If the client can sit on the side of the bed, s/he should attempt as many of the following movements as possible and as vitality allows: leg lifts, leg rotation, bending torso forwards and backwards and from side to side. The spine should be twisted first to right and to the left. If the room is large enough, while doing this right-left twist, the eyes should be focused on three successive points each located directly in front of the client: first, on floor, next to a point directly ahead and lastly to a point on the ceiling. In this manner the eyes will not be neglected, but will also be exercised and thus strengthened.

These same exercises will prove useful to clients who are not bedfast but can walk and move in an upright position. In either case, the client should be given a printed chart explaining the different exercises and the number of reps to be made.

It is always helpful, too, to furnish each client with his/her personal chart. On the chart s/he can note the day of the week, the number of the exercise(s) performed, and the number of repetitions of each, plus the total time exercised.

Other exercises which can be exceedingly beneficial in recovery when the client possesses good movement and sufficient vitality is obtained through *free-form dancing*. Here the client simply sways and moves to music. If the client is in a comparatively debilitated condition, the music selected should be kept subdued and it should have a rather slow beat. Sliding of the feet along the floor, raising legs by bending at the knee, turning, twisting, dipping, and many other movements are possible in slow free-form dancing. Older clients who have led sedentary lives enjoy these kinds of sessions and especially when they can join a group in the activity.

As the health, vigor and endurance increase, the beat can be speeded up with the movements therefore being made at a faster pace and even becoming more extensive and of a greater variety.

Free-form dancing imparts a good feeling to the participant. It provides emotional release which is always beneficial.

Tennis, badminton, perhaps even skiing and weight-lifting being careful at all times not to expend too much vital force without compensatory nutritive reward.

4.1 Aerobic Exercises

Rarely are aerobic exercises recommended for persons in a highly-debilitated state. They divert too much energy away from the healing and reparative efforts so essential to recovery. We observe far too many unfit persons actually doing themselves more harm than good as they jog along the roads here in Tucson, even in the hottest weather. Their efforts would be better utilized and produce greater good if restricted to the type of activity outlined in this lesson and we refer to both aspects of activity, both mental and physical.

Recovery from illness demands much energy. In illness, we should conserve our energy and permit it to be directed where it will do the most good rather than expending it in exercising overly much without receiving compensatory value in return.

In recovery simple movements will encourage the circulatory powers sufficiently to transport the required nutrient tools to those areas where the need exists. When, the recovery so indicates, walking may prove to be the most beneficial of all exercises. As the health continues to improve, sprinting for short distances can be introduced. Alternate walking and running, increasing the tempo of the walk are useful additions to the exercise regimen. Only the fit should jog and even then, the time and distance should not be such as to create undue fatigue.

Swimming for *short* periods in water with the temperature not exceeding 85° Fahrenheit, can be beneficial during recuperation. As the health, endurance and strength continue to improve, the client may choose from a wide variety of possible sport activities, such as tennis, badminton, perhaps even skiing and weight-lifting being careful at all times not to expend too much vital force without compensatory nutritive reward.

5. The Role Of Feelings

One important adjunct to recovery from illness that needs to be addressed when planning mental and physical activity for a client is that of *Feelings*. Seldom do sick people express their feelings in a positive way. They are usually revealed in negative attitudes, words and actions.

The client who slumps in his chair reveals perhaps that he is listless, tired, or simply not interested in the present activity. He also reveals that his body is highly toxic.

The facial expression may be tense, the expression worried. The spoken words may be sad words, not happy ones. The eyes are often dull, lacking the sparkle of interest in life. The whole attitude can be one of removal from the real world, of extreme depression. When the mind is depressed, the organs and systems are in a like state.

When exercise is first proposed to such clients, they often, on first venture, tend to withdraw, even to express verbally a reluctance to participate. This is where group activity can prove enormously helpful. If our depressed and discouraged clients can be stimulated to perform even a few simple exercises they soon find their former depressed feelings being replaced first by the satisfaction ' of accomplishment, however limited, and, as time goes on and they become more skillful and begin to acquire increased endurance and strength, they often become imbued with a sense of happiness, of joy, which is in and of itself highly conducive to a resurgence of health.

Replacing negative depressed feelings with a series of Positive Belief Systems causes a realignment of the thought processes which project into the consciousness creating a climate in which problems are capable of solution. Once Belief engages the consciousness, it is sometimes amazing to watch the physical responses that begin to take place. For example, skin disorders that may have troubled for years often clear up with surprising speed.

When the system is engulfed by such feelings as jealousy, worry, anxiety, anger, superior health is impossible. When the system is engulfed by the feeling of Fear, this can be the ultimate confusion which can destroy life.

Whenever a person is ill, any feelings that are held in tend to distort the whole person. They can soon undermine the health of the mentally-tormented person. We find that women and men alike, as they begin their middle years, the so-called middle-crisis years, are often actually terrified at the prospect of the future. They fear the horrible diseases - they feel are sure to come. Are they not all around them?

Are not all older people decrepit and senile, a burden on society? Do not the young desert the old ones and leave them totally alone? Is *THIS* not the only possibility the future can hold for *ME*.

We must change all that! This kind of negativity will give way when confronted by knowledge. We must convince clients that this kind of unfounded fear is a cover-up, pure and simple, a cover-up for not acting intelligently and for not actively pursuing the kind of lifestyle that is known to be more conducive to health than that pursued in the past. We must show our clients that when one harbors a vision of a future filled with diverse diseases, then the body is not only already well filled with toxins but is continuing to gather more.

Only when fear is driven out of the body can the individual be free again to activate both mind and body in such a way that forward movement toward improved mental and physical health becomes a matter of fact and not an impossible dream.

When the fluids of the body once again course through the arteries and veins in a cleansed and purified state, then disease becomes impossible. The tormenting visions leave, never to return.

Healing begins the instant that tenseness, depression, fear and other feelings depart. At that moment positive things begin to happen.

As the minds of clients are activated to *believe* that the future lies almost entirely in their own hands and that their destiny can be of their own making, they rapidly begin to show improvement.

Goodness always feeds upon itself and draws to itself even greater good. The pains of life are revealed in feelings, to be sure, but these psychic pains can be used to motivate. Activity, mental and physical both, can help a client to let go, to fight for the health rewards that are sure to come when the lifestyle habits become normalized; that is, in tune with organic laws.

Certainly, if the future is to be at all normal—lived in health—then clients must begin now to incorporate into their lifestyle all of the known requisites of human existence, including a full quota of correct physical and mental activity. Often just knowing that they can do it can motivate a client to make the necessary changes.

Bernard Jensen in his book, *You Can Master Disease*, says it quite well: "More important than the cleansing of the bowel, more important than correcting a mechanical maladjustment in the body, is teaching the patient how to remove fear, how to control his emotions, and how to get ease of mind."

And, to quote Shelton, "Joy and happiness are essential to health. There are few Hygienic influences that are equally as conducive to health and long life as a cheerful, equitable state of mind." (From *Living Life to Live It Longer.*)

Free-form dancing or performing tensing exercises to a happy lively tune cannot help but cheer and activate the mind, sending it spiraling in a new and healthier direction. Encouraging such activity, which combines both the physical and the mental, can greatly assist the sick, the mentally weary, the depressed to enter a totally new dimension of life, one rooted in feelings of joy and happiness and destined to grow in health.

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6. Four Case Studies

6.1 Case Study No. I

Irene was 42 years of age. Her husband was an alcoholic. Her days of parenting were completed, the children on their own. For the past five years she had suffered from an assortment of "allergies" which made her life miserable. She had been injected with various drugs, so many she couldn't even remember their names. She constantly had to sniff antihistamines in order to breathe. Her whole attitude was one of depression. She could find nothing good about this life and confessed that she had often thought of suicide.

Upon review of Irene's past life and of her present lifestyle, it was obvious that changes needed to be made. A dietary regimen geared to the Extended Detoxification Plan was advised and begun. Our client was encouraged to take daily walks, to sunbathe as often as she could, and to begin a program of study in Natural Hygiene to learn the why and how of her new regimen.

This was, of course, all good. If followed carefully, there was no doubt in our minds that Irene's health would improve but, because of her greatly troubled and depressed attitude toward life, her improvement would, in all likelihood, be quite slow. She needed more. She needed to be lifted out of her depression, to be helped to realize that life really is worth the effort, that it can be happy and joy-filled.

To accomplish this objective we proposed certain steps for our client to take: 1. To look around for some hobby or interest to replace her former parenting, the absence of which now left a vacuum in her life which required filling; 2. To go to an Al-anon meeting and there to listen and learn how she might better cope with the demands put upon her and the frustrations she now was experiencing in her life because of her husband's alcoholism, and 3. To attend such group meetings as we might present in the coming weeks and months.

Irene agreed to cooperate in all these suggestions. She took a course in Reflexology as well as all of the courses that we have written over the years. She became a faithful attendant at Al-anon meetings and at our group's study and social get-togethers. In addition, she reported her progress to us every three months.

Not too long ago, Irene telephoned to share a success story with us. It seems that her family had always "put her down," perhaps because she had always been rather "sickly," as she described it. But, the evening before, she had received a long-distance telephone call from a sister who had developed a severe bronchial condition which, according to her physician, required surgery. So impressed was the whole family at the improvement in Irene's health, what Irene had accomplished, that they had advised this sister to call upon her for advice! Irene was "on cloud nine!" That had never happened to her before in her whole life! Mental and physical activity combined with appropriate changes in her eating and lifestyle had accomplished what we had set out to do: to so improve her health that she would be an inspiration to other sick and depressed souls.

6.2 Case Study No. II

"Sam," actually short for Samantha, was in her middle fifties. She was at least 75 pounds overweight, outwardly happy as a lark, but inwardly disturbed about life and her precise role in it. She had reached a point in her life which many people reach who live from day to day without purpose or direction. She had just drifted through life.

She had been a willing follower of the masses, enjoying their destructive lifestyle, with no thought of the future.

Suddenly, and totally without warning, or so she said, she was confronted by a major health problem. She had just been diagnosed as having hypoglycemia. She was angry now at the whole world, albeit still wearing her habitual light-hearted expression which, during our initial consultation, proved to be but a mask to hide her inner confusion and anger.

A review of her eating habits revealed the customary diet of persons who suffer from hypoglycemia and diabetes, one overloaded with all kinds of processed carbohydrate foods such as sugar and white flour; all the many kinds of foods concocted from these substances, plus considerable emphasis on processed convenience-type packaged foods, many of which contain large amounts of fats and pure cane sugar. Foodless foods such as these overwork the pancreas and other endocrine glands until the body is simply not able to utilize its inherent balancing mechanisms with the result, of course, that a metabolic disaster scene results with the blood glucose levels fluctuating abnormally.

Sam told us that she had become very forgetful and had difficulty in concentrating. In fact, her mind often went blank. She had lost her temper at work on several occasions, a new trait for her. She said she was usually quite easy to get along with. She had times when she felt faint and suffered from headaches, also a rather recent symptom. She had always felt so well! And as for fatigue, it seemed that now she was always tired, never rested.

Obviously, Sam needed help. We prescribed for her an immediate fast for three days, the entire time being spent in bed. She was to remain as quiet as possible. Following the three-day fast, Sam was introduced to Hygienic living. Because of her excess weight, vigorous exercise was not to be recommended at this time. Therefore, a twice-a-day walking schedule was decided on. Sam, like all of our clients, began a basic course of instruction with the purpose of directing her mind into more positive channels, to help her to realize that her present apparently hopeless situation was really not so devoid of hope after all. Later Sam joined a class in exercising designed for older persons. She was thus being reprogrammed in three different directions: A new diet, daily exercise geared to her present capacity, plus a planned educational program designed to present her with a new perspective on life's rules.

Sam lost weight slowly as planned, but consistently. Her listlessness and fatigue, her forgetfulness, the headaches and other symptoms have all either completely disappeared or been much alleviated. Her mental outlook is again one of genuine cheerfulness. Sam knows exactly where she is headed and fully confident that she will achieve her new goal: perfect health.

6.3 Case Study No. III

6.3.1 Encouraging Activity in Sickness

Mrs. M. arrived here at the Institute extremely debilitated, so much so that it was deemed advisable to put her immediately to bed. Her blood tests revealed that her entire system was operating in low gear and that she would have to be handled with extreme care. Her medical history confirmed our appraisal since it revealed that for many years this woman had been a willing subject of medical mismanagement on a grand scale.

Through the years she had suffered one extirpation after another including the removal of tonsils and adenoids at an early age, this followed at age 28 by a cauterization of her womb after having partially recovered from typhoid fever. At age 37 a complete hysterectomy was performed because of profuse bleeding during menstruation, this proving to be a most trying time.

At about 54 the gallbladder was removed and, just "as a precaution," the surgeon thought it best also to remove the appendix, this decision apparently having been made during the operation and without the patient's consent or knowledge.

Several heart attacks followed in rapid succession and for the three years preceding her seeking Hygienic care, Mrs. M. had lived the life of an invalid unable to carry on even simple household tasks. As with so many, she had exhausted all orthodox avenues as well as her financial resources before seeking the only method of health care based on physiological and biological truth. She did so at the request of a relative newly introduced to Hygienic care.

Following two days of complete bed rest combined with physiological rest, Mrs. M. brightened. It was thought advisable to encourage some activity on her part even though it was obvious that vigorous exercise was, at this time, completely out of the question. However, we knew that it was vital that the blood flow be encouraged. Because of her weakened heart and a generally-debilitated condition, it was agreed that this client could not go on a prolonged fast which might have rested the heart and encouraged reparative processes. Therefore, it was decided to place her on a juice diet for a few days, both vegetable and fruit juices being used alternately during the day in two-hour intervals. As an adjunct to this light feeding program we decided to begin a scaled-down activity program, one which would require both physical and mental responses.

Only too often, it is not realized just how important both mental and physical activity can be in illness. When the mental processes become dull, a similar reaction can be observed in the physical body. Thus, mind cooperation and mind control are both helpful and necessary to full recovery. Mood swings, especially when the valleys of depression are deep and the peaks are overly high, can undo other measures being used in a constructive manner and even though these may be based on sound physiological and biological bases of fact. Therefore, it was decided to introduce both kinds of activity this early in the program but to do so only to a very limited extent.

6.3.2 Mental Activity

In her debilitated condition, Mrs. M. had little awareness of events or things. She was too concerned about her condition to display interest in external happenings. The anxiety so evident in her facial expression was being mirrored internally in lessened systemic efficiency as well.

It has long been known that superb health is impossible when the mind is disturbed, depressed and anxious. It was important, therefore, to direct Mrs. M.'s attention away from herself toward other things of a happier nature. Therefore, we placed1 Mrs. M's bed in such a manner that she could watch the bird feeding every morning and evening. At feeding time we would visit with her and identify the various birds and tell something about their habits. We recounted how one Arizona roadrunner became crippled in one leg, but did that stop him? No, indeed! Every day, in fact twice every day, he came to the feeding ground hopping around on one leg. We told her that, at first, this valiant bird barely made it but, as time went on, he became stronger and stronger until, finally he was hopping with the best of them.

We told her that this is the way with all living things; that so long as they obey nature's laws, feeding and living in accordance with the body's needs, then repair and healing will take place. No doubt, this great strong bird had been severely injured but rest, suitable food plus determination had produced the healing required for him to live a reasonably good life. We reminded her that she was no different, that her body had the same wondrous capacity to heal itself, too, and that now, at long last, she was embarked on a *journey into health*. There was much to learn and do but, like the valiant and brave roadrunner, she could make of this a highly-successful journey.

Thus, Mrs. M's mind was focused in a new and more positive direction. It was activated to believe that by following after the principles and practices espoused by Natural Hygiene, she just might be able to enjoy life again instead of having to endure the mental hurt of being totally dependent on others for her care and nurture and this, too, for the rest of her life. At age 62, this thought had become a nightmare that ate away at what little wellness she had left. Now, for the first time, she had hope. Her mind that had turned now became imbued with and activated by an inspiring song of hope.

Some comparable tactic can often be used with similarly anxious clients. Some may have a latent interest in knitting, others in listening to good music, still others like to listen to stories about what other people in similar circumstances have done to improve their health. Whatever sparks attentive interest should be explored.

6.4 Case Study No. IV

At age 27 Mark was schizophrenic. He lived in his own private world and had done so for well over a year when we were brought into the picture. At first he would not even meet with us, even when we went to the home. Therefore, our initial steps had to consist of improving the food intake. Both parents cooperated fully and within a few months Mark began to make tentative steps out of his mental prison.

Our first glimpse of the young man came when, on a house visit, he peeked around a corner and quickly withdrew. We seemingly ignored his behavior and Dr. Robert began to talk about weight-lifting and suggested that perhaps Mark might enjoy this kind of activity. Mark's parents thought this might be a good idea so they agreed to purchase two five-pound dumbbells for a trial run, so to speak.

The experiment worked. Mark "took" to the dumbbells and, before long, he had acquired some skills. His mother said that this was the first time since the mental curtain had descended on Mark's mind, that he had shown any sign of interest in anything or anyone.

On our next home visit, three months later, we were delighted to find Mark sitting in the living room, a big smile on his face. He could hardly wait to show us his new dumbbells. They were ten-pounders! To our delight, he willingly demonstrated his newly-acquired skill.

Mark still has a long way to go on his journey into health, but he is on his way. The next step? We have suggested that his parents now join a fitness club so that Mark can see and be with other young people and thus further activate his mind, as well as his physical body. His parents have agreed to take this important step. Mark has expressed his willingness to join them in this new adventure.

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7. Conditions Where An Exercise Program Would Be Contraindicated

1. Moderate to severe coronary heart disease that causes chest pain even with minimal activity.
2. A recent heart attack. Usual recommendation is to-wait for three months and then begin a light program under supervision.
3. Any severe disease of the heart valves. Slow walking may be tried.
4. Certain types of congenital heart disease.
5. Greatly enlarged heart.
6. Severe heartbeat irregularities.
7. Uncontrolled sugar diabetes with high fluctuations in blood glucose levels.
8. Hypertension with blood pressure readings, for example, of 180/110.
9. Extreme obesity. Walking permitted.
10. During acute diseased states, especially where there is fever.

The above restrictions pertain, of course, to vigorous and sustained exercise. Exercises which are performed slowly and for a limited time or if done with assistance can prove beneficial in most cases, even in patients suffering from one or more of the above ailments.

The patient requires careful observation during exercise periods and the exercises should be immediately stopped if the patient shows signs of weariness, of if the skin turns either blue or excessively pale, or if the patient begins to breathe overly hard.

The rule of thumb is to start with simple movements. Observe the response and the reactions given by the patient. And, to build slowly!

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8. Questions & Answers

When a person is very weak from a long history of erroneous living, I fail to see how exercise could possibly benefit that person. Can you clarify this for me?

I will do my best. That's a good question. In extremely weak persons, exercise might properly be contra-indicated. A fast with complete bed rest might be in order for a time. However, remember that most ill persons have lived a sedentary life. Healing and repair will not be possible until their wounded sick cells have their toxic load removed and they then receive the nutritive materials they require for reparative and healing purposes. By exercising specific areas that is exactly what we encourage: the directing of the lymph and blood to the areas most in need of cleansing and feeding by free-flowing fluids.

How do you know when it is time to introduce exercise?

That's an easy question. You try out a few passive exercises and observe the response. If the patient soon exhibits fatigue, you stop, wait for a suitable resting phase and then you try again.

Why is the lymph so difficult to activate?

The lymph flows first into the lymph nodes and has to be squeezed out by the contraction and relaxation of the musculature in that section of the body where the lymph nodes are located. By this squeezing action, the lymph is sent forth into the lymphatic channels and thence into the bloodsteam. As you see, therefore, without exercise, this lymphatic flow is minimal.

Why are feelings so important in healing?

The mind gives a clear picture actually of the body. When the mind is sad, the whole body is sad, also

All the metabolic activities throughout the entire body are similarly depressed. When fear grips us in the thought body, it also grips body action via the autonomic nervous system. It can even stop digestion entirely. We have all degrees of feelings. As they fluctuate from happy to sad, so does our body activity. Illness traps our feelings in depression, sometimes quite deep. A healthy state imparts a happy state, not only to the mind but actually throughout the entire body, a state revealed by systemic harmony. George S. Weger, M.D. was the first person, I believe, to note the importance of mental poise to health. His views were supported by J. H. Tilden and, in later years by much research.

I like the tension exercises. Why do you especially recommend them for ill people. Would they not be good for everyone?

Certainly. As you perform them, you will probably notice that you will use muscles you have not used for some time. You will note that, if you perform each exercise in sequence, that you will have exercised just about every part of your body. And all this without needlessly wasting your vital force as so many people do without understanding the purpose of exercise, which is to encourage circulatory flow of fluids to accomplish two purposes: 1. to remove toxins and 2. to bring food to the cells. Do we need hours of exercise to accomplish that purpose? Let's use our heads!

As for the first part of your question. They are especially good for ill people just because they do not call for any undue expenditure of vital force. Also, the number of reps can be adjusted to individual strengths as well as the depth of the exercises being used.

Article #1: Fitness Guide

Nothing is either good or bad but thinking makes it so! Your brain can make you ... or break you! It takes in, and interprets, each situation you face. It sparks your every thought, emotion, action ... conscious or unconscious. Hippocrates sensed this over two thousand years ago as the cause of "our joys, delights, laughter ... the fears and terrors that assail us, some by night and some by day."

Emotional stress cannot be measured. It has no meaning except in the way you react to your own life problems! ... Nothing is either good or bad but thinking makes it so!

Don't get the wrong idea about stress! Like fear, stress is no new thing. It has been with man since man began.

The tensions, anxieties, fears ... the stress of our atomic age ... are no worse than those our forefathers faced ... only different! Man dies as surely by axe or arrow, by sword or spear, as he does by bullet or bomb!

Life is a perilous adventure. It always has been ... and a perilous adventure it seems sure to remain. Only the problems change with the changing generations ... the pressures never do.

How your mind and body react: Above your kidneys lie your adrenal glands that secrete the hormone adrenalin. Sudden anger, sudden fear, trigger these glands. Into your bloodstream shoots adrenalin.

Your blood pressure jumps. Your heart pounds. Blood from your stomach and intestines is shunted to your heart and muscles. Your breath comes fast. You tense to act ... but you can't!

Why? Because your problem differs vastly (though your body does not) from the one your ancestors faced a hundred thousand years ago. How to save their skin (yet eat) was their problem. To live they must have food. To get food (and keep it) often meant to kill or be killed ... to fight or to flee! At such moments, their anger, their fear, triggered adrenalin into their blood ... for sudden extra power to their blows ... or sudden extra speed to their legs, if they had to take to their heels to save their skin!

Not so with you, an executive faced with the kind of opposition you cannot batter down with your fists! Only a slight tremor of your hand as you hold a paper may betray the anger you smother! What irony! That swift dose of adrenalin nature intended to help you, hurts you ... if time after time after time, over the months and the years, you smother your anger or fear!

What combat studies show: In combat, every so often, a soldier, will succeed in an astounding feat, utterly impossible to a man not triggered by sudden terrible rage or fear. Afterward, this man is as much astonished by what he did as are his comrades. Now ... when his rage or fear subsides, he feels nauseated. He may have to vomit the food he had no chance to digest ... and he may discover, to his disgust, that he has lost control of his bladder or bowels ... and shakes as if he had a chill! The cause? An overdose of adrenalin! (This same reaction can be reproduced in a calm man by injecting adrenalin under his skin.)

... Long-sustained, smothered stress can bring on a heart seizure. You have only to remember how your heart pounds when you get in an argument to sense why this is so. Studies show, in fact, that emotional stress is five times as prevalent in heart attack victims as in men with normal hearts. Yet not all stress is harmful ... far from it!

A man who is a man thrives on a reasonable amount of stress ... As that philosophic old character David Harum put it years ago: "A reasonable amount of fleas is good for a dog ... keeps him from brooding over being a dog!"

... Some men can relax within a few minutes after a situation is over; others cannot. Their overmobilized bodies refuse to return to normal. As Dr. George B. Stevenson, internationally known psychiatrist, cautions: "The time to watch out is when tensions come frequently, shake us severely and persist...".

Transitory (and at first reversible) changes resulting from stress may lead to irreversible disorders.

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Article #2: Application of Gymnastics To The Sick by Herbert M. Shelton

Exercise is often of more importance than changes in the food supply. This is essential not only as a condition prerequisite of assimilation, but as a means of directing with certainty and precision, just what parts and what functions shall receive the needed nutritive support. Pabulum has not the least intelligent and self-directive power, its flow is controlled by the demands of activity.

Food or nutritive support cannot in the least degree be forced upon inactive muscles and organs. These get their chief support by acting, for only in this way does the need of the support arise. To flood the system with an abundance of nutritive substances cannot increase its powers, unless the necessary intra-cellular conditions for stimulation are present.

Such surpluses of nutrients accumulate as waste, due to crippled elimination, and become the source of greater weakness. Increase of strength is the complex effect of a number of essential antecedent factors, of which food is not always the most essential. We have seen numerous cases where there was an actual gain in strength while no food was being taken, though previous to beginning the fast these patients were losing strength on an abundance of "good nourishing food."

It frequently happens that the greatest need of an invalid is exercise, either local or general. In numerous cases this alone has resulted in complete restoration of health. Many invalids fail to recover health, because, although all the other factors are right, they cannot be induced to take sufficient or appropriate exercise.

Numerous methods are employed for the purpose of increasing the nutritive processes in local parts, as well as in the general system, but none of them are as efficient or as devoid of harmful consequences as muscular action. None of them are so prompt, none so localized, none so economical of vitality. Artificial agents and measures employed for this purpose occasion other actions and induce irrelevant changes and needless vital expenditure. These methods involve a harmful and uncompensated expenditure of the client' s power.

Excerpted from Chapter 19—Exercise!

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Lesson 96 - Corrective Exercises And Their Application

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1. Introduction

Humans were designed to live active out-of-doors lives, to forage for food, to seek shelter where it could be found and as need arose. They were structured to live among the trees and in the forest, to do physical labor for agricultural purposes, to tend to the harvest and to pick the fruit from tree and vine.

But humans were not designed to live in air-tight houses, to sit at a desk for hours on end, or to apply their minds constantly and continuously to solving multiple problems. Humans were not made to toil under electric lights or to sit passively for hours reclining in an overstuffed easy chair passively watching phantom figures flitting by on a television screen, all the while receiving multiple nerve impingements due to electrical and radiation impulses emanating from an electrical box and being transmitted through the ether.

Neither were humans designed to eat as the average person eats in today's world but, to the contrary, people were provided with certain digestive organs possessing well-defined physiological limitations and capabilities, organs made to process simple natural foods freshly gathered and served in the simplest of combinations, if combined at all.

Probably in no other country in the entire world has the available food been so altered and changed and in such a short time as in the U.S., although presently many countries of the world are fast imitating "The American Way," and reaping the same "benefits." Dr. Edmond Bordeaux Szekely in his *The Book of Living Foods* points out that, "From the starch-loaded, high-calorie fuel foods of our pioneer ancestors (who presumably needed strength to fight the Indians, who in turn won many battles eating only nuts and berries), to the "breatharians" of the 20s, ... our history has been studded with all kinds of nutritional facts and fancies."

As on many past occasions, the U.S. Government is again expressing dismay at the lack of physical fitness among children and young people in general. On all sides, even a casual observer of the current sad scene can see stuffed noses, curved spines, mouths dangling wide open, a lack of symmetry to childish bodies, sadly restricted by malaligned organs and a veritable host of encumbrances of one kind or another. Hygienists have no lack of opportunity to do their best to correct that which obviously presents a major threat to the on-going vitality of our nation.

There can be no doubt that only a full application of all known Hygienic principles and total obedience to the biodynamics of our organic existence can save the human race from extinction and return it to its former pristine and perfect form. We have strayed mightily and willfully far from the physical beauty of face and form and lack the strength of the men, women and children of ancient Greece. In no way do our children and young people bear any resemblance to the strong and straight offspring of the Mongols of northern China or even the young Romans who lived in earlier centuries; and fewer yet adults who presently possess the strength and erectness of posture evidenced by the Greek dock-workers, for instance, of Sylvester Graham's time. Flat-footed, spines curved in and out and sideways, the men and women of today's world wend their weary way with stiffened muscles and osteoporotic bones.

It will probably take many generations of Hygienic living to return the human race to some semblance of what full health and perfect form can offer. We can only imagine such a time and place. However, the correct and consistent application of corrective exercises and a Hygienic lifestyle can at least improve the lot of some individuals who might otherwise suffer either now or at some time in the future from an ailment which, in the final analysis, might well be traced back to some deviation of the physical structure from the norm, such deviation being of either major or minor importance.

In this discussion, therefore, we will simply describe certain structural malformations giving, in some instances but not in all, the possible future negative consequences vis a vis the overall health of an individual who remains thus encumbered, and then present certain corrective measures which have been found to produce salubrious results in the past and which may prove of benefit in working with a particular client.

Obviously, there can be no guarantee that existing structural defects can be altered to such an extent and in such a manner as to return the body to a perfectly-normal state. There are always many determining factors that influence the direction, extensiveness, and effectiveness of physical therapy, just as there are in all remedial effort.

We refer to such factors as the overall health and vitality of a person, how fully s/he understands exactly what s/he must do and why, how well s/he applies him or herself in the doing, mental attitude and natural intelligence, concentration on the task at hand, how well s/he lives his/her life in accordance with the universal laws of nature, the encouragement and familial support s/he receives, etc. Only in rare instances perhaps will total performance and total benefit be achieved, but even minor positive changes can add up, in the final analysis, to improved appearance and many years of more enjoyable and healthful living.

Because of the nature of this discussion, there seems to be no valid point in quizzing students on the lesson content. This lesson should therefore be used as a point of reference, among others which may be available, in planning corrective exercises for specific individuals having a well-defined structural defect which, in our best judgment, seems to limit their potential wellness.

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2. What Is A Corrective Exercise?

Shelton defines corrective exercise as meaning the use of exercise to correct an anatomical defect or deformity, such as the size, shape, position, and so forth of some part or group of parts of the body that do not conform to the norm.

Among the types of defects or deformities which are subject to correction through exercise in varying degrees are the following: club foot, spinal curvature, bow legs, misshapen fingers, poor posture, uneven shoulders, deformities of the toe, etc.; all, of course, to a greater or lesser degree depending on individual factors.

2.1 How Do Corrective Exercises Differ from Other Kinds of Exercises?

We can divide types of exercises into three main categories:

1. Hygienic exercises which include the more general exercise routines which are designed for Hygienic improvement of the health and vitality of an individual.
2. Remedial exercises are designed to affect certain desirable changes in persons afflicted with adverse physical results from poliomyelitis (less common now with improved sanitation than in former years), paralysis resulting from accidental or other injury, certain spastic conditions, respiratory ailments, and so on. Remedial exercises are usually done under the tutelage of a physical therapist and must be carefully monitored.
3. Corrective exercises are specific in kind, being designed and targeted for a particular area of the body and to accomplish a precise purpose. Corrective exercises can, Obviously be pushed more rapidly and more vigorously than possibly might be done with remedial exercises.

2.2 The Physics of Corrective Exercises

The proper use of exercises to correct a deformity or anatomical defect is based on certain well-known physiological facts and physical laws.

The physiological basis for the use of corrective exercises lies in the fact that while life exists there is change. The body is always in a state of organized flux. Every day cells die and every day new cells are born—all kinds of cells including bone cells but excluding brain and nerve cells.

Brain cells, once dead, do not replace themselves. We lose several millions of brain cells every day, never to be retrieved. Severed nerves cannot be restored but intact nerves, even though damaged, *do* tend to improve, albeit slowly, under careful Hygienic care.

In considering the physical basis for the effectiveness of corrective exercises we observe that the muscles of the human body have two main purposes:

1. To produce a desired movement as and when directed by the central nervous control mechanisms, and
2. To hold the bones in position both in rest and in movement.

Muscles are differentiated from the various and several ligaments which are simply sheets of fibrous tissue which connect two or more bones, cartilages, or other structures; or they serve to support the fasciae or muscles and retain organs in place.

Every muscle and each ligament has received a specific name and is registered in the complex volumes of medical nomenclature, but such precise terminology is not a necessary part of a Hygienist's training unless s/he so desires. There are many medical reference books to supply such information.

It should be remembered that it is the stronger muscles and their accompanying and therefore stronger tendons that become shortened, while the weaker muscles and their tendons become lengthened and weaker over the years.

Such changes are accompanied, in general, by a corresponding change in the length and strength of the ligaments and often, too, in the shape of the bone, and especially so in the ends of the bones where articulation occurs. Dr. Herbert M. Shelton provides an example of what may occur as when there exists a concave curvature of the spine, there simultaneously develops a shortening of the side muscles, tendons and ligaments of the individual thus impaired.

In working with clients, it must be remembered that forcing is always contraindicated. Bones cannot be carried beyond their prescribed normal range of movement without causing injury to the ligaments attached to or near the joint being moved. It is these ligaments that bind the bones and permit their articulatory movement. Damaged and injured ligaments can prove extremely painful and difficult to heal.

It is the counterbalancing effect of muscles together with the constant turnover of cells that gives effectiveness to corrective exercises.

3. Deformity Is Widespread

There is widespread deformity among the populace today, some of it absolutely appalling. Just a few days ago we saw a striking example of inexcusable deformity in a fully-grown adult woman, in her middle years. She was exquisitely dressed, her coiffure had been arranged with great skill, cosmetics had been artistically applied, but the overall impression created by this woman was grotesque to an experienced eye. Her entire torso was out of alignment, a fact made very evident to us as she teetered by on her four-inch heels.

This woman's entire chest cavity represented no more than one fourth of her total body height, so small in size it was. She gave the appearance of two different women trying to exist in a single body! With such impaired respiratory capacity, her days of living will be severely curtailed. We doubt if very much could be done to correct this woman's structural defects at her stage in life. The older a person is, the more difficult it is to make changes and the longer it will take, all other things being precisely equal.

Another example cited by Dr. Shelton and one we can observe all too frequently in both children and adults is the size of the chest at full inspiration; that is, with deep breath. Only then is it extended somewhat close to the size it should be when fully empty! As many as 85 percent of the children sitting in the secondary school classrooms today have severely-limited chest capacity.

3.1 What Causes Deformities?

Deformity has its roots in many errors. Obviously, most of the damage is done by the mating of two physically-deficient parents who either cared not or had little or no knowledge of the possible consequences, long-term and/or short, of their sexual union; by the poor prenatal care and feeding of mothers; by the lack of exercises during pregnancy, during infancy and throughout childhood and by the physical restraints placed on children today who are foolishly kept indoors in classrooms for long hours sitting in unnatural positions at imperfectly-constructed desks and who receive limited and often inappropriate exercise.

Hygienists and physical therapists generally agree that most deformities are caused by one or more of the following:

1. Poor choice of ancestral heritage.
2. Poor health of parents.
3. Faulty nutrition before and after birth.
4. Continuing and long-lasting systemic fatigue due to many possible assaults, mental and physical.
5. General systemic weakness resulting from a plethora of physiological assaults of one kind or another, especially poor food choices.
6. Astigmatism that gives one an incorrect assessment of surroundings, both immediate and distant.
7. Impaired hearing, especially if in only one ear, a condition which may cause a person to turn his head to the source of sound in an effort to add visual response to the auricular.

8. Poor lighting that causes one to pull his torso away from a more normal stance and toward the source of light, often an occupational hazard.
9. Type of occupation as, for example, the hod-carrier whose one shoulder becomes wider and longer than the other and the bones which form it become thicker and more dense; or an interest or hobby as with the violinist who, after years of daily practice often extended for hours at a time, finds his left shoulder lower than the right shoulder and that the general alignment of the head, neck, shoulders and arms is faulty.

Most deformities can and should be prevented through improved lifestyle. Where they exist, many, indeed most, can be corrected, especially when corrective measures are instigated at an early age, the earlier the better.

3.2 The Most Common Deformities

The most common deformities observed are:

1. Rounded shoulders.
2. Various forms of spinal curvatures including:
    A. Wry neck or torticollis in which the head is drawn to one side and usually rotated to some degree so that the chin points to the other side.
    B. Kyphosis, a term used to indicate an accentuation of the backward curve of the thoracic spine. Kyphosis is a condition which imparts a rounded or hunched appearance since the convexity of the curve is outwards. The degree of curvature, of course, will vary from individual to individual, with some being acute, others less so.
    C. Lordosis, or the opposite thrust of the spine with an exaggeration of the forward curve of the spine causing the condition familiarly known as "sway back," or hollow back. Lordosis is usually accompanied by awkward movement of the buttocks in walking since the deformity often extends to the pelvic area.
    D. Scoliosis, a term used to indicate the side-to-side curve of the spinal column with curvature either to the left or right to form either a C curve or to both the left and the right to form an S curve. The affected person tends to "list" to one side.

Any or all of the above deformities can be multiple in kind as, for example, a combination of both kyphosis and lordosis; or one or more can be combined with individual vertebral malformations and/or rotations of one or more of the vertebrae of the spine.

Spinal abnormalities sometimes appear at birth, perhaps during the growing years, but they usually just creep up on a person as he slowly deteriorates biologically over the years. Generally speaking, the above deformities will usually be the kind that will come to the attention of the Hygienists after they have been well developed.

Spinal abnormalities, which are far and away the most common, and regardless of how classified, generally develop silently and stealthily, without pain. It is interesting to note that perhaps as much as 30 percent of the bone structure can deteriorate before such deterioration can be detected by X rays.

According to the Scoliosis Research Society of the American Academy of Orthopaedic Surgeons, about 10 percent of the adolescent population have some degree of scoliosis. Parenthetically, scoliosis should not be confused with poor posture.

The Scoliosis Foundation states that "there are currently no medications to treat scoliosis, nor can its onset be prevented." Hygienists would agree that the condition cannot be "treated" with drugs but do not agree that such a deformity cannot be "prevented." The human body, like all living things, always tends to grow toward perfection when given the proper tools. We agree with the Foundation in saying that the treatment is mechanical, but we go further in that in any program designed to correct any deformity, it is necessary to employ all the known requisites of organic existence as and when required and as present capacity indicates, these used in conjunction with certain exercises specifically designed to correct the existing defect.

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4. The Spine

The bony part of the spine is made up of a series of separate bones called vertebrae. In humans, the vertebrae are stacked "like a column of poker chips." They are held together by the ligaments.

The number of vertebrae vary, among different species of animals but, in man, the spinal column contains 33 vertebrae, as follows:

- 7 cervical vertebrae in the neck.
- 12 thoracic or dorsal vertebrae in the region of the chest or thorax. These provide the attachments for twelve pairs of ribs.
- 5 lumbar vertebrae in the small of the back.
- 5 fused sacral vertebrae forming a solid bone, the sacrum, which fits like a wedge between the hip bones.

Plus a number of vertebrae which are fused together to form the bottom or base of the spine, known as the coccyx at the bottom of the sacrum.

During the fetal period, the spinal column forms a single curve with the convex surface toward the back. However, at birth, two main curvatures are present, both of which are concave forward. The upper curvature is located in the thoracic and the lower one in the sacral region. With normal development, two compensatory forward curvatures develop in the cervical and lumbar regions, just above the primary curvatures. These provide the resiliency which a stacked bone structure could not possibly provide. Unfortunately, as we have noted, a perfectly-formed spine is a rarity, indeed, in today's world.

As can be seen in the diagrams which follow, the vertebrae serve as protective housing for the spinal cord which functions in the transmission of ascending impulses from all parts of the total body up to the brain and of descending impulses and directives from the brain via the cord to all parts of the total body. This housing is known as the spinal canal. Peripheral nerves from many parts of the body enter into this housing and are affiliated with the main nerve cord. These transmit all manner of information from peripheral centers to the cord and thence to the brain and also appropriate responses from the cerebral centers back to the peripheral regions, and finally to individual cells. Every single muscular movement requires this transmission of information, the cerebral interpretation and the psychological and physical result(s) of the interpretation, the response.

4.1 Not Just a Cosmetic Problem

A spinal abnormality is not just a cosmetic problem, although that can be psychologically damaging in itself since it can lead possibly to rejection by one's peers particularly during the teen years and to depression and social isolation.

But, additionally, since all such irregularities tend to cramp all the abdominal and chest organs and can act. as an impediment to breathing, to digestion, and, in fact, to all bodily processes and will continue to do so throughout all of a shortened life, they should be corrected as early as possible and to the extent possible.

Unless mechanical corrective exercises and perhaps even braces are worn, the deformity can provide a seat for continued degenerative processes with later development of arthritis of the spine with increasingly severe back pain and disability.

The curvature tends to increase, and as it does it pushes down on the ribs attached to the spine. This in turn, narrows the chest cavity and restricts the ability of the lungs to expand. Thus, the lack of sufficient oxygen intake hampers full metabolic efficiency throughout the lifetime, which as we have noted, is usually shortened.

Dr. Hugo Keim of the Columbia University College of Physicians and Surgeons is reported to have said, "Telling a child with a scoliotic back to stand up straight is like telling a man with tuberculosis to stop coughing." Thus, most specialists insist on using the brace.

The most commonly-used brace, the Milwaukee, consists of "a leather or plastic pelvic girdle to which are attached three upright bars, one in front and two in the back. At the upper ends of the bars is a ring that circles the neck. A child wears the brace 23 hours a day, with an hour break for bathing, swimming or relaxing. Exercises are performed daily in and out of the brace. Total time in the brace averages 36 months, during which the child may take part in most of his usual activities." (Quoted from *Parade*, Oct. 28, 1979.)

If braces are used, they should be employed between the ages of 10 and 15, the period when growth tends to spurt and scoliosis most commonly develops. Dr. Keim maintains that exercises are not sufficient to treat scoliosis, that using the brace is a "must."

Surgery is used in about one out of every 1,000 cases and is resorted to when bracing and exercises prove inadequate or when, in the beginning, it is obvious that other measures are required. Following surgery, the patient must wear a cast that may remain in place for as long as from eight to ten or more months.

At the Hospital for Sick Children in Toronto, a Dr. Walter P. Bobechko and his colleagues are said to be experimenting with the implanting of from three to six electrodes which are inserted into muscles of the back. During the night, while the patient sleeps, "mild electrical impulses are sent to the electrodes to activate the muscles so they gradually straighten the curve." It is said that such treatment can only prove useful in young patients with at least two years' growth remaining and a curvature of less than 40 degrees.

4.2 The Missing Ingredients

All methods presently employed by the medical community depend solely on mechanical gadgets of one kind or another with the occasional administration of drugs to palliate symptoms of pain, to alter the mood when the patient becomes depressed, and/or to "biochemically balance" the mineral composition of the system. Little or no attention is given to the total spectrum of organic requisites or to the universality of the laws of life.

Even a beginning Hygienist knows that when any living creature fails to receive the tools of life, he will eventually, sooner or later, find that his health will decline and his lifespan will be shortened in an amount determined by the extent of failure to meet the organic need. There can be no doubt that the body structure will be adversely affected.

Therefore, while the Hygienist would make full application of the laws of physics and his knowledge of the fact that all healing and repair must be self-instigated, self-regulated and self-powered, s/he would also employ all the known biodynamics of life, fresh air, pure water, sunshine and warmth, all the psychological "pluses of life,"—in fact, all the many "tools" the body must have to straighten out and remodel young malformed spines.

Dr. Shelton in his book *Exercise* on page 262 says, "Lordosis is not difficult to correct, but the corrective work must be continued for a prolonged period." He goes on to state that this corrective work consists of training for proper posture, stretching the muscles and ligaments of the lumbar spine and strengthening the abdominal and psoas-iliacus muscles (lower end of spine), all accomplished in due course, through the patient and persistent application of muscle stretching and working in specified patterns of movement, all of which, of course, must be pursued with full attention also being paid to all other biodynamics including revision of dietary practices when necessary, daily sunbathing in the nude whenever possible, extended periods of rest and sleep, and so on.

Yesterday, while at the printers, we began talking with a woman who had heard about our interests in matters of health. She told us that her fifteen-year old daughter was afflicted with scoliosis but strangely, according to her, "No one seems to know much about it."

Upon inquiry, we learned that her daughter was receiving mineral medication in the form of multi-mineral capsules and a special pill "because she needs calcium." We asked her to what her doctor attributed her daughter's spinal abnormality and received the reply that "he said that no one knew what caused the condition and nobody knew how to treat it. She had come to the conclusion that her child would just have to live with it, meaning the scoliotic spine.

We suggested that possibly a Hygienist would be able to help her daughter and told her we'd be happy to recommend a good one to her and her daughter, one very knowledgeable about spines. We further encouraged her to study something about Natural Hygiene, that perhaps some dietary improvement might be in order. She laughed and said, "You know how these teenagers are today. I'll never get her off her hamburgers and coke!" And off she went, laughing.

Little did she realize that, in all likelihood, by such casual acceptance of the commonly-held belief that "nothing much can be done," she, in all likelihood, was condemning her child to a lifetime of low-back pain plus a multitude of allied disorders stemming from an impinged nervous system and an impaired digestive tract.

4.3 How to Detect Spinal Abnormalities

The following screening test has been devised by the Scoliosis Association.

With the client standing straight, look at the back:

1. Is one shoulder higher than the other?
2. Is one shoulder blade more prominent than the other?
3. When the arms are hanging down loosely at the sides, is the distance between the arm and body on one side greater than on the other?
4. Does one hip seem higher or more prominent than the other?
5. Does the child seem to lean to one side?

Now, with the child bending forward, arms hanging down loosely and palms touching each other at about knee level, look carefully.

1. Do you see a lump in the back in the rib area?
2. Is there a hump near the waist?

If the answer is yes to any of these questions, professional examination and help is probably in order.

Other visual imperfections can also be noticed as, for example:

1. Does the client have a "swayback" (lordosis)?

4.4 Typical Exercises Suitable for Mild Scoliotic Impairments

1. Test your posture by standing with your back against a wall. Learn the mechanics of good posture by trying to straighten your back. Avoid a lazy slouched posture or a too rigid posture, either of which will tend to emphasize existing curves in the back.
2. Straighten the curve in your neck by standing tall with the chin slightly tucked in. Standing tall, consciously, is part of the Alexander Technique. Notice how it seems to re-align every part of the

body, both internally and externally.
3. Tall girls and boys may try to look shorter by slumping. Most short people tend to have good posture with spines well positioned. Teenagers should be encouraged to straighten the curve in the lower back (swayback) by tucking in the stomach and tilting the pelvis forward (known as the pelvic tilt).
4. Tighten muscles in the buttocks, bending the knees slightly.
5. Stand behind a straight chair. Hold on to the back. Now assume a squatting position. Maintain this position as long as possible. Repeat for from two to five or more minutes several times a day.
6. At work or at home, sit on a straight-backed chair. Lean forward in the chair and lower the head to your knees. Maintain this position for at least one minute. Repeat, until you can hold the position for as long as five minutes. Notice how the back muscles are being pulled.
7. Use the slanting board several times a day. If a slanting board is inconvenient to use, as at work, simply lie on the floor and place both legs on a chair. Press shoulders back to floor. Maintain position for from five minutes (at first beginning) to as long as thirty minutes, after practice.

Many people think that just because the muscles on their arms and legs are strong and muscular, that the muscles on the back will be in a like condition. This is not necessarily so.

The muscles of the back should be thought of as being similar to the guide-wires that support a growing tree. If these wires are strong and kept taut, the tree will grow straight and be flexible but if, however, the wires are loose and malpositioned, the tree may not fare at all well, becoming crooked.

It is the same with the spine. If the tools for proper maintenance are lacking, the spine may become crooked with swayback or some other impairment developing. Therefore, it is important for both the back and the abdominal muscles to be strengthened in all persons, but especially when a scoliotic spine is evidenced. These back and abdominal muscles are the "guide-wires" to impart strength and flexibility to the spine.

4.5 Exercises for More Severe Scoliotic Impairments

These exercises may be performed in addition to those already suggested for milder impairments of the spine.

1. Partial bending forward while maintaining a straight back. Client may sit in a chair while performing this exercise. The number of repetitions (reps) will vary with the vigor of each client. Start with five.
2. Sit on the floor with legs extended out in front. Lean forward and touch toes with the fingers.
3. Lying on the back, elevate feet and legs to vertical position pointing the toes and trying to reach the ceiling.
4. Place client on a table with legs extended in front of him, the knees held straight. Stand in front of subject and grasp both wrists. Have client's feet push against your abdomen. Now pull the client forward and downward as far as possible. Repeat several times.
5. Lie on the floor with the hands behind the head, elbows on the floor. Keeping the knees straight, raise the legs and thighs to a 45° angle. Now, extend the legs outward in opposite directions. Bring back to position. Repeat several times. Relax. Elevate again, extend, etc. Repeat several times.
6. Lying on the back bring the knees up on the chest. Spread the legs apart as you straighten the knees, then draw the feet together. Repeat several times without resting the legs on the floor between movements.
7. Assume same posture as in Exercise 6, imagine a balloon tied on a string being suspended from the ceiling. Kick the balloon away from you, using both feet simultaneously.
8. Lie on the back on a table. Draw one knee up on the chest while the Hygienic therapist resists the movement. Repeat using other leg.
9. In same position as in Exercise No. 8, flex both thighs on the chest against the applied resistance

of the Hygienic therapist.

10. Hang on bar. Raise the knees upward until they are at right angles to the abdomen. Hold for several seconds. Relax. Repeat.
11. Hang on bar. Extend legs outward and upward until they are at right angles. Hold for a few seconds. Relax. Repeat.
12. Hanging on a bar, flex knees as in Exercise Number 10 above. Now, straighten legs outwards. Hold. Relax. Repeat.
13. Simply hang from the bar in a relaxed position for a few seconds. Repeat several times.

4.6 Exercises to Strengthen Abdominal Muscles

As previously noted, it is just as important to strengthen the muscles of the abdomen as those 'supporting the spine in the back. However/in this connection, it is important to choose exercises wisely.

Exercise, to be constructive, should not be easy but, on the other side of the coin, neither should they cause pain. If pain results from a particular exercise, that exercise should immediately be stopped. Pain is a body signal that injury has either occurred, or that one may be imminent. A wise precaution for therapists to follow is to do less than you should early on in working with a client. One can always add on, i.e., increase the intensiveness and/or the extensiveness of a particular muscle movement but, once an injury has resulted from the wrong kind of exercise or the manner in which a particular exercise was performed, then it is too late and further activity must be delayed until full healing has taken place, this sometimes requiring a prolonged rest—delaying progress. It is best always to keep in mind our "baby step" approach. Succeed with small successes.

The following exercises are suggested to strengthen abdominal muscles. They can be done in sequence or selections made to suit a special need.

1. *Lying flat, on the back on the floor*, legs outstretched in front of you, point the toes and stretch to the extent possible. Relax. Notice the pull on the abdominal muscles. This exercise strengthens ligaments and muscles that lie vertically.
2. *This next exercise* may be done in three levels of achievement
   Lie flat on your back with both legs and thighs straight. Point the toes of both feet and raise both legs. Lower and repeat

   The three stages of effort exerted in doing this exercise will depend, of course, upon the strength of individual muscles. It is not wise to attempt Stages 2 or 3 before gaining sufficient strength to perform Stage 1 with ease. After Stage 1 is accomplished, then the client may progress to Stage 2, and so on

   Stage 1. Have an assistant hold down the back while another assists the client in performing the upward movement of the legs. As strength increases, less assistance should be given

   Stage 2. The client places hands under the buttocks and lends support himself as legs are raised. An assistant may hold down the back in the early days of progression, but all assistance should eventually be abandoned as strength improves

   Stage 3. The client should perform this exercise unassisted.

3. *Lying on the back*, raise the right leg to a vertical position. Now carry the leg across the left leg as far as you can. The goal is to touch the floor on that side. Now return the leg to its former vertical position. Repeat. Do the same exercise with the opposite leg being raised and carried to the floor on the opposite side.
4. *Lying on the floor* with the feet hooked under the bed frame or with an assistant holding the feet firmly on the floor, with arms folded across the chest, raise body up to a sitting position
   This exercise may also be done in stages according to present capacity to perform, as follows: Stage 1. Instead of placing arms in the folded chest position, place hands under the buttocks to

add additional support to weakened abdominal muscles. Hygienic therapist lends assistance to the upward movement by giving back support

Stage 2. Place hands under buttocks, feet firmly held by either an assistant or under bed frame or other restraint, raise body up to sitting position unassisted by therapist

Stage 3. Hands folded across chest, feet firmly planted or held, with therapist assisting upward movement, raise to sitting position

Stage 4. Perform exercise unassisted

Stage 5. Lie flat on floor, arms extended fully behind head and on floor. Throw arms forward and at the same time, sit up. No assistance. In early days, it may be well to keep knees bent or even to elevate the legs vertically and use their pull to assist the body to attain the sitting position

Stage 6. The difficulty of this exercise may be increased by clasping the hands behind the head and, without assistance, raising the body up to the sitting position. In performing this movement, the arms and shoulders should be held firmly back. Otherwise, this exercise has a tendency to encourage a rounding of the shoulders.

5. Twisting of the torso. Stand upright with feet slightly apart. Place hands on hips and focus eyes on a central spot on the floor. While performing this exercise, keep the eyes focused on this spot. Now, twist to the right as far as possible without straining, then to the right. Up to 20 reps. This is Stage 1

   Stage 2. Focus eyes on a spot about half way up the wall directly ahead of you; or, if out of doors, focus on some central object. Repeat physical movement, twisting to right and left, but keep the eyes on the one spot. Up to 20 reps

   Stage 3. Focus eyes on a spot above in front of you on ceiling. Repeat exercise as above

   A dual benefit is received from this twisting exercise: stretching and firming of the horizontal abdominal and back muscles plus accomplishing the same for the eye muscles. Blinking the eyes after this exercise will help to relax the muscles.

4.7 Exercises to Strengthen Side Muscles

In correcting spinal imperfections, it is important to work also specifically on the side muscles. The following exercises are designed to stretch and strengthen these seldom-used muscles.

1. Stand erect, with the feet together and the arms extended over the head. Bend sideways at the waist, carrying the extended arms over slightly in advance of the head. Bend alternately from left to right but hold each bend for from 5 to 30 seconds. Keep the legs straight as you bend.
2. Rest weight of the body on the right bended knee. Extend left leg out to the side. Now bend the body to the right as far as possible without raising the left foot from the floor. Therapist should assist client in maintaining balance.
3. Repeat exercise no. 2 in the reverse position, resting weight on left knee and extending the right leg and bend to the left.
4. Lie on the right side on floor. Balance body with arms. Raise extended left leg until it is perpendicular with the body.
5. Repeat exercise no. 4 while lying on the left side. (Exercises numbers 4 and 5 may be increased in effectiveness by adding weights to ankles. These may be purchased at almost any sports store.)
6. Stand erect with a barbell of convenient weight suspended across shoulders and behind head. Bend alternately from one side to the other.
7. Rest the weight of the body on the extended right arm and on right foot. Place left hand behind head. Now lower the hips until they touch the floor. From this position, bring the body up and raise the hips until the body is arched. Lower and repeat. Therapist should support and assist on

first doing this exercise and it should not be attempted until back, stomach and side muscles have shown progress.

8. Perform exercise no. 7 from the opposite side, resting the body weight on the feet, extending the left arm.

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5. Correct Postural Maintenance Vital To Wellness

The posture of the average American and also that of many others we have observed in our travels is in a sad state. Many deviations from the norm can be observed, especially in the natural curves of the spine. Postural defects are less serious than scoliotic ailments which represent degenerative changes brought about by incorrect habits of living. Postural defects can be more easily corrected than scoliotic abnormalities and in a shorter time.

It is important for the individual to maintain good posture for when the body parts are balanced and integrated, arranged naturally in a flexible manner, with energy and movement directed upward, the whole torso following—going with—the head, the entire body, its cells and organs and systems will be enabled to function more efficiently and in a more flexible manner.

When the body is balanced, correct nerve messages are relayed from one part to another, from one system to another system. There is better coordination and synchronization of part to part. When parts are correctly aligned, one to another, only those muscles which are essential to a particular action will be used to perform that action, thus saving precious vital energy. One can accomplish more and perform better and feel less tired than where the parts remain uncoordinated, poorly synchronized due to misalignment through carelessness or habitual slouching. In other words, when the posture is poor, we work against ourselves, we use energy that we need not expend to perform functional duties and movements just because everything in the body is not in its more proper position of balance. The systemic equilibrium is destroyed, tension pervades the body, even though we may not be consciously aware of such tension. This is exactly the same kind of tension (stress) that is radiated outwards in a leaning tower (as, for example, in the famous Leaning Tower of Pisa located in the Piazza del Duomo in the northeast part of the Italian city), or in a pile of bricks which have been incorrectly stacked.

Incorrect posture, in time, will lead to chronic low back pain, a condition which troubles many people today. There are many causes of poor posture: malnutrition, lack of exercise, occupational fatigue; emotional problems concerned with such things as family, financial security, sprains, disc damage, habits of daily living, etc.

When we consider that the average American spends countless hours every day staring at a television tube while sitting slouched down in an overstuffed chair, it is a wonder that we stand as straight and tall as we do and enjoy any degree of health!

5.1 Pain

Postural low back pain can be consistent and chronic and if we ignore the warning sign of early acute pain and do not begin a series of corrective measure, the aches and pains may become chronic, entering the vertical stage, until sooner or later, the back gives way.

Pain in the back develops when specific nerve endings are abnormally irritated and begin to send distress signals up the spinal cord to the brain's control center. Sometimes, the back muscles will receive instructions to go into spasm in an effort to hold the back immobile and quiet.

All of us are aware of the fact that there are innumerable nerve endings which intertwine and go in and out of the spinal cord. There are various conditions which can give rise to back pain such as were detailed above, these being both physical and/or emotional in kind. The worst enemies of the back are poor posture, a lack of exercise and overnutrition.

An increased lumbar curve as in sway back is indicative of a weak bony structure. Weak and flabby abdominal muscles (the familiar pot belly) deprives the back of its main support. Any overweight can add to back strain.

The average person when he feels pain simply takes a pill to get immediate relief. As Hygienists well know, such a practice is totally anti-health since chemical pain-killers act to narcotize the nerves, to prevent the cerebral recognition of the systemic danger that is presently threatening the life process. The cause or causes of the pain remain undetected and, therefore, still working.

But, there may be another and less apparent hazard in such a practice. Dr. Steven F. Brena, director of the Pain Control Center at Emory University in Atlanta believes that drugs become "associated with the pain itself, so the very act of popping a pill stimulates the feeling of pain."

It seems that, like Pavlov's dogs which salivated at the ringing of the bell, chronic pain sufferers may unwittingly learn to feel pain from the very drugs they take for relief!

In the Medical News Section of *American Health* for June 1984, Brena is reported to have said that "learning is important factor in any chronic illness." He believes that most people abuse pills. We should probably say that almost all people who use drugs, abuse them. Personally, we feel that pain-killers should only be used in extreme cases, as in surgery or in certain advanced degenerative conditions when all other methods have failed.

Brena compares the central nervous system to a computer. *It can be programmed to be pain sensitive, and the pain threshold lowered.* (Emphasis by the authors.) He calls it "learned pain," a condition which creates further dependence oh drugs. He cites the possibility that pain can become a physiological response elicited by the very drug taken to relieve the pain.

The possibility may exist that pain is not only a molecular cellular response, but also a psychological and perhaps even a social response, the "everybody-does-it" syndrome.

At Emory's Pain Control Center, Dr. Brena attempts to retrain the central nervous system to raise the pain threshold, but he says it takes hard work. It also requires much systemic work to relieve pain.

Orthodoxy has not as yet learned the efficacy of fasting to relieve pain. If our students recall the case of Mike, our severely arthritic patient. After over fifteen years of high drug dosing to relieve his excruciating pain, he recently reported that he had just had two whole days during which he was totally without pain! Mike, our students will recall, has had two knee caps removed as well as one elbow joint. Considerable fusing of his skeletal structure has made him almost, completely dependent upon others for his basic needs. What he has accomplished under great odds should inspire the most downhearted among us. A veteran, living alone except for the help of a university student, he has, with great determination over the past year fasted for short intervals and completely changed his dietary, has squeezed his rubber ball, has walked his corridor from bedroom to livingroom, faithfully and consistently, and is now beginning to reap his reward! Mike knows that the future is his to have, an unnarcotized future and one without pain.

Back in about the year 1945, Dr. Elizabeth injured her back badly. A heavy iron spring which helped to raise and lower a garage door gave way throwing her up in the air and then back on the concrete driveway. The pain was intense, but she refused all attempts to hospitalize her. She took as few aspirin as was possible. We were not Hygienists, yet!

Years later, when locking of muscles and the intense pain of arthritis descended upon her, the worst pain was felt at the site of this old injury. Of course, over the years, she had "favored" her back but in the late fifties, she began to notice that she couldn't walk either as long or as easily as she once had been able to do. Dr. Elizabeth, early in her career, had taught physical education as well as Swedish gymnastics. She had been a track star while in high school, took interpretive dancing while in college. The psychological effect of her disability obviously was intensely negative.

In the early sixties came the final episode which was to start us on our search for a "cure." By this time, Dr. Elizabeth had to hang on to another person to walk. If she got down on the floor, she had to have assistance to get up. She walked the floor night after night because of the pain.

It was then that we began a program of therapeutic exercise, learning about it and putting what we had learned into practice. Every night, Dr. Robert massaged her back, using open fingers along the spinal column, gently pressing along the lateral muscles outwardly.

As she lay on the floor, her legs were, at the beginning, lifted for her to a vertical position, and then lowered. Gradually she progressed through the exercises which are detailed in this lesson. She set herself goals to achieve and as she achieved one goal, she would move on to the next.

Let us see the sequence that took place with the bent-knee sit-ups. Her first goal was to perform a single sit-up without assistance. At first, her back had to be helped in raising to the sitting position. But, the time came when she made it alone!

The next goal was to do 10 unassisted sit-ups with hands held under the thighs. When this was achieved, she placed her hands at her sides. The new goal was to do 10 situps again. Then, to do 30! About two years ago, Dr. Elizabeth did 30 unassisted sit-ups holding her hands at her sides.

But, she wasn't finished, yet! Her next goal was to accomplish 10 straight-leg sit-ups starting from a position where her arms were extended behind her on the floor. These were to be used as a leverage in achieving the sitting position. After about six months she was able to do 20 of these. She hadn't, as yet, reached her final goal: to do 30 situps with hands clasped behind her head, but she knew she'd get there one of these days.

Then, it happened! Another accident. Several months ago, she was out feeding her beloved birds. It was an unusually cold morning for Tucson. Having several appointments scheduled for that morning, she was in a hurry and caught her open-toed slipper in the curled hose which was rigid due to the overnight freeze. She went sailing through the air, landing on her right side and skating along the gravel which tore at her muscles and ligaments.

For weeks, Dr. Elizabeth could hardly move. She took no pain killers in spite of the severe pain. Hot baths and occasional short fasts took away all the discomfort but she was unable to do a single sit-up, to say nothing of most other exercises. But was she defeated? Not Dr. Elizabeth! Just the other day she did 26 bend-knee sit-ups, her toes tucked under the bed frame. She's off again with new goals beckoning down the road.

Incidentally, for females over the age of 60, those achieving bent-knee sit-ups in 90 seconds are awarded the Platinum Accolade. Dr. Elizabeth did hers in 60 seconds and she confesses to being over 70!

We have included this story in this lesson, not to brag, but to make a point. In working in the field of corrective exercises, patience and persistence will be rewarded.

In the legal world, there is an old saying, "Time is of the essence." This phrase is found in many contracts, especially those having to do with the sale or purchase of real estate. It means that within a certain time frame, the contract must be fulfilled and all legal obligations with respect to that particular contract must be fulfilled.

In correcting spinal or other physical imperfections, time is also of the essence but here the phrase must be interpreted differently. Corrective work cannot be hurried. The body will establish its own schedule and cells will be repaired according to a cerebrally-devised master plan. The repairing and healing will take place methodically, generation by generation of cellular replication, as the body receives the proper tools—all of them. We refer, of course, to the biodynamics of organic existence.

It would be the height of folly, for example, to. expect recovery to occur with speed if proper-food be not eaten, or should the impaired individual fail to obtain maximum rest, both physiological, mental, sensorial, and physical; or any other of life's basic needs.

It is this one element of time that is perhaps the most difficult of all principles for the novice Hygienist to grasp. Correcting defects in the physical structure requires the most time of all. It is slow work.

Generally, immediate results cannot be seen. They are not visible, they are often not even felt, but they are there! They take place internally, within and about the cell communities of muscles, ligaments and bones. One generation of damaged cells is discarded, recycled, replaced by healthier cells, more efficient cells, cells that are less stressed. Time is of the essence! Patience and persistence in answering the body's basic needs will eventually occasion only salubrious results.

5.2 Sports Injuries

Failure to warm-up before exercising vigorously, failure to cool down following exercise, and not knowing how to perform correctly various stretching exercises are generally considered the most common causes of sports injury.

The most common sports injuries are: soreness, side stitches, cramps, low-back pain, knee injuries, shin splints, tendinitis, bursitis, stress fractures, heel spurs, plantar fascitis, and common sprains.

Generally, incorrect stretching of muscles and failure to obtain sufficient flexibility and suppleness of muscles through sustained continuous and graduated exercise prove to be major factors in sports injuries; again, the failure to recognize that it takes time to develop physical wellness, including muscular wellness.

When muscles are stretched too fast, or in bouncy jerking motions, the body responds with the "stretch reflex," or the tendency of a muscle to contract instead of relaxing when stretched too quickly or forcibly. Therapists and sports experts suggest that all stretching, to be beneficial, should be done in slow, gentle movements not to the point where pain is felt. Stretches should be held at least fifteen seconds. Some recommend increasing the stretch time to as long as 30 seconds for maximum benefit.

Simple sprains are the most common back injury and often occur when muscles of the back or the ligaments are stretched or torn. Common activities that people generally don't even think about, when done improperly, can result in back sprains; simple everyday activities as bending, lifting, standing or sitting. This is why we emphasize in this lesson the need to proceed slowly when corrective exercises are introduced for any purpose.

Back sprains can also result from accidents as, for example, being wrenched when cars collide. Dr. Robert years ago suffered a severe back trauma when he swerved to avoid hitting a pick-up truck which carried two young children in its open back. He was grabbed by the passenger in his car at the same time. He suffered for several years before he eventually recovered.

Slipped or ruptured discs are uncommon, but can cause severe pain and even complete disability.

Sometimes such slipped or injured discs can pinch the spinal nerves causing pain to radiate down the back of the thigh and leg—the "sciatica" pain. If the pinching continues, actual irremedial nerve damage can result. Osteoarthritis can be a major factor in back pain, specially in the late middle years. Spurs and sponging causes narrowing of discs with nerve impingements which cause the pain.

Male prostate problems and uterine problems in females, constipation, etc., are all probable factors which will influence the amount of pain felt.

Routine X rays of the back can only reveal bone changes and this only after there has been as much as 30% deterioration. They do not reveal sprains, slipped discs, etc. Other measures and tests may be required to identify a slipped disc.

5.3 How to Keep a Straight Back and Improve Posture

There are certain "Dos" and certain "Don'ts" that are applicable to sound body back mechanics. They apply when sleeping, sitting, driving, standing, walking and in lifting.

Sleeping - Sleep on a mattress that you find comfortable. In general, most specialists in back problems agree that a firm mattress will supply the best support. Sleep on your side, in the fetal position, with the knees bent. Some persons find that sleeping on the back with a pillow placed under the knees provides the most comfort. Sleeping positions can often prove a moot issue since the average person changes his position many times during the hours of sleeping and does so without his conscious awareness of he fact. A good general rule of thumb, therefore, is to assume a comfortable position and just relax.

Sitting - Most chairs are an abomination. They are made to fit average people and actually there are few individuals who are "average." Therefore, most chairs are uncomfortable and stress the back.

Chairs should be low enough so that the sitting individual can place both feet on the floor with his knees somewhat higher than his hips. It is not wise to cross the legs at any time. If your sitting chair has legs that are slightly too long for you, you can elevate the legs by using a stool or have a carpenter or handyman make a correction in the height. Always sit firmly against the back of the chair. This will assist the spine to maintain a straight alignment.

Driving - The car seat should be adjusted forward so that the knees remain bent. They should be maintained higher than the hips. The driver should sit straight and should drive well balanced keeping both hands on the steering-wheel. An elongated cushion placed against the back of the seat may assist posture since few car seat cushions are designed with correct posture maintenance in mind.

Standing - If a person with back pain must stand at his work, he should stand with one foot up, changing positions often. If he is required to bend over, he should do so by bending with the knees while keeping the back as straight as possible.

We recall one housewife a number of years ago who had suffered much pain following a back injury.

While working in her kitchen and around the house, she made it a strict policy never to bend down to pick up an object or to obtain something kept in a lower cupboard.' Instead, she would always do a deep knee bend while holding on to the sink or some other fixed object.

She told us that she had been amazed at first to find out just how many times she was required to do her "deep-knee act," as she called it, during the course of a single day. However, she was well rewarded for this one simple discipline which she imposed upon' herself. Her back gradually improved and she found that the exercise helped her in other ways, too, since she began to enjoy greater vitality than she had known prior to the injury.

Walking - When walking, one should maintain the "Tall, I AM Somebody Look." Let the head touch the sky and the entire body will have to follow. Tuck the chin in, but keep the head slightly forward in an unstressed position. The pelvis should be slightly forward and the toes should point the way—straight ahead!

Always wear comfortable walking shoes, preferably constructed of some sturdy, but porous material which will lend support but also permit gaseous toxins to escape. Walk at a fast pace, swinging the arms vigorously. This kind of walking, as opposed to leisurely strolling, will serve to strengthen back, side and abdominal muscles as well as those of the extremities.

Lifting - We have all heard the rules. I'm sure, about how to lift heavy objects, but how often we fail to abide by them. Therefore, perhaps it is in order for us to repeat them for the benefit of our students as they work to correct other people's errors. Perhaps the advice of our housewife will help us to remember them. Always bend with the knees, not with the back. Keep the back straight. Lift with your legs and hold the object close to the body. Lift only to the height of the chest. And always see to it that your feet are firmly planted on an even, non-skid surface.

If an object is heavy, get help. Don't try to prove anything by trying to lift or shove heavy loads and avoid shifting that can throw a person off balance and cause a sudden twisting of the body which can sprain or tear a ligament.

5.4 If There Is a Back Injury, Certain Common Habits Should Be Overcome

1. If you must lift a rather heavy object, make certain that the destination of the object, i.e., where you will place that object, is directly ahead of you. This will help you avoid twisting the body.
2. Don't try to lift anything above shoulder level.
3. Don't wear high-heeled or platform shoes. Any sudden throwing off balance might cause further injury. Additionally, when such shoes are worn, the center of gravity is thrown off the norm, thus rendering an individual more likely to lose balance. High heels also tend to cause organs to shift from their normal alignment, a state of affairs that sends silent stress signals tearing through the nerve pathways.
4. Don't forget to have the car seat adjust to YOU. Stretching for the pedals or for the steering wheel increases the curve of the lower back to cause strain.
5. When sitting in a chair, don't slump. Avoid leaning forward for any prolonged length of time. Arching the back in this manner is conducive to more pain.
6. If your mattress is uncomfortably soft, or it sags, or if the cushions in a favorite chair do not give full support to your injured back, make some changes. Without full support, an aching back will continue to trouble.

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6. Exercise—General

6.1 Exercises Designed to Stimulate Circulation and to Stretch Tight Muscles

Performed While Sitting—

1. Sit well balanced on the floor with both legs stretched out in front of you. Pull knees up to chest. Relax. Touch head to the knees. Relax. Repeat. At first, you may not be able to bring knees all the way up or to touch them with the head. Persistence will soon pay off.
2. In same position, place the arms under bent knees. Now, straighten out right leg. Return to original position. Straighten out left leg. Return. Repeat, alternating legs.
3. In sitting position with legs stretched out on floor in front, bend forward from hips keeping the back straight with arms bent at elbows and held in to side. Hold bent position, but do not bounce.
4. In same position as in no. 3 immediately above, spread legs apart and stretch down first to the right leg and then to the left, maintaining the straight back at all times. Hold the stretch position for the count of 5 each time before relaxing.
5. In the sitting position, place pillow under calf and rotate ankles of left leg, then the right leg.

Performed While Standing—

1. Clasp hands behind the back. Now straighten the arms, shoulders, and back. Breathe in quickly to the count of 4. Relax and breathe out to the count of 7. Repeat.
2. Raise arms to the front, breathing in as you raise the arms and exhaling as you lower them—as

follows:
   a. Raise to shoulder height. Then lower to side.
   b. Raise above head, stretch to the ceiling. Let the eyes look at the ceiling. Lower to side.
   c. Raise above the head, turn the palms out. Lower to side.

   Start this exercise with 3 repeats and gradually add more as you feel comfortable.
3. Place hands on sides directly in front of hip bones. Now bend forward to a horizontal position. Keep back straight. Feel the stretch in the back and legs. Bend knees slightly and then come up to straight position.
4. With the feet slightly apart, elbows bent, rotate shoulders front to back several times. Reverse and rotate back to front.
5. Deep knee bend. Just bend knees slightly. This will be sufficient to exercise many muscles without attempting the deep knee bend which may traumatize injured parts.

Performed While Lying on the Floor—

1. Lie on the back with legs straight on floor. Pull right knee up toward the chest. Hold in this position to count of 10. Be sure to tuck the chin in, do not let head fall backwards. Repeat with left knee.
2. Pull both legs up to chest and hold in this position with arms clasped around knees for a count of 10. Don't forget to breathe as you count.
3. In same position as in exercise two. 2, extend right leg up and forward into the air. Lower slowly. Repeat with right leg several times and then perform the same movement with the left leg.
4. Turn and lie on one side. Place hand under the head. Bend the bottom leg slightly. Now raise the top leg up and down, pointing the toes. Repeat several times.
5. Turn and lie on the other side and repeat the same exercise.

Performed on the Hands and Knees—

1. Get in position on hands and knees and relax. Now hump the back. Push it up as far as is comfortable. Relax. Repeat.
2. Same exercise as above, except as you arch the back, bring the head down. Now bring right knee in towards the head, then straighten leg out again behind you as you raise the head and straighten the back. Repeat several times with right leg, then repeat exercise using left leg.
3. Sit back on the heels. Now stretch out your arms and head on the floor in front. Hold for a few seconds, then return to original position. Repeat several times.
4. Lie on the stomach. Then place the elbows on the floor and clasp hands together in a fist. Place forehead on the clasped hands. Now straighten the right leg out behind and raise it upwards as high as you can. Lower. Repeat several times. Repeat with left leg.

6.2 Exercises for Balance, Posture, Circulation and Increasing Coordination

1. Place feet together, arms hanging at the sides. Now, lift both arms over the head and, at the same time, bend the left knee up to the chest as high as possible. Hold a few seconds. Return to position. Repeat with right knee in the same manner. When comfortable doing this exercise, client should try to alternate, using first one leg and then the other while maintaining balance.
2. Stand with the feet together, one hand on the wall or a piece of furniture to lend support. In two even counts, swing the left leg forward and back. Keep the back straight, pull the abdomen up, and elevate the chest as the leg swings back. All the movement should be in the hip. Keep knee straight and the leg swinging like the pendulum in a clock. Repeat with other leg. Assistance in maintaining balance may be required by persons with severely-weakened muscles.

6.3 Exercise Planning

In working with clients, it is always advisable to present the exercises in series; that is, this week do these, next week, another set, and so on. This will sustain interest by giving variety to the program. Clients should be advised to perform exercises, when possible to music. The tempo of the music should be varied according to the age and condition of the participant(s). For example, for a class of older persons or when working with an older client who may not have exercised for many years, one might choose a melody like "Somewhere My Love" (Lara's Theme from "Doctor Zhivago"). As participants become more skilled, the tempo can be increased causing the exercises to be performed more quickly. However, remember that with corrective exercising, persistence is more important than the tempo. That is why we also recommend that the practicing Hygienist set up a schedule for his clients to follow. A sample suggested schedule follows:

	Monday	Wednesday	Friday
First Week	Ex. A	Ex. B	Ex. C
Second Week	Ex. D	Ex. E	Ex. F
Third Week	Ex. A	Ex. E	Ex. C
fourth Week	Ex. B	Ex. D	Ex. F

The selected exercises should be typed out, xeroxed and Numbered A, B, C, etc.

On the fifth week, a new series may be given the client. Exercises should be selected keeping in mind the reason for a particular exercise. The exercises given in this lesson have been selected with certain definite problems in mind, such as posture, bent spine, weak back muscles, weak abdominal muscles, etc. There are many other possible defects that may present themselves to the Hygienic practitioner from time to time, and we have presented only the most common. The practitioner in working either with a group or with an individual must choose the particular exercises which, in his best judgment, will prove most conducive to good results.

6.4 Teaching the Client How to Get the Most Out of Exercise

There are several important rules to follow. When a precise schedule is formulated and presented to the client, s/he will be much more likely to do the exercises. S/he should be told to study your suggestions carefully and to follow them, if s/he wishes to secure the most good from the exercises. The following list contains suggestions only.

1. Make up an exercise chart and mark down the time spent doing the exercises and the precise number of repeats achieved.
2. Study the exercise routines, consult the recommended list given to the client by the practitioner. The practitioner should always demonstrate each exercise to the client and have the client do the exercise in his/her presence to be sure that full understanding of exactly what is involved in each exercise is achieved. If the client is unable at this time to do the selected exercisers) on his/her own, some other person who may be called upon for assistance should also be present so that s/he may become familiar with each of the movements.
3. Set a regular time to exercise and follow a regular program each day.
4. Make, frequent check-ups on weight and improvements in sleeping, in eating, in ease of motion, etc. These may be recorded on the client's chart. All improvements should be brought to the attention of the client. These are the "successes" we have previously mentioned. They serve to encourage clients in their corrective work.
5. Exercise before meals, or wait at least one hour after eating, preferably two hours. Exercising

before breakfast is a good practice.

6. Provide a suitable rug, floor mat or beach towel for the exercises performed while lying down on the floor.
7. Begin with a 5-minute exercise program and extend as endurance, vitality, etc., increases. Thirty minutes a day will prove sufficient for the average person. Even spending fifteen minutes every day with a half hour several times a week will be highly beneficial.
8. See that the ventilation is good. Keep the windows open while exercising or, better yet, exercise out of doors, except in very cold weather.
9. Wear loose garments made of open weave.
10. Exercise to music. Waltzes are excellent to start with, increase beat as strength and skill increase.
11. And, finally, exercise faithfully and follow instructions. Remember, that when a client first starts an exercise program, his/her muscles are usually weak and flabby. We recommend that everyone start out by exercising one day and then resting the next.

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7. Questions & Answers

My daughter has been told that she has Scoliosis. Our doctor says that not much is known about this condition and that diet won't help, that the condition is inherited. The only thing he can do, he says, is to refer her to a bone specialist who will probably put her into a brace and she may have to wear this brace for a year or two. What do you think about all this?

How old is your daughter?

Fifteen on her next birthday, which will be in two more months.

Not having seen your daughter's condition, of course, I can make no specific recommendations nor offer any valid opinion as to what the full application of Natural Hygiene principles and practices might permit her body to accomplish, but I can say this: under full Hygienic care, her general condition would improve. It might well be that he would have to wear a brace for a time, but, with proper food, a lot of rest, and getting out in the sunshine and performing suitable exercises, her improvement would be much more rapid and, in all likelihood, she would not have to wear that brace for nearly as long a time as if she did not meet her systemic needs adequately as would be the case, no doubt, if she were placed under allopathic care, especially when the physician in charge fails to recognize the importance of a physiologically- and biologically-correct diet. At age fifteen, she should not delay another moment to get started. Having a good posture at this important time of her life, may well determine the quality of the rest of her life.

My daughter has the same condition. Her spine is crooked—forming an S curve. My husband and I are both Hygienists, but our daughter thinks we are way off the path. She won't eat anything but what the "crowd" eats and that's hamburgers, french fries, cokes and even beer when they party. What can we do?

There is little that you do except perhaps to lay it all out for your daughter. In this lesson, you have learned the importance of posture, how this crooked spine can influence adversely every single function within the body. Try to get your daughter to read this section and perhaps her future may become more real to her. In your own home, you can see to it that only good food is in the refrigerator. Learn how to prepare natural "delights" such as banana

> ice cream and you might hold a fruit party for your daughter's friends. Also, promise her a reward for good behavior after a certain short period as, for example, a theater party or a camping trip; whatever she would like to have or do most. Use this as an incentive. When you have done all this, you have done your best.

It seems to me that everybody has different ideas about how to tackle body defects; at least, physical and structural imperfections. One chiropractor I know puts bottles of pills on the chest of his patients and then recommends zinc or calcium or whatever to the client if there is some spinal malposition. Why are your methods any better than his?

> I never knew health to jump out of a bottle of pills and magically into the body. Taking hundreds and thousands of pills can never straighten a crooked spine. The only possible means to correct a body defect which has been caused by a failure to meet systemic needs is to begin, and at once, to meet those needs and to move bones and muscles so as to balance the incorrect action of other bones and muscles. The correct diet and lifestyle will take care of the inside, the internal needs of the body, while the exercise and other Hygienic biodynamics will help the body to repair the defect to the extent possible, as determined by the age, present condition of the individual person and by how well he applies himself to his program.

Not everyone would be able to have the patience to correct structural defects since it seems to take so long.

> We have a simple answer for this question. Without patience, knowledge, determination and willpower, the unfortunate one must just learn to live with his defect! Furthermore, his/her life by the very nature of the life process, will be less enjoyable, less productive and curtailed in many ways—not a very enticing exchange!

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Article #1: Excerpt from Funk and Wagnalls New Encyclopedia

The following excerpt from *Funk and Wagnalls New Encyclopedia*, Copyright 1979 is used to illustrate the complexity of structural movement so as to give us perhaps a better appreciation of the synergism that is involved even in simple structural manipulation. Excerpted from Volume 19, pages 118-119.

The human skeleton consists of more than 200 bones bound together by tough and relatively-inelastic connective tissues called ligaments. The different parts of the body vary greatly in their degree of movement. Thus, the arm at the shoulder is freely movable, whereas the knee joint is definitely limited to a hingelike action. The movements of individual vertebrae are extremely limited, the bones composing the skull are immovable. Movements of the bones of the skeleton are affected by contractions of the skeletal muscles to which the bones are attached by tendons. These muscular contractions are controlled by the nervous system.

The nervous system has two divisions, the somatic, which allows voluntary control over skeletal muscles, and the autonomic, which is involuntary and controls cardiac and smooth muscle and glands. The autonomic nervous system has two divisions, the sympathetic and the para-sympathetic. Many, but not all, of the muscles and glands that distribute impulses to the larger interior organs possess a double nerve supply, in such cases the two divisions may exert opposing effects. Thus, the sympathetic and parasympathetic systems respectively increase and decrease heartbeat. The two nerve systems are not always antagonistic, however, for example, both nerve supplies to the salivary glands excite the cells of secretion. Furthermore, a single division of the autonomic nervous system may both excite and inhibit a single effector, as in the sympathetic supply to the blood vessels of skeletal muscle. Finally, the sweat glands, the muscles that cause involuntary erection or bristling of the hair, the smooth muscles of the spleen, and the blood vessels of the skin and skeletal muscles are actuated only by the sympathetic division.

Voluntary movement of head, limbs, and body is caused by nerve impulses arising in the motor area of the cortex of the brain and carried by cranial nerves or by those that emerge from the spinal cord to reach skeletal muscles. The reaction involves both excitation of nerve cells energizing the muscles involved and inhibition of the cells that excite opposing muscles. A nerve impulse is an electrical change within a nerve cell or fiber; it is measured in millivolts, lasts only a few milliseconds, and can be recorded.

Movement may occur also in response to an outside stimulus; thus, a tap on the knee causes a jerk, and shining a light into the eye makes the pupil contract. These involuntary responses are called reflexes. Various nerve terminals called receptors constantly send impulses into the central nervous system. These are of three classes: exteroceptors, those sensitive to pain, temperature, touch, and pressure; interoceptors, which react to changes in the internal environment; and proprioceptors, which respond to variations in movement, position and tension (especially important in doing corrective exercises. -The Authors).

These impulses terminate in special areas of the brain, as do those of special receptors concerned with sight, hearing, smell, and taste.

Muscular contractions do not always cause actual movement. Ordinarily, a small "fraction of the total number of fibers in a muscle may be contracting. (One reason why it takes prolonged periods of time to accomplish desired results—The Authors.) This serves both to maintain the posture of a limb and cause the limb to resist passive elongation or stretch. This slight continuous contraction is called muscle tone.

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Article #2: Exercise

An excerpt from *The Genesis and Control of Disease* by George E. Weger, M.D.

Those who exercise during the period of elimination (this refers to the Circadian Rhythm Cycles. The elimination cycle normally begins at about 4 a.m. and continues to, approximately, the noon hour—The Authors.) help to maintain muscular vigor, which appreciably curtails the period of recuperation. Exercises also stimulate the circulation and arouse lethargic cells so that these may more readily give up unusable waste.

An active, supple body can withstand shock, strain, and disease-building abuse to a degree that would wreck or kill the lazy, slow-moving individual. Exercise is just as essential as a rational diet. Dependable resistance cannot be attained without it. All people should exercise daily. The best way to cultivate the habit is to follow faithfully and methodically a regular, fixed program. This assists in the development of self-control and self-discipline, which are so necessary to those who wish to acquire poise and to become masters of self.

Only in the most profound states of enervation or in cases of inflammatory fever, or cardiac depression is positive exercise contraindicated. Moderate tensing of the arms, legs, abdomen and neck, can be done in bed in the prone position even during the fast. Patients are asked to do these tensing movements for periods of ten to thirty minutes depending upon the vitality and muscular vigor of the person. (See lesson on "Exercise in Sickness and Recuperation" for list of tensing exercises which can be used for corrective purposes while confined to the bed.) ... Willpower is necessary in order to make the start and go through with it.

... To obtain the maximum good, the muscular contraction should be positive and the mind should be concentrated on every movement. Exercise done grudgingly is of little value. The benefit derived depends on the manner in which the movements are done rather than the time involved. Each movement should be emphasized and done with deliberation. To avoid holding the breath, patients are asked to count aloud, as follows: one, and two, and three, and four—and so on. All movements should be repeated to the point of reasonable fatigue as distinguished from overexertion.

It is suggested that patients try to awaken early enough in the morning to do this most necessary work before breakfast. If they do not, ready excuses are likely to come up that will cause it to be entirely neglected. The exercises should be repeated before retiring for the night. Some are advised also to do them in the middle of the afternoon.

... To each patient is given a chart explaining the movements that may be done in bed. These are very simple muscle-tensing and joint movements starting with the fingers and taking in the different joints of the upper extremities to the limit of their range of normal motion in flexion and extension in the following order: the fingers, hands, and wrists in flexion, extension, and rotation; elbows the same; shoulders, a sweeping motion in all directions with the arms fully extended throwing them outward from the body and then bringing the hands together on the return movement. Then the toes should be bent down and up, next the feet and ankles. A folded blanket should then be placed under the hips.

Knee and hip exercises are best obtained by the bicycle movement and also by crossing the extended legs past each other to and fro. Next the blanket or pillow should be placed under the shoulders to allow the head to drop back: the head should be raised and lowered and swung and rotated in all directions. Next the muscles of the abdomen should be alternately tensed and relaxed and also kneaded with the fingers or knuckles. The position of the body should then be reversed with patient on hands or elbows and knees. The back should be alternately humped and swayed and the entire body moved as far as possible forward and back. Swaying and twisting of the spine and torso may be done while sitting on the edge of the bed or on a chair or while standing. Many other movements may be suggested in cases where special advice is needed.

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Article #3: Good Posture by Dr. Herbert M. Shelton

The upright position is man's natural one, but, due to many causes, the great majority of civilized men and women are stooped and round shouldered. "Old man's stoop" is the posture into which everyone is drifting unless his or her occupation or gymnastic activity is such as to counteract the tendency in this direction.

... Notice people as they walk, you will see that few walk well. Bad positions in sitting are so common we hardly notice them. Go into any school room and you will see boys and girls, go into any audience and you will see men and women, the majority of them, sitting in the most uncouth and unhealthy attitude. This is an indication of physical weakness, want of physical culture, and inharmonious development. The lungs are cramped and the stomach, liver and all of the abdominal organs crowded out of their positions.

Good posture is good form. Certainly good posture is of as much importance as the correct pronunciation of words over which the schools spend so much time, while neglecting posture. Upon the upright attitude depends the usefulness of the senses, complete respiration, the ability to talk, speak or read with correct tone of voice, and the most efficient use of the body. Erect carriage is exceedingly important to health and vigor, as well as to best appearance:

Why are we so particular about the forms of our horses or dogs; why do we refuse to buy one with low head, limping gait, or halfhipped appearance, with weak lungs and scraggy body, while we are willing to be and become all of these ourselves.

What is designated body mechanics has reference to the mechanical correlation of the various systems of the body, especially in reference to the skeletal, muscular and visceral systems and their nerve supply. When the mechanical correlations of the body are most favorable to the function of its various parts, this is designated normal body mechanics. Any lack of correlation in any of its parts that hampers, or impedes any of its functions represents a deviation from the norm or ideal.

Many deviations from normal mechanical correlation in the body result in visceral malpositions and in strain, thus resulting, not in disease, but in general impairment and enervation. To secure the best results in function in the body, all of its structures must be properly aligned and correlated. Those parts that are malaligned are under stress and strain at all times, hence wear down more rapidly than do properly aligned parts.

Dr. Skarstrom says, "Erect carriage, easy poise and fine bearing, when habitual, signify perfect adjustment, weight distribution and balance of the different parts of the body. They represent economical distribution of muscular tension, a high degree and even balance of muscular tone, equalized pressure on the surfaces of joints and minimum tension on their fibrous structures. All this implies readiness for all kinds of action, elimination of unnecessary strain, conservation of energy.

Good posture also means the most favorable conditions for the internal organs as regards room, free circulation, relative position and natural support. Thus it makes for health and efficiency, as well as beauty and harmony.

... The precise degree to which faulty posture interferes with normal body function is not easily measured. There is, however, considerable evidence which shows that the stresses and strains produced by faulty posture, especially those assumed and sustained in work, are responsible for much pain, including "referred pains" and even functional visceral impairments. Ours is a day of stooped shoulders, relaxed abdominal walls and sagging viscera.

Lordosis of the lower spinal column is accompanied by kyphosis in the upper back and lordosis of the neck, the upper curves being compensatory. Changes in the curves of the spinal column result in changes in the attached structures thus throwing strain upon the supporting ligaments malpositions and sometimes crowding of the viscera, circulatory impediments, perhaps even nerve irritation from pressure.

Lordosis causes a forward tilting of the pelvis thus forcing the abdominal viscera against the front wall of the abdomen, the muscles of which become stretched and this under constant pressure. The attachments of the mesentery to the lumbar spine are also lowered by lordosis so that the intestines and other supported structures are permitted to sag and assume lower positions in the abdominal cavity. There is evidence that the liver may rotate forward and to the right thus stretching the common bile duct and perhaps, in some cases seriously interfering with bile flow. Ptosis of the kidneys, especially of the left kidney results in traction on the renal veins. The pelvic organs are also involved in the general visceroptosis that results from faulty posture. The ovaries are ptosed, the uterus becomes malposed due to the weight of the sagging abdominal viscera resting upon it, varicose veins of the lower bowel and various impairments of the reproductive system are possible results of the impeded venous flow. The relaxation of the abdominal wall and the crowding of the abdominal organs in the lower abdomen and pelvis permits an increase of blood in the venous reservoirs of the abdomen, thus diminishing the blood volume. This pelvic and abdominal engorgement may also contribute to tumor formation.

Disturbed lateral (side) balance of the spinal column gives us unequal shoulders (one shouder is lower than the other), a neck that angles in one direction or another above the shoulders or a head which is set crooked on the neck. Such defects of posture and evidences of poor body contour may result from a tilted pelvis, one leg being shorter than the other, or from habit.

... Proper posture is a normal by-product of healthful living and proper body activity. Nearly all of the activities of civilized life encourage the forward position of the head, arms and shoulders. There is a drooping or forward position of the head, a forward displacement of the shoulder girdle and more or less depression of the chest. This is not due to any inherent inability of the spine and associated structures to maintain the upright position. One writer says, "It is not correct to say that spines are not perfectly adapted to the upright posture; it would be more accurate to say that human spines were not evolved to withstand the monotonous and trying posture entailed by modern education and by many modern industries."

... The physical factors which determine posture are (1) the size and shape of the bones and their articular surfaces; (2) the relative length and tension of opposing muscles and fibrous structures; (3) the degree of localized muscular control.

The relative size or shape of ribs, clavicles, scapulae, and vertebrae, as indicated by the general configuration of the chest, shoulder and back, is largely a matter of nutrition and "heredity." However, their sizes are influenced to some degree by the use of these parts, especially during the growing period; for, use or exercise not only influences the size and form of the bones directly, through the demand made upon these by stress and pressure, but also, indirectly, through the constant tension on the bony segments from the resulting muscular tone. I have observed that well-nourished children are straight postured while malnourished children tend to let their shoulders and head droop and sag. I do not doubt that malnutrition is one of the chief causes of early faulty posture.

From Exercise! by Dr. Herbert M. Shelton

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Article #4: Correcting Sensitivity to Light by Edwin Flatto, N.D., D.O.

Nature has designed our bodies so that muscles not in use will atrophy. Muscles that are constantly used will become stronger.

The mechanism of the eye which controls dilatation and contraction of the pupils is an automatic one. Those individuals who have developed a sensitivity to light should practice the following:

1. Forget to wear your sunglasses more often until you have found you don't need them.
2. Throw away the Venetian blinds, make dresses and tablecloths from your drapes, and take advantage of the natural sunlight in your home.
3. Try to do as much reading in natural light as possible. If the sun is too strong, cover the bottom half of the book with a black paper or cloth to avoid reflected glare from the printed page.
4. The following exercises are also recommended:
    a. Stand in a dark room and switch a 100-watt light bulb on and off at intervals of ten seconds.
    b. While standing in daylight (preferably before 10 a.m. or after 4 p.m. when the sun is at a

> slant) face direction of the sun and rotate the head from side to side, constantly blinking, and never looking directly at the sun. Try this exercise for no more than three minutes in the afternoon. As the eye muscles increase in strength, progressively increase the amount of time Until six minutes have been reached both morning and night. The exercise is not recommended for more than six minutes, twice a day. It is very important never to look directly at the sun, and should discomfort be experienced, the time period should be cut down. (Staring into the sun or staring at bright sources of light produces strain and should be avoided. In various eye diseases, such as glaucoma, detachment of the retina, iritis, it is advisable to abstain from sunning the eyes.) This exercise should be performed under the supervision of a qualified practitioner experienced in this type of therapy.

As another strengthening exercise for the eyes, face the sun with the eyes closed and slowly rotate the head from side to side. The warm, penetrating, and relaxing rays of the sun will strengthen and soothe the muscles of the eyes. This sunning of the eyes will also benefit upper and lower eyelids. It will also help overcome (in conjunction with dietary and systemic measures) sties, conjunctivitis, and blepharitis (inflammation of the eyelids—the authors).

From The Restoration of Health—Nature's Way by Edwin Flatto, N.D., D.O.

Home > Lesson 96 - Corrective Exercises And Their Application > Article #5: Words Of Wisdom by Silvester Graham

Article #5: Words Of Wisdom by Silvester Graham

WORDS OF WISDOM from LECTURES on the Science of Human Life by Sylvester Graham

1. In a limb which is habitually and vigorously exercised, the arteries become much larger, and the muscle more fully developed, than in the corresponding limb which is little employed; and, on the other hand, if the same limb be suffered to remain inactive for a considerable time, the size of the arteries will be much diminished.
2. The habitual exercise of our body or limbs, therefore, in any particular kind of employment, enables us to put forth more muscular power in that employment, or one requiring the action of the same muscles, than in any other. Hence, one individual may excel in the muscular powers of his arms, another in that of the lower limbs, and another in that of some other part, according to the nature of the regular employment of each.
3. Exercise of the cerebral organs certainly does increase their activity and vigor, and unquestionably also it increases to a certain extent their size or volume.
4. To keep up this grand vital circulation, to give to all the vital functions, to give perfectness to all the vital changes, and to secure a proper supply of blood to every part, and maintain the general health and energy of the system, EXERCISE, or voluntary action, is of the utmost importance. It greatly promotes circulation, and particularly in the capillary system, or the myriads of minute vessels which are so numerously distributed to every part of the body; it equally promotes respiration, causing full and deep inspirations of air, and a vigorous action of the lungs; and serves to impart vigor and activity to all the organs, and to secure the healthful integrity and energy of all the functions, and the symmetrical development and constitutional power of the whole system; and gives strength and agility and elasticity and grace to the body; and energy and activity to the intellectual and moral faculties. Indeed, exercise may truly be considered the most important natural tonic of the body. If it is wholly neglected, the body will become feeble, and all its physiological powers will be diminished; but if it is regularly and properly attended to, the whole system will be invigorated, and fitted for usefulness and enjoyment.

5. We have seen that every contraction of the muscles serves to exhaust their vital properties; and to replenish their exhaustion, a constant supply of fresh arterial blood is diffused throughout the muscular tissue in great abundance; and the more vigorously any part is exercised, the more rapidly and abundantly that part is supplied with arterial blood; and hence, the habitual, healthy, and vigorous exercise of any part, always serves to produce and maintain a full development of that part, and to give it greater power. Thus, if one arm is constantly and vigorously exercised, and the other remains wholly unemployed, the muscles of the former will soon be much more largely developed and far more powerful than those of the latter. Hence, the welfare of the whole system requires that each part should be duly exercised, and most especially in young and growing bodies, which are easily deformed and even dreadfully distorted by a neglect of voluntary action.
6. So far as voluntary exercise or labor is necessary to the most healthy condition and perfect functions of the human system, it is a blessing; and beyond that, it is in some measure an evil; for in proportion to the excess, life is always shortened, and the body predisposed to disease
   From constitutional necessity, therefore, if man takes too little voluntary exercise, he suffers; and if his voluntary exercise is excessive, he suffers. But happily for the race, the sufferings from excessive labor bear no proportion to those which result from inactivity. A man may greatly abbreviate his life by overtoiling, and yet through the whole of his earthly existence enjoy1 comparatively good health, sweet sleep and a cheerful mind; but he who suffers from want of exercise—and especially if with that is connected excessive alimentation and other dietetic errors—experience the bitterest and most intolerable of human misery.
7. ... The structure of society in civil life requires that many should be devoted to pursuits which are less favorable to health than the calling of the husbandman; and a large majority of these pursuits are of a nature which does not admit of sufficient active bodily exercise for health and comfort. To all such, therefore, exercise becomes a necessary part of regimen, and must be regularly attended to, or they must suffer. And yet, where it is mere matter of regimen, attended to because it cannot be neglected without suffering, it loses more than half its virtue. Exercise, in order to be most beneficial, must be enjoyed. The mind must enter into it with interest, and if possible with delight, losing the idea, of labor in that of pleasure.

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Lesson 97 - Devising A Lifestyle That Includes Vigorous Activity

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1. Introduction

"I'm too busy to eat."

"Sleep? Who has time for that?"

"I try to take a bath or shower on the weekends. I've got too much work to do during the rest of the week."

You won't hear people talk like this. Eating, sleeping, and bathing are all part of the normal person's daily lifestyle. Yet 63% of all Americans do not take part in another regular activity that's just as vital to our well-being and health—exercising!

Exercise is not a daily part of most people's lives. And that's very strange, especially when you consider that over 90% of all adults agree that proper diet and regular exercising would do more to improve health than anything that physicians or medicines could do for us (or to us).

Why isn't exercising more popular? Well for one thing, exercise requires some hard work, a little time, and a good measure of self-discipline. You have to make room in your life for exercise and vigorous activity.

Once you put daily exercise into your life, the rest is easy. The difficult part is to first devise a lifestyle that includes vigorous activity. That is what this lesson is all about—how to develop a lifestyle for yourself or for your clients that includes regular exercise and daily vigorous activity.

1.1 What Is Vigorous Activity?

Almost everybody is active throughout the day. Performing our normal chores, doing our work and running errands, even simply sitting and reading requires a certain level of activity. Even in sleep, the body is still active, tossing and turning, using up to 60 calories per hour in this reduced metabolism.

Yet *vigorous* activity is needed by our lungs, our circulatory system, our muscles and nerves for optimum health. Otherwise, we become sluggish. Bodily functions are impaired, the health of the organs deteriorates, and we suffer from poor sleep, digestive problems, constipation, and poor posture.

Vigorous activity is different from normal activity in that it makes our entire body work, strive, grow, and vibrate. It makes our breath quicken, our pulse race, and our heart pound. In short, it makes us feel alive.

1.2 Is Exercise Unnatural?

Thousands of years ago, there was no such thing as "exercise" or calisthenics or daily workouts. Life for primitive man was one of continual vigorous activity. He climbed trees for fruit, migrated 25 to 50 miles per day during the seasonal changes, and did a fair share of sprinting, running, and swimming just to avoid wild animals and his enemies.

Daily life was full of "exercising" for our ancestors, and their bodies remained supple, lean, and strong from just responding to the constant demands of survival and living out in the open twenty-four hours a day.

So you see, exercise is unnatural. If man himself led a purely natural life, unfettered by the demands of civilization, he would receive a full range of vigorous activity that would keep the body in superior health. However, almost no one on this planet today has such a pristine existence. We sleep in buildings at night, "gather" our foods from supermarket bins, and ride in an automobile to a job that requires us to sit at a desk for most of our waking hours.

As Dr. Herbert M. Shelton has observed, "Some people often urge that the normal activities of life should supply all the exercise needed after maturity is reached. The reply is that the activities of civilized life are not normal."

Still, many people scoff at the idea that they might need daily periods of vigorous activity. They still see exercise or jogging or weight-lifting as something artificial, unnatural, or abnormal. The real reason for their mistrust of exercise may be far simpler, however.

"It is often contended," writes Dr. Shelton, "that formal exercises are unnatural or abnormal, hence, of no benefit. But there is no difference between the contraction of a muscle in formal exercise and its contraction in what we may designate as primitive activities of life. There is no such thing as artificial contraction of a muscle. No exercise using spontaneous movements, whether in primitive activities or formal exercise, can be called artificial or unnatural. The objection to exercise seems to be the expression of that laziness that stems from a lack of vigor, the very vigor that exercise provides for."

Still, people resist the idea of devising a lifestyle that includes vigorous activity. As you deal with your clients and friends, you may hear an all-too common excuse: "I don't need to exercise because my job or my daily work provides me with all the activity I need."

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2. Informal Exercise

2.1 Work Isn't Exercise!

Exercising may be hard work, but hard work isn't exercise.

A common mistaken belief is that if you perform hard work or heavy labor at your job, then you don't really need to exercise during your nonworking hours. I remember talking to a city employee who repaired streets with a pneumatic drill or "jackhammer" all day long.

The man's forearms were immense knotted muscles that had been developed through years of holding a heavy jackhammer in place to rip up old asphalt pavement. His wrists were powerful and he had a grip that made handshakes a must to avoid.

Yet when you looked past his arms, you saw a sagging potbelly, spindly legs, and stooped shoulders. His complexion was a dirty yellow, his eyes dulled, and his hearing almost gone from years of hammering at the pavement. Had his daily work kept him in good shape? Only the arms!

The sad fact is that most work performed today is not adequate, all-around exercise. "There are no less than 400 muscles in the body, each in need of regular exercise," writes Dr. Herbert M. Shelton. "The belief that the ordinary activities of life provide adequate exercise for the muscles of the body is a blind one. Anyone may readily see this for himself when he examines the limited extent to which his muscular system is used in his daily activities. Even in the man who performs manual labor, many muscles are neglected. Modern specialization, both in work and in play or athletics, neglects many muscles."

The busy mother and housewife who picks up dirty clothes and toys, straightens closets, and puts away dishes may be doing plenty of hard work, but very little significant exercise. Even a manual laborer such as a groundskeeper who mows, rakes, and trims yards for eight hours each day uses only a limited set of muscles.

Most work in the modern world, because of its highly repetitive, specialized and limited nature, cannot supply the full range of muscular activity that is required for beneficial exercise. This is one reason why people find work and their jobs so tiring.

"Modern man," observes Dr. Shelton, "spends most of his working hours using but limited parts of his muscular system in specialized activities, and often using these only slightly, and so becomes but a caricature of a man. He is undeveloped, one-sidedly developed, and almost always lacking in vigor."

Exercise actually increases our vigor. Energy expended during proper exercise is quickly returned following rest and relaxation. Not only that, but a half-hour of intense and concentrated exercising can accomplish more conditioning than a full day of hard manual work.

In contrasting the benefits of selective exercising versus most daily labor, Dr. Shelton notes: "Greater strength and development and more symmetrical development may be obtained by appropriate exercise than by most forms of physical work. Actual tests have shown, for instance, that a few minutes of proper exercise daily will produce a greater increase in the size of the arms, legs, back or chest in a given time than work will do."

2.2 But Don't Stop Working!

Although more can be gained in an hour of structured and regular exercise than can usually be obtained from a day of regular work, we can still use our jobs as a form of beneficial exercise. After all, we spend the greater portions of our lives involved in some sort of productive labor. By using our imagination and becoming more creative, we can turn our regular daily jobs into mini-exercise periods all through the day.

Perhaps one of the most effective ways to devise a lifestyle that includes vigorous activity is to incorporate exercising into your daily job. This method is appealing because it doesn't take up much extra time. Since you're already working, you might as well be getting some form of vigorous activity. Let's look at a few case histories of people who have put the "exercise" back into their "work".

2.3 Rub-adub-tub: Exercise in the Bathroom

One group of people who need to exercise the most are those that seem to have the least time: young mothers and busy housewives. "Exercise?! After changing diapers, scrubbing floors, and cleaning out the garage. Just give me rest, thank you," said a young woman of three pre-school children.

Ann Dugan, a 55-year-old grandmother, however, disagrees. "You have to clean up the bathroom every day, and if you have to do it, you might as well make it productive," said Dugan, author of 12 books on exercise and weight training. She developed a series of "at-home" exercise that housewives can do while getting the necessary housework out of the way.

"You might as well toughen up your body while you're toughening up the bathroom," said Dugan, who also emphasized that her exercises can be done in homes, offices, cars, and airplanes. "With all the bending and stretching needed to get to high shelves, inside cabinets, and under furniture, it's easy to turn those movements into a tough workout."

For example, Dugan suggests that when you clean your bathtub, instead of getting down on both hands and knees, you can kneel on the right knee only and clean the tub with the right hand. This position causes the pectoral muscles to be used and the hamstrings to be stretched. By reversing the knees, you can achieve an equalizing stretch while giving the shoulder and chest muscles a workout.

Even cleaning a toilet bowl can turn into a beneficial exercise by using Dugan's "dip-and-disinfect" method. The cleaner stands, facing the toilet bowl, with legs bent so that the hips are low. The thighs should be parallel to the floor, with the left hand braced on the water tank as you scrub with the right hand. During this scrubbing process, you should raise and lower the heels at least ten times. This modified form of the "squat" exercise is the same one that is used by weightlifters to develop their lower bodies and reduce fat around the thighs.

Of course such intermittent exercising while doing housework cannot take the place of sustained and vigorous activity. Yet the extra bending, stretching, and flexing that may be done while at a regular job can help keep the body supple and ready for more intense physical activity later in the day or during the weekend leisure time.

2.4 Office Calisthenics

Some jobs, such as yard work, carpentry, construction, and farming, provide many opportunities for incorporating vigorous activity programs throughout the day. The construction worker may simply carry heavier and heavier loads while on the job to develop his musculature, while the farmer or gardener can take a shovel and hoe for an added hour of a combined exercise and work "workout."

Even the deskbound office worker can add activities to his daily job routine that will sneak in valuable minutes of vigorous activity. Here's how one Life Scientist got an hour's worth of jogging in without ever leaving his office building!

"I worked on the sixth floor in a large office complex, and was behind a desk all day. My thinking became dulled and fuzzy from just all the inactivity. By the end of the day, I was so fatigued from the unnatural environment that I just couldn't drag myself out to a track where I could run in the evenings. Then one day I read that climbing stairs actually gave more of a cardiovascular workout than jogging for the same amount of time.

"I rarely ate lunch while at work, since I was sitting most of the day, so I decided to get some on-site exercising done. Like other large buildings, my office had hidden flights of stairs for a fire escape.

Almost everybody rode the elevators, leaving the stairways unused. That day I walked down to the bottom of six flights of stairs, and then ran to the top. Walked down, and then ran to the top again. After twenty minutes of this running upstairs, I was breathing very heavily and my heart was pounding in my ears. I knew I was on to something good.

"Now everyday I'm out running up and down the stairs, sometimes three times a day in order to break up all the inactivity at my desk. I feel that I think much better after a period of stair-running. My only fear is that someday my co-workers will see me and think I'm running down the stairs because the building is on fire!"

Almost any job can be arranged so that small periods of vigorous activity can be performed. This is the easiest way and the first way that some people work exercise back into their daily routines.

So remember, while work may not be exercise, you can put the vigor back into work by slipping in some exercise periods of your own.

2.5 Daily Life As Exercise

Besides the working hours, our lives provide us with many other opportunities for including vigorous activity periods.

Gardening, lawn work, planting and harvesting your own food, improving and beautifying your natural surroundings—all of these outdoor activities increase our natural vigor and provide effective exercise.

Walking to our jobs or to the marketplace instead of driving provides valuable exercise while at the same time saving us money and conserving energy.

Performing our daily chores such as cleaning or sweeping at a fast rate of speed can turn a moderate work pace into a workout.

How can you determine how vigorous and effective your normal daily activities are?

One way to determine the vigor required for an activity is to measure how many calories of energy are expended if that activity were done for an hour. For example, a moderate walk burns around 200 calories per hour, while a steady jogging run can use up to 500 calories or more in the same time. The following chart will give you an idea of how strenuous some of our daily activities, athletics, and exercises can be:

Activity	Calories Expended Per Hour
Sleeping	60
Sitting and reading	72
Sitting and eating	84
Sitting and knitting	90
Sweeping	102
Desk work	132
Playing the piano	150
Scrubbing floors	216
Walking (moderate)	216
Bricklaying	240
Ironing	252
Bowling	264

Swimming (leisurely)	300
Walking downstairs	312
Carpentry	408
Farmwork in a field	438
Mowing the lawn	462
Skiing	594
Handball	612
Running	630

Of course merely burning up calories is not the point of exercising, and this chart should not be used to equate various activities. (For example, ten hours of sleeping at 60 calories per hour is *not* equal to one hour of jogging at 600 calories!)

What you can learn from the above chart is that normal daily activities can vary a lot in the amount of vigor that they require to complete. By selecting more and more of the more strenuous activities as part of your normal daily routine, you're getting more exercise into your life.

As you look for ways to turn your normal daily activities into mini-exercise periods, you'll discover more and more chores that can be done vigorously and with beneficial results.

As Dr. Shelton reminds us, "The total activities of the day, and not merely the short time spent in formal exercise, are involved in the development of the body; hence it is important that all activity be performed correctly and with a view toward improving the total organism."

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3. Formal Exercise

No matter how good we become at including vigorous activities into our normal job and other daily routines, a formal exercise program is still an absolute necessity for radiant health.

This is where the difficulties begin. People resist making changes in their lifestyle, especially changes that may take up more time and require concentrated and dedicated physical effort. Mention to an overweight and sedentary adult that he or she will have to start running and lifting weights for an hour-and-a-half starting tomorrow and you'll probably lose a client.

Sudden changes in a lifestyle can be difficult, and even moreso when formal exercise is viewed as hard work or distasteful. The first step is always the hardest, so it may be wise to adapt a sensible approach when either you or one of your clients begins making regular and formalized exercise a part of the daily routine.

Fortunately, there is an easy way of introducing exercise and vigorous activity into everyone's normal lifestyle. It's something that most people start doing after the first few months of life: walking.

3.1 Walking: The All-Around Exercise

Perhaps no form of exercise can be so universally recommended as a good brisk walk. Walking may be done safely by people of all ages and in all states of health. It requires no special equipment or location, and is completely benign in its effects.

More importantly, walking is an exercise that can be worked into everyone's lifestyle, no matter how busy the schedule. Walk to work, walk to the store, walk to a friend's home, walk around the block, through the neighborhood, and across town. There is no other form of exercise that can be so safely and easily integrated into one's daily activities as the occasional walk.

For walking to be an effective form of exercise, generally an hour or more each day is required. This hour may be worked up to by splitting the time into two thirty-minute periods, three twenty-minute sessions, or even four fifteen-minute outings if the person is old or out of shape.

Unlike other forms of exercise, walking may even be engaged in right before or after a meal. Indeed, studies have shown that a walk after a meal aids in controlling the weight.

Although even slow and leisurely walking will have some beneficial effects, a brisk walk done at a fast clip will provide more benefits in a shorter time. "Speed walking" or race-walking (which is actually an Olympic event) can yield the same results as jogging for the same length of time and at a considerably less chance of foot or knee injury.

Walking not only benefits the legs and lower body, but it actually strengthens and firms the body, expands the chest and lung capacity, and corrects the posture from top to bottom. Chronic neck problems, including whiplash, have been gently corrected simply by regular and lengthy walking.

Yet for all the benefits of walking, few people make it part of their regular lifestyle. The automobile saves us time, but at a cost to our well-being. Any daily trip which is less than one mile should certainly be walked instead of driven. If you live within five miles of your job, then you may profitably walk to work by simply leaving your home 45 minutes to an hour earlier.

In Europe, walking vacations are quite popular. Each day you walk fifteen to twenty-five miles, seeing the sights as only you can on foot, and then resting in the evening at a hotel.

Primitive man was basically a walking, food-gathering creature. He migrated north to south, south to north, during the fruit-growing seasons, walking from berry bush to fruit tree, eating, moving, and receiving nourishment and exercise from his natural surroundings.

Not only may walking be used in a regular exercise program, it can also be part of an overall, health-restoring lifestyle. Consider the story of Milton Feher of New York City:

"I was a dancer whose career was smashed by arthritis in the knees. An eminent orthopedist explained that I would never be able to dance again because cartilage in my knee had been destroyed through excessive ballet jumping. More than 20 chiropractic treatments made no difference. Nineteen injections failed to relieve me of my constant pain.

"I was a sorrowful ex-dancer as I hobbled miserably in Times Square one day, thinking of my dancing career that had been stolen from me. As I shuffled about, each step drawing pain, I started to pull my body up into a straight posture. I consciously aligned my body from neck to foot, relaxed, and then walked very purposefully in an erect manner, without tipping my head or trunk side to side.

"I felt no pain in my knees! As soon as I slumped or let my posture go, the pain returned with each step. For the next three years, I walked, walked, walked, all the time maintaining the best erect posture possible, yet without tension or strain.

"Now 15 years later, I can run 9 miles in the morning and lead vigorous dancing classes in the evening. The main source of my constantly-increasing strength is a continuous improvement in the effortless straightening of my posture by devoted, regular walking for hours at a stretch."

There is no doubt that walking is an excellent corrective, as well as preventive, exercise. "I'd be out of business within a week," a chiropractor once told me, "if everybody would throw away their car keys and just walk. Almost all the complaints I see are from people who are too sedentary. Walking is the most natural way I know of adjusting and realigning the spine which obviates the need for manipulation."

Let's look a little closer at how daily walking as part of your lifestyle can not only strengthen you, but also improve the posture and tighten the abdomen.

Modern man developed his erect posture because he is a walker. Primitive man was round-shouldered, short-necked, and his head jutted forward, ahead of his feet. Through thousands of years of walking, man's spine and posture was gradually straightened.

When walking is neglected and is no longer part of your daily lifestyle, the posture is the first to go. As a person sits more and walks less, the head droops forward and pulls the spine with it. This slumping is then accelerated by gravity, and you become round-shouldered, hunched over—much like the primitive caveman who once scampered on all fours.

Another side effect of neglecting walking and hence developing poor posture is that the abdominal muscles become weakened. Walking is an excellent "tummy tightener." The abdominal muscles are attached to the entire lower border of the front of the chest. They cover the entire abdomen and are attached to the upper border of the front of the pelvis. When they are strengthened and in good position by years of proper posture and regular walking, they prevent the organs in the abdominal cavity from slipping and sliding forward. The more they protrude, the weaker they grow as the muscles become stretched permanently. Strong abdominal muscles, insured by regular walking, hold you together to be more graceful, skillful and stronger in all activities.

Regardless of the exercise program you now follow, walking should be a part of it. And if you have yet to develop a regular program of daily exercise, walking is the easiest and most effective way to begin.

The road to health is a simple one to follow—it's only two feet in front of you.

3.2 The Three Rules of Exercise

So far you've learned how vigorous activity may be incorporated into your life through your job, your normal daily activities, and by simply making walking an important part of your daily routine. We've really said very little about a formalized exercise program, however.

To make sure that you get the type of intense activity that your body requires, it will be necessary to develop a daily exercise program. This program should become part of your daily lifestyle—something that you do without fail, just as you eat, sleep, and relax every day.

As you develop your regular exercise regimen, keep these three rules of exercise in mind:

To insure health and well-being, exercise must be

1. Progressive
2. Systematic
3. Habitual

3.3 Progressive Exercise: Setting Your Goals

Progressive exercise means that you progress from easy to more vigorous activity as your strength and capabilities increase. For example, if you start by lifting twenty-pound weights for exercise, then you should gradually increase the amount of weight lifted so that you might be using thirty- or forty-pound weights as your strength increases. If you walk a half-mile each day, then perhaps increase the distance to a mile or two miles as your stamina develops.

For exercise to be effective, *moderate* demands must be made on the body. Since a healthy body responds so well to exercise, you must gradually increase the time and effort spent for each activity. On the other hand, do not make the mistake of thinking "a little is good, so a lot is better."

Dr. Herbert M. Shelton has observed that: "Progression in exertion should keep pace with the increasing strength and vigor of the body; it should be made step by step and not by leaps and bounds. Excessively prolonged exercise can be almost as injurious as violent exertion."

When we develop our lifelong exercise program, we must allow for progression. We must set and reach new goals. We must make sure that our daily exercise program allows for change and progress and that we do not become locked into the same routine series of activities that present no new challenges. At the same time, we must make sure that our beginning exercise program is not, overly ambitious, otherwise we may become discouraged or extend ourselves past the current limits of our capabilities.

To help you begin and plan a vigorous activity program, you should first determine your own maximum heart rate. You don't want to push yourself past this maximum rate; at the same time, you want to make sure that you are exercising intensely enough to raise your heartbeat rate to within a high, safe range of that upper limit.

The accepted formula for figuring out your own maximum heart rate is to subtract your age from 220. If you are 60 years old, then your maximum heart rate would be 160 (220 minus 60). If you're eighteen years old, then your maximum rate would be as high as 202. You can measure your elevated heart rate by first performing a few minutes of vigorous activity and then counting your pulse rate at the wrist or simply feel your heart beat and count the beats for one minute (or more simply, count the number of beats for fifteen seconds and then multiply by four).

For safety's sake, some physicians recommend that you stay within 60 to 65 percent of your maximum heart rate when doing vigorous exercise. For a sixty-year-old, this would mean a pulse rate of about 96 beats per minute. On the other hand, Dr. James A. Blumenthal of the Duke University Preventive Approach to Cardiology says that his older heart patients often safely reach 70 to 85 percent of their maximum rate.

Regardless of the upper limit you choose (60 to 85% of your maximum heart rate), you should work up to it gradually in a series of progressive exercises. Each week, extend the program either in time or intensity so that a slightly higher pulse rate is reached at the end of a vigorous exercise set. Remember that we are not in a race to health, but we should always feel that we are making a steady, strong progress in our daily exercise.

With the rule of progression in mind, we should devise a daily exercise program that will allow for either increasing periods of time or intensity of effort while at the same time taking care not to be overly ambitious or unrealistic in establishing our goals.

3.4 Systematic Exercise: The Body as a Whole

The second consideration in planning a lifestyle that includes vigorous activity is that the exercise chosen must be *systematic*. Systematic exercise is simply an activity that conditions all areas of the body. For example, a combined program of running or walking along with weightlifting and bending and flexing exercises is a collection of systematic activities that call upon every muscle in the body.

Too often people choose only a single favorite form of exercise or sports, such as swimming or tennis, and use it to the exclusion of all other exercise activities. There is a danger in this because it is rare that any single form of exercise activity will provide the full range of movements that is needed to condition the entire body.

"But I like bowling! It's good exercise because I can do it in the winter as well as the summer, and lifting that heavy bowling ball and tossing it down the alley sixty or seventy times a day gives me a good workout." The elderly woman was defending her favorite form of recreational activity—bowling—as sufficient exercise.

"But look at the muscles you use in your game," I responded. "You use only your right hand and arm to wing and release the ball, you go through the exact same range of limited motion, and the only parts of your body that get a workout are a few muscles in one arm and on one side of your body. Bowling is fine for recreation and relaxation, but it cannot qualify as an all-around life-long exercise activity. Now if you jogged down to the bowling alley each day with your bowling ball..." I began to joke.

She got my point. We must carefully select the exercise program to complement our other daily activities and work. As Dr. Shelton urges: "The exercise program should include movements that counteract the deforming tendencies of our daily work activities while at the same time exercising the unused portions of the body. Most of our sports, our different forms of work, and almost all of our daily activities are so one-sided and specialized that we become misshapen and underdeveloped."

To make sure that our daily exercise program is systematic, a few rules should be observed. First, there must always be at least a fifteen- to thirty-minute period of vigorous conditioning, aerobic activity. This would include such exercises as jogging, brisk walking, intense swimming, fast bicycling, even repeated stair climbing or hill hiking. Whatever the exercise may be, it must make the heart beat faster, the pulse increase, the breathing deepen, and the entire metabolism quicken. This pace should be maintained as long as comfortable, with an eventual goal of twenty to thirty minutes or longer. In the beginning, work up to such intense activity gradually. Increase your speed and time as your body responds favorably.

Second, there should be a period of exercise that stretches the many unused muscles of the body. Back bends, leg stretches, pull-ups, sit-ups, neck rolls, and twisting are essential for a well-rounded exercise program. An excellent series of such all-around exercises may be found in Dr. Herbert Shelton's book *Exercise!* Such exercises should be selected to balance out other daily activities and other exercise programs. For example, students and writers who bend over a desk all day should make sure that back bending exercises are used to compensate for the forward, stooped-over position assumed while reading or writing.

People who choose to run or walk as their primary exercise should also include a sequence of exercises to work the upper portion of the body, such as weight-lifting or a racquet sport.

Third, there should be a final sequence of exercises or daily activity that requires coordination and balance. Many sports and recreational activities require hand-to-eye coordination, such as hitting a baseball, tossing a horseshoe, or even bowling a strike. While this type of activity does not provide the conditioning that vigorous exercising such as jogging delivers, it does help to relax and balance the mind. This group of exercises include most sports and athletics which, while fine ways to relax and play, should always be used in tandem with concentrated vigorous activities. Gardening, too, like sports and athletics, may also be classified as a relaxing and balancing form of exercise and activity that may be used to complement an intensive daily workout.

Using these three criteria, what might a daily program of exercise look like? Here are two Life Scientist's approach, one is a young man of twenty-four; the other is a sixty-seven year old woman:

3.5 Sample Exercise Regimens

Male, 24 years

Monday - Wednesday - Friday
Jogging/Sprinting (mornings) - 45 minutes
Weightlifting, upper body - 30 minutes

Tuesday - Thursday - Saturday

Swimming (summer)/Bicycling (winter) - 30 minutes
Weightlifting, lower body (Thursday/Saturday) - 30 minutes
Racquetball (Tuesday & Saturday) - 30 minutes

Sunday
Soccer League Game - 90 minutes

Every Day
Warm-up and Morning Flex-stretching - 15 minutes

The above exercise program yields approximately one-hour-and-fifteen minutes to one-hour-and-a-half of activity per day. Notice that each day Usually contains activities that build both strength and endurance. In addition, he follows a daily stretching routine in the morning which incorporates selected exercises from Dr. Shelton's series of recommended exercises from the book *Exercise!*. The racquetball games build upper body strength and coordination, while the weekly soccer game provides lower body conditioning. He usually breaks his exercises up into a morning and evening set of activities, about thirty minutes or so in length.

Female, 67 years

Monday - Wednesday - Friday
Brisk walking (mornings) - 30 minutes
Walking/Hiking, slowly (evenings) - 45 minutes

Tuesday - Thursday - Saturday
Gardening; digging, hoeing, weed pulling - 2 hours
Swimming (summer) - 30 minutes
Moderate walking (winter) - 30 minutes

Sunday
Bowling - 90 minutes

Every day
Stretching, yoga, sit-ups - 20 minutes

An exercise program for an older person must be somewhat different than for a young person. Walking is used more as a form of exercise, athletics are not emphasized, and such recreational/outdoor activities as gardening are highlighted. Notice, however, that a full hour to hour-and-a-half of time is still allotted for moderately-vigorous activity that will use all the muscles in the body.

Whatever exercises you choose for yourself, always keep in mind that for a program to be truly effective, it must include vigorous activity that calls all of our muscles into play. It must affect the body as a whole; it must be systematic, thorough, and responsive to all the needs of the body, neither over- nor underdeveloping any part of the body to the detriment of the entire organism.

3.6 Get The Habit!

Remember that an exercise program should be *progressive*, *systematic*, and *habitual*. Perhaps that most important of these three for an insured successful exercise regimen is that it be habitual. If you make vigorous activity a daily habit, then you're sure to make progress and eventually exercise the entire body. On the other hand, if you don't perform your exercise set on a day-to-day basis, then it doesn't matter how difficult or thorough it may be.

The only way to devise a lifestyle that includes vigorous activity is to exercise at a *fixed* time each day. It may be in the morning before breakfast or at night before bed or even during your lunch hour. The important thing is that you schedule your vigorous activity at a standard, regular time and then do not deviate or make excuses.

Most people find the early morning hours to be the best time for regular exercise. By doing your exercises the first thing in the day, you can't ignore or postpone it, or conveniently "run out of time" later in the day. The most common reason an exercise program fails is that a person will skip it "for just one day" and then for two days, and three days, and finally he's no longer exercising but simply making up excuses.

If you make a firm promise to do some sort of exercise *every* day and at a *regular* time, then it will be more difficult to put off. "Lack of time," writes Dr. Shelton, "is perhaps the most frequently-used explanation for avoiding exercise. Yet women may spend more time each day applying makeup than it would take to get some significant exercise, while men feel that it's more important to read the sports section of the newspaper than it is to actually be active and vigorous."

Lack of time is always cited as the excuse for not making exercise a regularly-scheduled part of the day's activities. No one, no matter how "busy" or important, cannot afford to make a small amount of time for so vitally an important an activity. Even the presidents of the United States, who certainly must be counted as among the "busiest" people in the world, find time in their packed schedules for regular exercise.

If you truly feel that your day is already so filled that you can't exercise on a regular basis, then try these tricks to get more quality time into your life:

1. Get up thirty minutes earlier, or go to bed thirty minutes later. Use that extra half hour or hour at the beginning and end of the day for your own exercise period. The vigor and energy that such exercising provides will more than adequately compensate for that lost thirty minutes of sleep.
2. Skip breakfast or lunch, and eat a piece of fruit later in the day in place of one of these meals. Use this meal time period as an exercise period instead. (Isn't it funny that the same people who say they have no time for exercise always manage to make time for a full three meals a day?) Vigorous activity actually delays hunger since it brings fuel from the liver into the bloodstream, and you'll soon discover that a lunch hour spent exercising leaves you more invigorated than if you ate a heavy meal.
3. Keep an hourly schedule of what you do each day. Write down *everything*. Do you spend an hour watching news on television? Thirty minutes shopping? Ten minutes driving to the store? Write it all down. Now look and see how much time/you're actually "wasting." You will have no difficulty finding an extra thirty minutes to an hour each day that could better be used by exercising.

People who say that they have no time for exercise are not thinking logically. If you exercise regularly, you'll live much longer and have years of added time to your life.

Exercising doesn't take time away; it gives you more time, better health, and a higher quality of life.

Besides lack of time, another obstacle to overcome in making exercising a daily *habit* is inertia, or just getting started. Kelly Kessing, a fitness and nutrition specialist in Philadelphia, has her own strategy for overcoming inertia.

"You've got to seduce yourself into going out there," she says. "For instance, if the idea of walking or running intimidates you, just don't tell yourself that you're going for a walk or jog. Don't pressure yourself. Put on your sweatsuit or walking shorts and a pair of comfortable shoes. Just say, 'Maybe I'll go for a walk or take a short jog, or maybe I won't.' Then just go outside to a park and start to saunter about. Maybe pick up the pace, and before you know it, you'll have slipped all the way into full-fledged exercise without feeling that you had to force yourself."

Another approach is to make a firm commitment to yourself. Write a note on your calendar or write on a piece of paper that "I will start my exercise program on Monday at 8 a.m." Then keep that promise as if it were the most important appointment in your life, because it is.

Another trick that some people use to make exercising a regular daily habit is to penalize themselves if they miss a day on purpose. For example, one Life Scientist has this unusual method to make sure he keeps his exercising promise:

"I have a jar at home that I stuff a $5 bill into for every day that I skip exercising. At the end of that month, I take whatever money is in the jar and send it to the American Cattlemen's Association. As a vegetarian, this is the one group that I would hate most to support. So you see, I'm blackmailing myself. If I don't exercise, the only people who profit are the meat-producers. They've only gotten $10 from me this year. Any day that I think about blowing off my exercise, I think about giving my hard-earned cash to those days, and it always gets me out of bed."

So whatever it takes—promises, schedules, or blackmail—make sure that your lifestyle includes the regular vigorous activity that you need for superior health and well-being.

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4. Questions & Answers

How do I know if I'm getting enough vigorous activity in my life?

> You should perform some activity that requires a concentrated effort of both mind and muscles. You should be breathing deeply, your heartbeat should be accelerated, and you should probably have a light film of perspiration, even in cool weather. You should experience this "conditioning" effect for at least ten to fifteen minutes, and preferably twenty to thirty minutes. After a vigorous activity is completed, you should still be in a state of accelerated metabolism (moderate heart and pulse beat, slightly deepened breathing) for another five to ten minutes
>
> As a practical rule, if you have difficulty sleeping at night, experience constipation, or feel continually fatigued and lacking in vigor, then you may also be sure that you probably are not receiving enough vigorous activity.

I'm fine on any exercise program—for the first two weeks. Then I find myself making excuses and finally I'm hack to where I started, a weekend athlete. Any suggestions?

> This is why it is so vital to make exercise and a vigorous activity period a *normal* part of your life—not simply something that you add to your day or do when you have "extra" time
>
> The most effective way to get exercise into your life—and make it stay there—is to do it as soon as you get out of bed. Before you eat breakfast, before you go to work, before you wake up the kids or read the paper, go and exercise
>
> If you make exercise an essential part of your daily activities, at the beginning of the day, then you won't start to skip it. Most exercise programs fail because people try to work it into their schedules. Instead, revise and start a brand-new schedule. Treat that morning (or evening) exercise period as something you *have* to do; it's not an option, but a necessity
>
> You may have to be a little compulsive at first, and really(exercise your willpower and self-discipline. Reward yourself, punish yourself, but promise yourself that the time you have decided as your exercise period is sacred and will not be sacrificed according to whim or any other superceeding responsibility.

Article #1: Exercise: A Hygienic Perspective by Ralph C. Cinque, D.C.

That daily exercise is essential to develop and maintain good health is one Hygienic principle upon which there seems to be universal agreement. Even the medical profession encourages regular exercise as a means of prolonging youthfulness and promoting cardiovascular well-being. The overall merits of regular exercise are fully recognized, and we have no need here to further expound upon them.

However, there exists a great deal of confusion regarding the relationship between exercise and health. Many people equate health with physical conditioning. The classical American model of male health is represented by a robust well-muscled physique, with erect posture, great strength and power. Without necessarily deriding this ideal, I must insist that it is not synonymous with health. There is not always a direct proportion between the level of physical conditioning and the level of overall health. Physical conditioning is only one aspect of health. The best athlete is not necessarily the most healthy. The one who runs ten miles is not necessarily in better health than the one who runs only five, or one, or for that matter, none at all.

I once overheard a well-developed body builder relate to his companion that he was subject to occasional episodes of gout. Every few weeks one or the other leg and foot would swell up and produce agonizing pain. He would be crippled for days at a time and would have to resort to large doses of aspirin and other pain killers in order to obtain relief. This incident made a tremendous impact on me because this particular body builder had an absolutely splendid physique. His muscular development, his posture, his body weight, his carriage, his symmetry, and his proportions were virtually ideal. He had the physique of a Greek god. By all popular notions, he was a picture of health. Yet, it should be obvious to the readers of this article that his health was far from perfect. Gout does not develop without causes, and being well-muscled does not lessen its implications or severity. How ironic that in the process of building an admirable outward condition, he built a morbid internal condition. It is likely that his interest in body-building prompted him to follow a high-protein diet and to use protein supplements, liver extracts, etc., and that these practices were mostly responsible for the development of gout.

Although it is true that those who engage in regular physical activity achieve greater longevity than those who are largely sedentary, it has not been shown that superb athletes achieve greater longevity than those of moderate ability. With the exception of cardiovascular diseases, the incidence of degenerative diseases among athletes (such as cancer and arthritis) is approximately the same as for nonathletes. Lou Gehrig died of amyotrophic latoral sclerosis. Babe Ruth died of cancer. There have been many outstanding athletes who have died tragically of crippling diseases.

Acute diseases are equally as common among athletes. Many an athletic contest has been postponed due to colds and flus. Tennis star Jimmy Connors was recuperating from a month long bout of mononucleosis right before the last Wimbledon tournament, and some have suggested that this was a factor in his loss to Borg.

Despite strong evidence to the contrary, the popular notion, today, is that exercise will insure us against disease. We are told that as long as you run every day, you can eat all the fatty meats you want and not develop atherosclerosis, for the running will keep down blood cholesterol and prevent arterial plaquing. We are told that playing tennis regularly will enable the body to "burn up" the caffeine and other toxic alkaloids of coffee and cola drinks, so drink all you want. Regular exercise will keep down blood pressure, so why cut out salt? Exercise diligently, perhaps excessively, and ignore every other aspect of Hygiene. That is the advice we receive from many of the "experts."

As Hygienists, we must stress the fact that exercise does not insure against disease and it does not remedy disease. All it can possibly do is supply the body's need for activity. If the individual who exercises but ignores proper diet, fares better than the one who neither exercises or eats correctly, we can account for this by recognizing that the latter ignored two life essentials while the former ignored only one. Exercise does not undo the effects of dietary abuses, but a lack of exercise may compound the effects of dietary abuses.

The body has physiological needs that can only be met through vigorous physical activity. The development of muscular strength and endurance, a powerful heart, great respiratory capacity, vibrant circulation, thorough lymphatic drainage and superb neuromuscular coordination all require the influence of regular exercise. However, from the standpoint of overall health, there is a limit to the amount of good that the body can derive from regular exercise. The body's actual physiological needs for exercise are not as great as some people believe. We do not have to become marathon runners in order to avoid cardiovascular disease. One can achieve high-level health without ever developing outstanding athletic capabilities. Of course we have no objection to vigorous physical training and we recognize that it is the only way to enhance performance. Possessing great strength, speed and endurance is practical and desirable even if it doesn't guarantee great health or longevity.

Vigorous exercise entails a tremendous energy expenditure. This expenditure is compensated for in the physiological benefits that we derive from exercise. The amount of energy that we can safely expend in physical activity depends upon the level of our overall health and vitality. The invalid, who is in great need of rest, can only engage in brief and mild periods of exercise without enervation. The seasoned athlete, on the other hand, may be able to perform amazing feats of strength and endurance without dissipation. It is difficult to designate arbitrarily what constitutes excess in the realm of physical activity because individual factors are the most important considerations. What is excessive for one person may be unproductive for someone else.

The initial effect of exercise is to deplete the body. The secondary and lasting effect, however, is to strengthen and build the body. This occurs while resting as the body prepares for future episodes of activity. Exercise must be vigorous in order to be effective. Slow walking, sauntering along on a bicycle, casually twirling the extremities—these activities are of little value. Subjecting the body to stress (within reasonable limits) is what exercise is all about. Exercise must be invigorating, strenuous, challenging and taxing in order to occasion dynamic physiological changes, only by placing great demands upon our bodies can we acquire great strength and stamina.

A short period of vigorous activity is more beneficial than a long period of mild activity. A short, but hard run will build greater power than a long, slow jog. It is also less depleting. Lifting a heavy weight a few times will build greater strength than lifting a light weight many times. A good exercise regime will provide for both endurance (the ability to sustain an activity over a long period) and strength (the ability to overcome resistance in a single instance), as well as speed and agility. A well-known jogging expert advised a woman recently to run slower in order to increase her jogging distance to ten miles. My advice would have been just the opposite, that is, to run a shorter distance harder, thereby, deriving greater physiological benefits and less profound exhaustion.

Determining the best manner in which to train depends upon what one's objectives are. The person who is exercising for general health and fitness will have different goals than the one who is trying to achieve excellence in some particular sport. Obviously, one can only become a great long-distance runner if one habitually runs long distances. One can only become a great cyclist if one cycles regularly. Great swimmers become so only by putting in many hours in the pool. Developing outstanding capability requires participation far in excess of the body's physiological needs for activity. However, expenditures of this kind can be made without depleting the body as long as the individual gradually subjects his or her body to greater stress, and makes a point to secure enough rest and sleep to fully compensate for the added exertion. For example, one could not attempt to run long distances (30 to 40 miles per week) while going to school full time and working (as I once tried to do). It is possible to become progressively more enervated even as one's level of conditioning improves. However, for the individual with a less-hectic schedule, who is able to rest 9 to 10 hours every day, such a running program may be entirely constructive.

Unfortunately, many runners do overexert themselves of effects of excess vary from mild to severe strains and sprains. Pronounced physiological depression marked by weight loss, loss of libido, insomnia, amenorrhea in the female, and digestive disturbances have resulted from an overly-strenuous training schedule. These problems are usually resolved easily by securing more rest and curtailing one's activity. In some instances, too rapid progression is found to be the crux of the problem.

Which activities are best from a Hygienic standpoint? As always, we refer the argument back to Nature. Those activities that conform with physiological principles relating to joint motion and body mechanics are most desirable. Formal exercise is really just a substitute for natural activities that we would perform in a state of Nature. All natural activities require total body participation. When we run, jump, climb, swim, etc., our bodies are acting as a unit, even though certain muscle groups may be playing a predominant role. Such activities not only strengthen and condition us, they enhance body energy, coordination, balance and freedom. By entailing a fluidity of motion, these activities enable us to avoid excessive strain and tension. In contrast, activities that entail rigid postures, isolated muscular efforts, and limited ranges of motion, may have the opposite effect, that is, to increase tension and to stress the joints and muscles.

Perhaps running is the most natural human activity, like deer, human beings are running animals. We are capable of running great distances smoothly, effortlessly and efficiently. Certainly we are not aquatic animals and bicycles never grew on trees. Team sports are popular because of cultural influences, not biological inclinations. Running is considered to be the most superb exercise for strengthening the heart, lungs and circulation. It is not necessary to run great distances in order to derive these physiological benefits. Running 2 to 3 miles every other day is fully adequate to achieve optimal cardiovascular conditioning. Those who wish to run greater distances can do so, but no one should feel compelled to run longer than this for health reasons. Running sprints, running up hills, running up stairs and other variations are likely to be of greater value than just jogging. Running alone is not adequate for good conditioning. Such activities as vigorous calisthenics, weight training and gymnastics round out an exercise program that includes running. This is particularly important in regard to developing the upper torso and extremities, which are largely undeveloped by running.

When is the best time to exercise? Again, we must apply Hygienic reasoning. Eat when you are hungry. Drink when you are thirsty. Rest when you are tired. So it would follow that you should exercise when you feel vigorous. It is a mistake to use exercise as a stimulant, to perk ourselves up through exercise when our bodies are actually calling for rest and sleep. A feeling of relative vibrancy should precede and occasion our workouts and not vice versa. If we feel languid, we should rest until our energies have been recuperated to the point that we feel like becoming active. If you happen to feel all washed out on any given day, it would be unHygienic to force yourself to exercise in spite of it. Just as we can rouse up an appetite by eating, even in the absence of hunger, so too can we rouse up a feeling of invigoration by exercise, but the latter is just as artificial as the former. Get in tune with your body and seek always to supply your body's needs as they fluctuate in the course of daily life. There is really no best time to exercise, just as there is no best time to eat. Some mornings I feel inclined to start running right out of bed, and I do so. Other mornings I feel no such inclination, so I postpone or cancel my usual run. Learn to live with a flexible schedule in regard to exercise, and for that matter, all aspects of Hygiene.

Can a person attain great athletic ability eating fruits, nuts and vegetables? The answer is a qualified yes. I was introduced to Hygiene by two brothers, both in their 30s, who had been Hygienists for many years and who were excellent runners of marathon caliber. Eating Hygienically lends itself to greater athletic achievement, particularly in endurance activities. A high-alkalinizing diet, composed largely of fresh fruits and vegetables, enhances one's oxidative powers and one's ability to sustain muscular effort. On the other hand, such a diet promotes rather slender body build. I have never met a raw fooder with a "Charles Atlas" physique and doubt that I ever will. For one thing, the diet is too low in protein. Secondly, raw vegetable foods do not stimulate anabolism the way cooked foods do. Yet, lean muscularity may be closer to the biological norm for physical development than the immense size that we generally associate with classical body-building. It is unlikely that human beings in a state of Nature, living on the spontaneous products of the trees in a gentle climate, would tend to massive physiques. Peoples throughout the world who are known for achieving great longevity tend, as a rule, to be rather slender. Keep in mind that I do not object to weight training or body building, but only to the excessive bulkiness that many weight lifters develop.

Many Hygienists are too thin and underdeveloped. In most cases, barring pathological causes, this is the result of an overly-restrictive diet, both in regard to quantity and variety of food and to inadequate physical training. In all fairness, however, we must recognize that the paucity of outstanding athletes among Hygienists is due mostly to the paucity of Hygienists. Yet, Hygiene has not been without its talents. Among our practitioners, for example, Dr. Sidhwa is a first-rate long-distance runner. Dr. Burton is a prominent cyclist in Australia who competes regularly in grueling races. Dr. Benesh is a veteran physical culturist, who, at the age of 67, engages in weight training, running and vigorous calisthenics. The last time I visited him he said apologetically that he was running only six miles a day, but added quite candidly, "I try to take it at a fast clip." Dr. Shelton, himself, was an outstanding weight lifter and had a rugged build that matched his personality.

What role does exercise play in the recovery of health? I believe that it plays a greater role than some Hygienists think. Unfortunately, many Hygienists are preoccupied with food and fasting. To them, life is one great cleansing. They live from one fast to the next one. Or they consume themselves in concerns over food in between. Purification becomes their greatest goal in life, elimination the ultimate purpose in living. They fail to see fasting for what is is—a temporary expedient that enables us to secure a foundation from which to build ourselves. The only contests they wish to enter are fasting marathons.

They never give their bodies a chance to enter a building phase. They deny themselves, by their imbalance, the opportunity to grow, to develop a physique, to acquire great strength, speed and endurance. Instead of practicing Hygiene so as to live, they live so as to practice Hygiene—a most unHygienic endeavor. It is no wonder that such individuals remain weak, puny and pedestrian in their lives.

Among feeble children, particularly, I have found exercise to be of greatest importance in building vigor and promoting growth and development. Those with weak digestion can derive much benefit from engaging in vigorous physical workouts. The role of exercise as promoting recovery in tuberculosis, and other respiratory problems, is well known. Exercise strengthens not only our muscles, but our entire organism, including our minds. It is possible that exercise has a more profound effect upon the organism than any other single Hygienic factor.

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Article #2: Exercise: What Most Of Us Forget

Exercise is defined by *Webster's New World Dictionary* as "activity for developing the body or mind." The average American has little difficulty meeting the latter but finds less and less time for the former—*developing the body.*

Day-to-day living develops the mind. Academician or laborer, wide-eyed child or wise old man, housewife or career woman, all of us are tested day in, day out with exercises for the mind. All the yesterdays of mental exercise, coupled with today's, strengthen and develop the muscle between our ears.

Whether subtle—reading periodicals, listening and watching the news, solving routine problems at work and at play—or applied, such as the efforts to become a better chess player by studying the masters of the game, our mind gets more than enough exercise daily. It is a natural activity for all of us.

Activity to develop our bodies, on the other hand, is not wholly natural. Although the body is in natural, constant activity throughout the day—even in sleep—vigorous activity needed by the body's circulatory system, its lungs and its muscles requires our willing commitment. No matter how old or in what state of health, there's a healthy form of exercise for nearly everyone. And an effort should be made by everyone to find that right exercise to develop the body.

If you, the Natural Hygienist and Life Scientist, are following the rules for natural health—a Hygienic diet, sufficient rest and sleep, occasional supervised fasting and the proper amounts of sunshine and pure air and water—then a regular exercise program is a must.

Why is regular exercise so important? A long-standing, inactive body becomes sluggish. Bodily functions are greatly impaired and reduced. If you suffer from chronic fatigue, poor sleep, digestive disorders, shortness of breath after little exertion or poor posture (just to name a few symptoms) you are not exercising your body. You are depriving your body of the energy that it needs to properly maintain its natural, healthful functions.

Reasonably vigorous exercise builds up the energy reserve our bodies need now more than ever in today's fastpaced living. Taking appropriate and sufficient exercise daily keeps that energy reserve at its peak. The key to maintaining energy and maximum health is your blood circulation, both arterial and capillary. Without exercise, circulatory fitness is not possible.

Studies show that at age 25 blood flow has decreased 40% and decreases 60% by age 35. From an energy-level standpoint, then, the average American is middle aged at age 26 and all because we are sitters, we Americans. We sit on our way to work, at work and spend a major part of our free hours sitting, engaging only in a minimum of activity. Our endurance and stamina is stagnant as compared to primitive peoples who, all day long, lift and push and climb and more importantly, walk and run.

Regular exercise, then, provides us with a stronger heart and lungs, increased metabolism, better digestion, good sound sleep, the elimination of a multitude of physical ailments and especially with the energy to overcome stress. The question now is, what exercise is best for you.

First, find out how much exercise you can engage in by getting a proper physical. In some cases, it may not be possible for you to exercise at all. But that is a rare occurrence. Once you have determined how much you can exert yourself, your choices are many.

Walking, certainly, is the easiest and the least thought of form of exercise we can all do easily. A short series of calisthenics, cycling, jogging, dance exercises, isometrics and progressive resistance programs at health clubs are other choices. Swimming, tennis, volleyball and golf are others. Yoga and martial arts disciplines from the Far East have a growing following in the United States, too. Whatever you choose as your form of exercising, there are some basic principles that you'll need to follow.

To be of any real value, your exercise should be a daily ritual, systematically performed. Mornings are the best times to engage in your physical activity and when your body needs it the most. A safe beginning is two to three sessions per week the first month and three to four the second month. Thereafter, as your strength increases, you can exercise more frequently.

Set aside at least 45 minutes each day for your exercise, allowing for a warm-up each time and a slowdown toward the end of your period. Take short rests during your sessions. Most of all, *discover* what works best for you. Exercise on an empty stomach is ideal. After meals; you should wait at least two hours.

For a well-rounded program, learn to do several types of exercise. This leads to a sustained interest in what you are doing as well as contributing to the developing strength, balance, flexibility, coordination, speed and endurance.

Remember, there is no rule that says exercise has to be hard work. Look at all of the alternatives and what they can do for you. There's a healthy form of exercise for everyone. Many of you will be content with less vigorous exercise than others, which is fine so long as you are exercising *regularly* in order to build endurance, burn excess calories and strengthen your cardiovascular system.

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Article #3: Jogging And Other Vigorous Exercise

Warm Up And Warm Down

Enlivening outdoor air, trees and other natural scenery, the exhilarating feeling of aliveness: These are some of the reasons why so many folks jog as part of their exercise program. Many people like to run in the morning when they arise; others prefer the afternoon after work, before their evening meal. Dedicated joggers run morning and evening.

Whenever you run, it is probably after a period of relative inactivity. So, unless you have been physically active before you jog, it is an excellent idea to warm up before jogging. It takes only a few minutes and the results are well worth the time.

We run because we enjoy it and we know it's good for our health. Let's enjoy ourselves now while we learn why it's important to warm up before jogging: Our circulatory system has to adjust to increased physical activity. Too sudden demands on the heart and the arteries are a strain on them. When we're relatively inactive, our heart beats slowly and arterial tension is low. Sudden violent exercise can easily cause unpleasant symptoms such as a painful throbbing in the side and front of the neck.

To do their work well the muscles must contain blood commensurate with the work they must do. The more work they do, the more oxygen they need and, as you now, the (red) hemoglobin in the blood supplies oxygen o all the body cells. When at rest, most of our blood is in our body cavities (head, chest, stomach, pelvis). Our venous and lymphatic circulations are relaxed.

When we exercise vigorously, as when we jog, most of our blood will flow through the muscles at a rapid rate and at high pressure. This increase in pressure and rate of flow begins at the start of vigorous exercise. The arteries of the body cavities, especially in the stomach, constrict, while the arterioles in the muscles and the vascular area of the skin dilate. Dr. Shelton says, "Such a vast circulatory adjustment cannot be made in a satisfactory way or sufficient to correspond to the amount of work demanded from the muscles if rapid or vigorous work is thrown upon the muscles suddenly." He also says that respiratory and eliminatory adjustments are best made by increasing the intensity and quantity of muscular exertion gradually.

Shelton says, "Nor is it desirable or even always safe to suddenly cease vigorous activity while in a state of high organic activity—the heart and lungs working hard, the glands working at high speed, the skin flushed and perspiring. The race horse trainer acts wisely when he takes his horse, after the race, and walks him around a while, thus giving him exercise of progressively diminishing intensity until circulation and respiration have returned to nearly normal. Sudden cessation of vigorous activity throws as much strain upon circulatory adjustment as a sudden beginning of heavy work. It is best to decrease the quantity and intensity of muscular work gradually. Passive deep breathing may also be used to reduce organic activity."

To help you get warmed up or warmed down for exercise, here are a few exercises I saw in our local newspaper. Try them!

1. With, your feet a few inches apart, bend down and touch (or reach for) your toes. Then stand up straight, raising your hands high above your head ... then repeat this about a half dozen times.
2. Stand with your hands on your hips and your feet planted firmly. Twist the top half of your body until one shoulder points all the way forward ... then back to where it belongs ... then the other shoulder ... then back. Stop after about 10 swings.
3. Lie on the floor and stretch your arms and legs out until you look like and "X". Raise your legs, still spread out, all the way up and back until your toes touch your fingers. Do this about four times.

Happy jogging!

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Article #4: Hiking Is More Than Just Exercise by Marti Wheeler

Hiking could become your favorite form of exercise. One reason why is because walking is easy. In case you're wondering what the difference is between hiking and walking, there's really very little difference. According to the dictionary, a hike is a long walk, especially for pleasure or exercise. (Of course long is a relative term and so has little meaning unless we know long compared to what.)

At any rate, you can hike for both pleasure and exercise, among other things. Actually do not hike "at any rate". Hike at a very fast pace. Walking cannot be very effective as a form of exercise if you don't walk fast. (Fast is a relative term, too, but here we mean relative to a person's ability. For example, a person just off a long fast might consider a moderate pace to be fast.) All the muscles of the body are used in walking, though the legs obviously benefit the most. Fast-paced uphill hiking provides as much exercise as jogging on level ground.

Hiking is healthful from standpoints other than that of exercise, however. It is an excellent way to obtain lots of fresh air, as well as a nice dose of sunshine. The mental well-being that results from a brisk walk cannot be underestimated, either. Enjoyment and appreciation of your surroundings can lift your spirits and make you glad to be alive—and healthy. There is something very uplifting about the feel of a breeze or wind on the face or body.

Such wholesome recreation is just plain good for us; Hiking is recreation on many counts. The scenery can vary from houses on neighborhood streets to woodsy settings; perhaps along a creek or river, to open fields or meadows. If you are curious or adventuresome, you may want to go exploring. If you are romantic, you may want to hike with a husband, wife or lover. You may enjoy hiking with a companion, someone with whom you enjoy conversation.

If you are like many people and have less time in your life than activities you want to pursue, why not combine your exercise with your social life to make the most of your time? If you use your imagination, you will come up with many more ways to combine hiking with other pleasurable activities. Though it is preferable to walk free-handed, you can occasionally bring your camera and take photographs. You can sometimes bring a small backpack with some fruit and combine a hike with a picnic—a good combination!

One last note on hiking: It requires very little equipment and no training or special skills. A comfortable pair of hiking shoes are an asset, though running shoes will also suffice in many places. If your inner ears are very sensitive, you may find it helpful to wear earmuffs or a hat or scarf that covers your ears if the temperature is below 65 degrees. Also, slacks, shorts or skirts with pockets are good to have. But, all in all, you will need very little equipment for hiking. You don't even need as much energy and motivation as runners must have. Yet you can sure reap many benefits.

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Article #5: Developing Your Arms

Are you a weakling? Can you do more than four or five pushups, even women's (modified) pushups? For some people, doing five pushups is pushing it. They are ready to stop at four if not before. (For those of you who are unfamiliar with modified pushups, they are done from the knees instead of from the toes. Otherwise they are the same as regular pushups.)

The worst problem some people have when it comes to pushups is that they dislike or even despise doing them. But then it's not unusual for a person to dislike what they're not good at. You may want to develop your arms and upper torso without suffering, even if you're not a swimmer and dislike doing pushups. Here is a solution to this problem for weaklings who don't want to remain weaklings. Purchase a set of dumbbells, "a short bar with two identical spheres or with adjustable weighted disks attached to each end and used usually in pairs for calisthenic exercise"—*Webster's New Collegiate Dictionary.*

Start off with the lightest weights and do about five repetitions to start with. Then increase the number of repetitions in increments of five as you gain strength. You can do your weightlifting at the same time as other calisthenics, alternating between exercises for your legs, for your arms, and for your abdomen and sides so that the muscles in the various parts can rest somewhat between exercises. For example, you can lift both dumbbells from your sides, outward and meeting above your head, starting off with five repetitions and, in time, increasing to 10, then to 15 and to 20, etc. Then do 10 or 20 situps, preferably on a slantboard. So far you have exercised primarily your arms, then your abdomen.

Next lie down on your side and, with or without ankle weights strapped around your ankles, lift one leg 20 times (like scissors). Then stay in that position and lift it from your side up into the air and over your head several times. Do this same scissors exercise and dumbbell lift on your other side.

Continue exercising in this manner, and lift the dumbbells in various ways. While lying flat on your back, lift from your sides with your arms as far away from your body as possible to a meeting point over your chest. Also while lying on your back, lift from your sides with your arms beside your legs and then above your head.

These exercises are very effective, and your upper torso will develop as desired. You won't be a weakling anymore, even though your pushup ability may not improve. It will become much easier to open heavy doors, and turning the steering wheel on a car without power steering will be noticeably easier, too.

If you wonder why you still can't do pushups after using dumbbells awhile, ask yourself if you can lift 50-90 pounds of dumbbells. When you can do that, perhaps you can lift about half of your body weight with your arms more than half a dozen times—and enjoy it.

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Lesson 98 - Exercise Programs For The Healthy

- 1. Why We Should Be Vigorously Active
- 2. The Enormous Benefits Of Exercise And Vigorous Activity
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1. Why We Should Be Vigorously Active

1.1 Life Is Activity

Life is characterized by activity. Death is exemplified when all activity ceases. Hence the quality of life is determined by the activity level of the organism.

1.2 Quality of Life Is Determined by Vigorousness, Intensity, and Extent of Activities Cultivated

If life is worth living, it's worth a lot more if lived at its highest possible level. For comparison, picture a sloven hillbilly who lives a life of indolence with a bottle of whiskey as his foremost companion. On the other side of the coin, consider an engineer who has a home, a wife, and children, who plays tennis and other active games, who has cultivated many arts, appreciates great music, and is involved in guiding his children to useful and active lives. Those who care about themselves, those around them, and about the kind of world they live in are obviously the kind we admire whereas those who are making no contribution to the world are despised.

Thus you should undertake to encourage those whom you counsel to get involved in vigorous activities, especially constructive hobbies such as gardening, orcharding, flower-growing, etc., that absorb and develop a person culturally while at the same time eliciting a lot of vigorous physical activity. Physical activity is, in itself, constructive for it adds zest and quality to life as little else can. The enormous benefits outlined in this lesson will make that readily evident to you.

1.3 Fitness Essential to High-Level Health and Well-Being

While we can be fit without being healthy, we cannot be healthy without being fit. Anyone who tells you they're healthy very likely means they're not suffering from any prominent pathology. But, if they're not fit, it is obvious they're not healthy. And, as a rule, anyone who fancies him/herself as being healthy really is not. Hence it is incumbent upon you to determine the fitness and activity levels of your clients. And, likewise, to inspire your clients to undertake the activity levels necessary to achieve high-level fitness. This, in conjunction with other practices you'll move them to undertake, will build high-level health.

2. The Enormous Benefits Of Exercise And Vigorous Activity

2.1 General and Specific Fitness Equip Us for Life

Becoming fit means developing the ability to do things. When you train yourself for a few tasks, your ability to master other tasks becomes much easier. When you become physically fit, it becomes easier for you to become skilled in areas other than those of your specific training.

As the joys of life derive from our abilities to perform easily and efficiently, it behooves us to undertake those steps to become fit generally as well as particularly. When we become generally fit, everything becomes better. It has been pointed out, as an example, that an unfit person is a much poorer sexual partner than a fit person with high energy and endurance. A highly-capable person makes him/herself happier by making his/her partner happier.

Just as learning to play one musical instrument makes it all the easier to learn to play yet another, so, too, becoming fit equips you to master other areas of living with commensurately less effort.

Truly, the broader our areas of mental and physical fitness, the more life becomes a joy to live.

2.2 Increasing Capillary and Lymph Circulation

Good capillary and lymph circulation is essential to complete nourishment, muscular development, high energy, thoroughgoing detoxification, rejuvenation, and greater mental powers.

Vigorous exercise is capable of conferring a plethora of benefits. This is accomplished in many ways. But the machinery that contributes to enhancement of body faculties is rehabilitation of the body's circulatory system.

It is said that the average person of 35 has already lost about 60% of his/her circulatory ability; at age 60, about 80%! This is bad news, of course. But there is a bright side: Most of us can regain most, if not all, of our circulatory potential!

We have within each of us about 60,000 miles of tubing that circulates about six quarts of blood. Most of this is in the form of capillaries, some so small that red blood cells must pass through in single file. Inactivity causes noncirculation of blood through these tubes.

All cells are bathed in lymph fluid. The circulation of the lymph depends upon blood circulation and body activity. The poorer the blood circulation, the poorer the lymph circulation. Likewise, the more pronounced and forceful is blood circulation and the more vigorous the body movements, the greater the lymph circulation. Lymph circulation is necessary to bring nutrients from the bloodstream to the cells and, likewise, to take away cellular wastes from the cells to the veins.

You would do well to study the circulatory system so that you can better understand the enormous benefits of sustained, vigorous activity at least once daily to thoroughly ventilate the system with oxygen, to re-establish full circulation and maintain it for some six to ten minutes. It usually takes about six to eight minutes of continuous, vigorous activity such as jogging, swimming, biking, hard walking to achieve full circulation. And, of course, if the powers of life have declined, as it has in most of us, especially those whom you'll serve, it will be necessary to guide clients upon a gradually-accelerating course of vigorous exercise that will again rejuvenate the circulatory systems, both blood and lymph. Both are simultaneously benefitted upon exercising. And, as you'll discover, the reinvigoration of the circulatory system is the key to a flood of other benefits.

When you exercise vigorously, you place a demand upon your body for coping. More energy must be created and more wastes must be removed, for increased metabolism calls for more nutrients, especially glucose and oxygen, and faster removal of waste products, especially lactic acid and carbon dioxide. The brain causes the heart to pump faster to cope. More oxygen is processed from air by the lungs, passed to the arteries and circulated to the capillaries along with other nutrients. These are, in turn, passed through the capillary walls to the lymph and thence to the cells. The cells, in turn, pass their increased load of wastes back to the lymph which is passed on to the venous system which carries them to the lungs for removal (in the case of gases such as carbon dioxide) and thence to the liver and kidneys where more wastes are removed. Finally the blood is pumped back through the lungs for new supplies of oxygen. And, of course, liver and other organs have recharged the blood with more needed nutrients.

I hope this impresses upon you the absolute desirability of intense, sustained, vigorous activity for a period of from 20 to 30 minutes at least once a day and, preferably, two or three times daily. Not only can this take the form of jogging, swimming, or biking, but vigorous play as in tennis, badminton, basketball, etc. Heavier resistance exercises, of course, develop strong musculature as an additional benefit.

Not only should you indulge body rejuvenating exercise on a daily or twice-daily basis to make yourself exemplary, you should also profoundly inspire and motivate your clients to undertake an exercise or vigorous activity program. Only fasting and a change to a raw diet of mostly fruits can have a more dramatic impact on your clients' lives than the "magic" of a strenuous activity program.

2.3 Maintenance of Life's Faculties at High-Functioning Levels!

Exercise enhances your thinking power, revitalizes your body, and helps you to appear perpetually youthful! Exercise enables the body to revitalize itself and perpetuate a youthful condition into advanced years. An observer who went to Hunza stated that the women there appeared to be no more than 40 even though 90 years of age. And men of ninety were as active as 25-year-olds. What he was really saying is that Americans of 25 to 40 are in the conditions of ninety-year-olds! The Hunzas are very active and hardworking people.

To be sure, the best exercise program can be sabotaged by unhealthful practices. Thus fasting, a raw food diet consisting mostly of fruits, and ample sleep are crucial essentials in creating and perpetuating a youthful agility, ability, and appearance well into later years. Even conventional-living people who regularly exercise maintain youthful qualities as well as fitness into their 50s and 60s. Especially do we note this in tennis players, dancers, and other athletes who keep up their athletic activities. The virtues of exercise seem to prevail even over other practices that undermine well-being and health.

Vigorous exercise creates the physiological capacities necessary to the successful conduct of all physiological processes. When operating optimally, there is almost no atrophy or loss of faculties or functions over the years until a natural death ensues. After all, the deer dying naturally was jumping and running like a youngster right up to the end.

2.4 By Developing and Using Energy, We Always Have an Abundance of Energy

More energy means more charm, better relationships, and altruism. Energy is the coin of life. As you've learned from the series of lessons entitled HIGH-ENERGY METHODS, you can order your life and program the regimen of your clients to be gradually more active until potential is realized.

The body tends to overcompensate or overdevelop to insure ability to cope with the demands made upon it. How many women, and men can start weight-lifting after seventy and win prizes? How many men and women can start running at eighty and win marathons? The truth is that most can achieve high performances if they set themselves to the task no matter what the age. As long as there's the spark of life, there's much unrealized potential. It merely has to be trained or developed.

Once the body has met the demands made upon it—as long as the correct regime of life is followed—

we'll always have energy to spare. We'll have the energy to do the things that indolence and atrophy unfit us for. Once you have energy to spare, you'll find yourself going out of the way to help others.

You'll have the energy and disposition to spruce up, to be more voluble and expressive, to be better reasoned, in short, to be more attractive and charming. Exercise and other essentials of life properly observed can create the energies necessary to transform a grouch and a slouch into a live wire and lovable person. People who have lots of energy do favors for others, whereas those who have little of it must conserve it by resisting the demands of the world upon them.

When you boast a smile instead of a growl, you'll be appreciated and loved, esteemed, and looked up to. This immense benefit will stand you and your clients well if a vigorous exercise program and its life concomitants are appropriately implemented.

2.5 Through Vigorous Activity We Develop Strength and Stamina!

Just as the body becomes an organism generating more energy when the demand is made for more, we can also immensely enhance our strength and stamina. We can endure much longer without tiring or fatigue. We can face trying circumstances and cope with them easily and more facilely.

The principle of overcompensation or overdevelopment again comes to the rescue of those who adopt exercise as a way of life. You've witnessed or read of others who started lifting weights, even at advanced ages, and increased their ability to lift progressively heavier weights. You've read of, or witnessed, those who started running and progressively lengthened their time and distance until they attained marathon status.

You can do this too! And so can your clients! I count among our students some who were hopeless cripples by all standards, yet who started doing the exercises they could do and progressed until they ran and speed walked even though they still limp or exhibit the vistiges of their disastrous accidents.

Staying power arises because we are not burdened by a toxic system and because we develop greater energy-creating capacities. A clean and efficiently-operating organism has great endurance capabilities. Likewise, strength develops when a demand to cope with strenuous tasks is made upon the body.

2.6 Vigorous Exercise Develops Ability and Agility, Vigor and Vitality

Once you've started performing varied activities, your ability to perform yet other activities becomes all the easier. For instance, training to play certain instruments develops nimbleness of the fingers. Should such a musician then decide to learn typing, it is much easier than for a nonmusician. Moreover, speed and accuracy are also more easily realized.

Once you've developed fitness, your exuberant energy and ease of doing things translates into an agility that will surprise you. Perhaps you've felt lethargy and a disinclination to do things with flair and vigor. But, when you have energy to spare and increased abilities, you tend to do things with emphasis and embellishment—you do things with a flair that wins admiration, if not envy, from others.

The more vigorous your activities, the more vigor you'll have, for, in a word, vigor is a, combination of energy, vitality and stamina. The same principle of overcompensation works to advantage in every area of your life.

Vigorous activity also enables your body lo rejuvenate or revitalize itself. Vitality may be characterized as roughly equivalent to nerve energy—the amount of nerve energy you have available to drive your engines with!

2.7 Exercise Results in Better Posture and Profile

People with lots of energy tend to walk with their heads high and their bodies erect. Those who have little energy tend to slump so as to expend as little energy as possible in activities. As you already know, debility breeds debility, whereas goodness tends to beget more goodness. Thus the constructive role of exercise or vigorous activity becomes obvious.

When you have the energy to expend, you use it for ends that serve you better. And, in using energy, you maintain the basis for its enhanced creation, thus insuring the better usage you have made of it.

With more energy and an improved personal disposition, you will walk prouder, present an erect and confident profile to others and, as a result, be better respected and admired.

2.8 When You're Fit, You Devote More Time to Those Around You

By devoting time to others, you'll be appreciated more. Under the heading of altruism and better relationships we treated this aspect of an exercise benefit. However, this redundancy should be reinforcing.

With increased energy we are not reluctant to spend it in behalf of those with whom we're involved in life. We're more willing to do those little favors that take our energies, but, in reality, become investments in others. Inasmuch as humans are naturally altruistic being gregarious and cooperative in nature, your investment of time and energy helping others is usually well rewarded. Even if not, you've still the satisfaction of doing good deeds. Good deeds are performed for the pleasure of doing them, not necessarily with a view to future reward. In this world and time, however, most are imbued with little energy and an invidious attitude that disposes them to rip off those around them rather than contribute to their better well-being.

You'll be kind and considerate when you can afford to be! When being good to others involves an expenditure of energies you don't have, you'll tend to conserve them through defensive devices, some of them being withdrawn-ness, grouchiness to those who penetrate your wall with disagreeableness to all that threaten to make an inroad upon your energies or resources.

Having an amiable disposition is a virtue born of health and all that it encompasses. Even if it rewards you not, it is wise to be as human as you can and forebear the eccentricities of others with a philosophical understanding of where they're coming from.

2.9 Detoxification and Body Purity Are Achieved Through Vigorous Exercise

As you know, accelerated activity calls for increased blood and lymph circulation. The role of these two liquid transport systems is to insure delivery of nutrients (supplies) where and when needed and, as well, to take wastes away to the organs of elimination.

When circulation increases to meet an increased need for nutrient distribution to cells and the removal of their wastes, there are corollary benefits that are noteworthy. In a person with morbid materials in the system extraordinary to those generated by the activity itself, the increased circulation carries these out also. The body's tendency to do more than it has to in order to satisfy a need (the principle of overcompensation) works to our benefit.

Thus, sustained vigorous and strenuous activity of a few minutes or more accomplishes extraordinary body cleansing, thus unburdening us of previously uneliminated wastes and toxic substances. As poisons in the system are almost exclusively the responsible factors for debility, low energy, disease, and suffering, exercise thus bears benefits far beyond making us fit. Exercise or vigorous exertion keeps the system vital by keeping it unimpaired by the ordinary and extraordinary morbid materials that accrue from normal wastes and our predilection for ingesting unwholesome food and drink.

I like to think that daily vigorous exercise of a few minutes is the equivalent to a day of fasting though, to be sure, an occasional day of fasting plus exercise delivers inconceivably enormous benefits.

2.10 Bouncy Buoyant Feelings Result from Vigorous Activity

Performance is effortless and easy without noticeable flagging or fatigue. With supple musculature and ample energies, you'll find it a snap to breeze through your days. Quite literally, you'll float! There'll be a grace and springiness to your step that, perhaps, you've witnessed in athletes.

Without burdensome and impairing toxins within, activities will be untiring—without fatigue. Though other life essentials properly met are essential to this state, exercise or vigorous activity is the biggest key.

2.11 Vigorous Activity Eliminates Internal Conditions that Give Rise to Qualms, Worries, and Stress

Studies and researches have amply demonstrated that a regular activity program disposes us to less worry and fears. We become better able to cope with stressful situations. Stressful situations do not drain us nearly as much when we're healthy and fit as when we're already in a drained condition. The person who can cope does not wither on the firing line as much as the person who is not equipped to handle highly-demanding situations. What little nerve energy an unfit person has is quickly exhausted in emotionally-upsetting situations, whereas individuals who have made themselves fit through exercise and healthful practices are ready for anything.

Most stress and worries arise from unstable and uncomfortable internal conditions that drain the body extraordinarily of nerve energy. These drains exhibit as fears and worries—fears that the demands of work and society cannot be successfully met.

Exercise, by keeping us fit and cleansed, does not dispose us to worries and qualms. It enables us to handle most stresses "in stride".

2.12 Because Exercise Occasions Extraordinary Body Cleansing, Less Sleeping Time is Required for Regeneration of Nerve Energy

Yes, exercise helps our bodies to detoxify and thus it takes less sleep to regenerate nerve energy. Moreover, sleep is more efficient, that is, it is deeper and accomplishes its purposes more surely and more quickly.

In lesson 15 we learned about the role sleep plays. We learned that a morbid body is a disturbed body that squanders its nerve energies needlessly trying to cope with the disturbances to well-being occasioned by poisons within. The body thus struggles to eject them. But, with a constant stream of them being introduced into the body and, being unable to cope with the needs of ordinary waste elimination, the body becomes progressively more toxic until it initiates a "crisis of elimination" which we call a cold, flu, herpes, or other affection.

Exercise is salutary in keeping the body cleansed. When the body is pure—when it is freed of enervating factors, it does not squander as much nerve energy. Nerve energy not wasted does not have to be regenerated. Thus less sleep is required.

Further, an undisturbed body can achieve deeper sleep levels for longer periods. The deeper the sleep, the more nerve energy the brain can generate within a given time.

You can reduce the time you need for sleep by a vigorous exercise program. As a result you'll have more time for self-improvement, vocations, and avocations.

2.13 Vigorous Activity and a Cleaner Internal Environment Reduce Libido (sex drive), But Increase Sexual Capability and Intensity With Enhanced Enjoyment

Better sexual performance makes the sexual partner happier which, in turn, makes you happier. The more fit you are, the greater your capability of having a more exhilarating and satisfying sexual relationship. The sex act makes a heavy physical demand upon the body and its faculties. Fitness of a high order enables us to discharge the act with vigor and sensitivity. On the other hand, the demands are so great on the unfit that they frequently expend so much energy as to lose the blood supply to maintain an erection or become so exhausted as not to be able to continue. One of the foremost complaints of men I meet in the older brackets, even some relatively young (40s), is impotency. While impotency is primarily due to nerve impairment from toxicosis, it also stems from inability to execute due to insufficient oxygenation, insufficient blood supply, or other factors which a fitness program will remedy.

For those who complain of sexual inadequacy, both female and male, a Hygienic regime involving heavy exercise usually proves a boon.

A toxic body usually has its sex drive immensely heightened. This drive becomes psychologically imbued, especially in this day and age of sexual acculturization when one's sexual ability is a measure of one's stance in the world. When the body is toxic, there is an exaggerated "urge to merge" because the survival mechanisms of threatened organisms are intensified, including the reproductive faculties. Once this toxicity is decreased or removed, the organism normalizes and the sex drive is consequently lowered.

In the pasture a bull can be with 25 cows and pay them no mind. However, if one cow comes intoestrus (heat), there's hardly a fence that will restrain the bull. In humans living naturally rather than under the condition of sexual acculturization where sex is recreation rather than procreation, libido in the male becomes attuned to female receptivity which, as a rule, is accentuated only by the ovulatory period.

In your practice, you'll come across many who are impotent, and even young men who are sterile. While I do not advise that you try to "deculturize" their intellectual disposition toward sex, I do suggest that you guide them to wellness and fitness in which case sexual faculties are usually rejuvenated—often with a vengeance! But, as their conditions improve and their ability to perform improves, there is a lessening of sex drive for the abnormal conditions that gave rise to a gnawing "urge to merge" no longer exist.

There is frequently renewed bliss in marriages where one or both partners have previously become incapable and/or indifferent to sexual interaction. Just as a low-energy individual tends to defensive mechanisms that make him a slouch, a grouch, and unaltruistic—energy-conserving measures—so, too, does a sexually-crazed (acculturized) individual tend to refrain from acts he desires, but fears he cannot execute successfully.

You do not have to bow to the abnormal sexual compulsions that inhere in our commercial world and in a toxic populace. I suggest that you guide everyone to the highest level of health and fitness possible and let nature take its course. It's the rare person who is fit and healthy that will exhaust himself in pursuit of the pleasures of sex.

2.14 Those Who Render Themselves Healthy and Fit Have a Better Self-image and More Pride, But Tend to Less Ego Exhibition

As a chess player I've met many self-styled chess experts who "talk a great" game. When I attended my first chess tournament, I was intimidated by one who talked such a fine game that I was sure he'd take the tournament.

Imagine my surprise that, in the fourth round we were paired as undefeated players. I felt beaten in advance to have drawn this player. However, when we sat down to play, I found that we were playing in the open with visible pieces and equal opportunities. We played along standard book lines for perhaps fifteen moves when he made a move I deemed extraordinarily weak. However, not being sure, I pondered my next move for nearly ten minutes under such side (and snide) remarks by my opponent to observers and passersby that "that move has him floored". I could find no merit in the move despite my extensive considerations. So I made the move that occurred to me almost immediately when he made it, having explored all the lines he could muster in response. As a result, his game collapsed and he resigned within ten moves. This game proved to be an illuminating lesson to me:

People who talk a good game are bragging. If they can play a good game, they let performance speak for them rather than words.

In my fourteen years in the health field, I find that braggarts and boasters frequently fall flat on their faces under firing line conditions. I have employed hundreds of people and those who do a snow job on telling you how great they are usually do not begin to live up to their self-billing.

The point is again, that performers let their works speak for them, whereas jawboners substitute words and snow jobs for performance which is often mediocre.

Once you've achieved a high level of capability, that will become well-known. You don't have to "blow your horn" about it. With greater capability you develop more self-reliance. With self-reliance you have a better self-image and this "pride of self" radiates to others as dignity and self-respect. You don't have to "put on a front" for self-aggrandizement. You can enhance your situation in all aspects by honest effort.

Exercise in conjunction with a healthful regime will strikingly upgrade your performance levels. Once you have the confidence that you can more than hold your own with others, you'll let your deeds speak for you rather than vain braggadocio. Your image of yourself will be so good that you'll be content to impress others with the results you get through performance rather than with words.

Improve your image through vigorous activity. Implore your charges to do likewise for the benefits of physical activity are innumerable and, as yet, still uncharted.

2.15 Vigorous Activity Results in Better Functioning of All Faculties Including, Most Importantly, Mental Faculties and Emotional Well-Being

A self-assured person is calmer, more self-disciplined and has great emotional poise. That well-being and sharper thinking comes from an exercise program is not new—research has shown that executives who regularly exercise vigorously, are more decisive and effective in directing others. Mental sharpness underlies the ability to think things through logically and formulate better courses of action.

It has been said that a sick body has a sick mind. Likewise, an improved body improves its mind also!

Your great thrust is to arouse in your patrons a *desire* for exceptional betterment. Inspire in them an *envisagement* of an ideal condition for themselves. Build in them a *belief* that they can realize the ambition thus engendered.

Then goad them into *action* to undertake the course necessary to realize their wishes. You'd be surprised how effective you can be with others.

The key to achievement is the ability to perform the acts requisite to the result envisioned. Exercise (and the Life Science mode of life) will excellently equip your clients emotionally and mentally to realize the high goals you've inspired in them.

2.16 Regular Exercise Begets Perpetual Feelings of Exhilaration and Well-Being

Without inferring that, exercisers or the vigorously active are tranquilized zombies, I assure you that the regularly active do live in perpetual highs!

It has been well established that, after a period of running or vigorous and continuous activity, the body secretes noradrenalin or norepinephrine. This secretion occasions what is roughly the equivalent of what is popularly termed "second wind". In my own case I must run at least a mile or carry on steady work for at least ten to twelve minutes before I get "warmed up" and my work becomes effortless. I sort of float along at my work, being almost indefatiguable. Further, I am more sensitive to those around me and tend to be more cognizant of their needs. My thinking is sharper and more facile.

If I fail to exercise for a day, a relative dullness sets in though I'm still energetic. The second day without exercise does not cause untoward circumstances, but the inspired high is gone. Still energetic as usual, I no longer have the floating sensation. After two days of lapse without exercise, it is a chore to do my chinups, weight lifting, pushups, and other routines until I've "warmed up" again.

Recently an article appeared in most newspapers nationwide as follows: PUMPING IRON CAN HELP SHED THOSE BLUES! "Nonaerobic exercise, such as weight training, is just as effective as aerobic exercise in lifting the blues away, according to a new University of Rochester study. Forty-one moderately-depressed women were randomly assigned to three treatment groups. In the first, participants ran on an indoor track four times a week for 30 minutes. In the second, they worked out with weights on a Universal gym for the same amount of time. In the third, they didn't exercise. At the end of the eight-week program, running and weight training were significantly more effective than no exercise in relieving depression, says assistant psychiatry professor Elizabeth Doyne."

Exercise, as you can see, causes the body to "drug" itself harmlessly, but helpfully, to better enable it to perform. The benefit of daily exercise for 20 to 30 minutes is thus established.

2.17 A Vigorous Exercise Program Builds Greater Mental Powers and Alertness

Increased problem-solving ability results from exercise. More oxygen to the brain helps it function better. Less toxins in the brain enable it to function at a higher level.

While I have stated that all faculties improve when an exercise program is observed, I still feel it wise to enumerate as many of those improvements as possible.

Experiments conducted by fasting students in a class resulted in sharply-improved mentation, class participation and higher grades. Likewise, experiments with students who were given an exercise program slowly improved their grades over control students who did not participate. Both experiments were conducted in Chicago, one by Dr. Anton Carlson and the other by Thomas J. Cureton.

One of the most notable mental improvements in those students who got into an exercise program was alertness and greater ability to solve problems. Likewise, executives attest that they can solve business problems easier because of their exercise programs.

2.18 Exercise Quells Food Addictions

Of especial interest to those who are overweight is the fact that the urge to eat can be smothered by a short run, jumping jacks, or other vigorous exercise for six to ten minutes. Even genuine hunger, which is rarely experienced by most Americans, is overcome and deferred for a while because of exercise. However, when hunger then comes, it is more intense.

2.19 Vigorous Activity Increases Capacity for Vigorous Activity

The more you exercise, the more you're able to exercise up to a point. Because of the body's propensity of exceeding the "demands made upon it in developing abilities and capacities, we're usually able to go a bit longer and exert a little harder with each succeeding exercise session.

2.20 A Vigorous Activity Program Enables Us to Have Better Personal Control

Yes, we'll be more controlled of self and faculties. Precise and accurate performances increase productivity and quality of production. Precision performers are less likely to have accidents and miscues.

2.21 While Involved in an Intensely Vigorous Exercise or Activity Regime, You Will Be Better Able to Face and Cope with Stressful Situations and Individuals

Perhaps Dr. Hans Selye demonstrated more graphically than anyone the power of exercise even though he made his experiments with rats.

He took four groups of rats. The first group he called his "fat cat rats" because they were permitted to loll around and eat all the food they wanted. No problems were posed for them at all. The second group also had all the food they wanted, but they were put on a vigorous exercise program. The third group was fed only every other day, but permitted indolence like the first group. The fourth group was fed only every other day, but was put through a rigorous exercise program like the second group.

Then he started putting these rats through the stresses faced by humans. They had horns blaring, machines clanking, mazes to run, and vigorous activity to undergo to avoid contrived or obvious threats of calamity.

The result: Within 30 days all the fat cat rats were dead! Rats from Groups 2 and 3 had started dying. But, after 60 days, all the rats in group 4 were still going strong!

This demonstrates most dramatically the benefits of abstemious eating and vigorous exercise, especially within the context of a helter-skelter hustler-bustler society.

2.22 As an Active Person You'll Have More Poise and Stable Emotions

Your face will exhibit a smile instead of a gloomy expression. Hostility and intolerance will disappear. The ability to cope breeds self-confidence and a happy disposition.

When you have ample energy, strength, and endurance to fulfill your basic needs and a surplus to spare, you will be self-reliant. The ability to cope is developed concomitant with increasing energy levels, stamina, and fortitude.

When you are master of yourself and are aware that you can further improve yourself or prepare yourself for anything, you'll be happy. And happiness generates an amiable, radiant disposition, overcoming a low-energy, energy-conserving attitude of parsimony, reluctance, and grumpiness in conducting your relations with others.

You become more outgoing, helpful, and socially aware rather than demanding. This makes the difference between being appreciated and unappreciated by those around you, the difference between being popular and in demand and being deprecated and avoided.

2.23 Regular Exercise Overcomes Constipation and Establishes Regularity

Constipation is a national disease with over 90% of our people suffering from it chronically or occasionally. Exercise is a great boon for these people. However, a raw food diet of mostly fruits with adequate sleep and a regime that touches base with other life essentials are also mandatory.

2.24 Your Nerves Will Be Steadier, Hence You Will Rarely if Ever Experience Edginess or Nervousness

Nerves are irritated by body toxins, giving rise to unsteadiness, tics, twitches, muscle spasms, muscular constrictions, etc. When your body is cleansed, that helps a lot. Muscular rejuvenation helps make muscles more responsive to the exact commands of the nerves. And, of course, when not irritated, the commands of the nerves are voluntary and correct as received from the brain instead of being defensive reactions to a toxic environment.

2.25 Your Senses Will Be More Acute and Accurate

Your thinking will be sharper, clearer, quicker, and more correct. Your decision making ability will be greatly improved with decisions that are more appropriate and productive of intentions. Your judgments will not only be better ones but, in time, exalted which will earn you admiration.

Yeah, yeah! Exercise, self-mastery, and a healthful disposition will produce these qualities in you.

2.26 Exercise Enables the Body to More Quickly Heal Itself in Many Conditions

Exercise helps overcome pain and physical problems. When the body is required to cope with new demands, it tends to correct those problems that impede the performance demanded. Try and try again! Keep on trying and you'll find yourself mastering movements and tasks that seem impossible at the beginning.

2.27 An Exercise Program Helps Overcome and Reverse Degenerative Conditions

Degenerative conditions are remedied by exercise even though it cannot resuscitate lost, deranged, or damaged organs. However, it will develop residual faculties in many cases to compensate for lost or impaired faculties.

2.28 Regular Exercisers Have Better Digestion

Digestive problems will be quickly overcome if dietary improvements are also made.

2.29 Exercise Will Eliminate a Headache

If a headache is being suffered, a brisk run of ten to twenty minutes will so detoxify the body and cause the secretion of so many pain-killing substances as to cause its disappearance.

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3. The Elements Of A Well-Rounded Activity Program

A well-rounded activity program brings into use the entire body musculature, some 700 in number, from head to foot.

3.1 Stretching

Our day should begin with stretching! After a night of rest and sleep, the musculature should be slowly brought back to active status. There are hundreds of little things to do that stretch various body muscle systems. Undertake to learn stretching exercises so that you can use them daily, especially upon awakening. A book on hatha yoga is useful for discovering stretching exercises.

3.2 Warming Up

Stretching is for awakening musculature and, indeed, the brain, bringing it to a high state. Warming up consists in doing very light exercises to get the body minimally oxygenized and operable.

3.3 Intensifying Activities

Warming-up exercises should be heightened to the level of vigorousness and strenuousness. For instance, if we jogged 100 yards or so, did some squats, situps, etc., to warm up with, we might intensify activities by jumping jacks, a short sprint, pushups, chinups, or something that takes advantage of the warming and puts a heavier demand upon musculature.

3.4 Jogging, Running, and Sprinting

These are all constructive exercises. It has been said that two-hundred yards of sprinting is worth a mile of jogging. However that might be, I feel that both are good. I end a two-mile jog with a sprint of perhaps a quarter mile for, after the first mile plus I can sprint with abandon, whereas I cannot go but a short distance at the beginning.

3.5 Biking, Hiking, and Swimming

These exercises are elective as are others. Exercises chosen should suit one's inclinations and abilities. Exercises will widen your activity horizons in any event.

3.6 Weight-Lifting or Resistance Exercises for Strength and Weight Gain

Everyone should be put on some resistance exercises to greater or lesser extent. Legs, arms, and body musculature generally develop rapidly under weight-lifting with arms, legs, and body through squats, etc. Pushups and chinups are especially good at developing the upper torso while weights on the shoulder while doing squats produce general body musculature otherwise.

3.7 Coordinative and Training Exercises

Not only should you have a varied regimen of exercises, but you should adopt exercises that coordinate the whole body. For instance, skipping rope is not only a good warmup exercise, but it does marvels for developing body coordination. There are many other coordinative activities which you should cultivate in yourself and clients.

3.8 Accelerating Activities for More Benefit in Less Time

As mentioned, intensified activities such as jumping jacks, sprinting and faster pacing or regular exercises place a greater demand upon the body that causes the same exercise benefits to accrue in a fraction of the time. It bears repeating that perhaps a few hundred yards of sprinting is worth a mile of jogging though, to be sure, a jog should be accelerated to running and huffing and puffing all-out sprinting at the end. An intense, continuous demand upon the body for six minutes or more generates the many benefits heretofore cited. Of course, it is advisable to precede intense sustained activities with 15 to 20 minutes of stretching, warmup calisthenics, and moderate exercises such as swimming, jogging, and biking.

3.9 Gardening and Constructive Activity

While all vigorous activity is constructive if it does not injure, there are some that are very beneficial. Gardening, which creates a food supply, is soul-satisfying as well as physically/mentally constructive. I suggest that you and your clients start gardening, orcharding, and beautifying your grounds as much as possible. Remember, even indoor gardening is constructive, for plants remove some aerial poisons while reoxygenating the air.

3.10 Hobbies and Work that Keep Us Vigorously Active and Fit

There are many hobbies that require much and varied physical exertion, especially shop work involved in making things. Your and your clients' inclinations will dispose you to a hobby. Keep in mind that a hobby should never be permitted to substitute for exercise. It should be in addition! Both the hobby and the exercise go better with each other.

3.11 Games to Play for Exercise of Self, Mate, and Friends

Few exercises are as beneficial as social exercises. As gregarious beings, humans thrive best while interacting with each other. Thus games like tennis, badminton, volleyball, baseball, and other vigorous noncontact sports are ideal forms of recreation. Play that meets both physical and social needs has a certain advantage over solo efforts though, to be sure, solo efforts permit of cogitation and reflection that build character and strength of purpose.

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4. Questions & Answers

Will exercise correct hiatal hernia?

> A hiatal hernia is an opening in the diaphragm that permits organs on either side to protrude through. In Dr. Shelton's book, Exercise, we learn how to cope with abdominal hernia very slowly through graduated exercises. I don't see any reasons why relaxed musculature of the diaphragm should be any less responsive to an exercise program. Over the years I've received letters from individuals who were once overweight and said that the drastic weight reduction experienced in undertaking a Hygienic regime of raw diet and exercise also overcame their diaphragm problems. How long have you had this problem?

Nearly three years.

> How much do you weigh now?

242.

> Are you willing to undertake a raw food dietary and exercise program kicked off with a fast to help restore normalcy?

If that's what it takes.

How do I get my four-year-old son to be active? He's way overweight, being nearly 70 pounds. We have no neighboring children. He just sits and watches TV all day long, eating freely of his father's snacks. What should I do?

> I suggest that you unplug the TV and remove father's snacks. I suggest that you and/or your husband take the youngster for walks, play ball with him, and otherwise get him involved. It might even pay for you to transport him to the nearest children's playground where he can

participate actively with other active children, though, to be sure, at that weight he's in no condition to do more than walk. I suggest that you put him on an all-raw diet of mostly fruits as well as take him for walks. That, more than anything, will help him lose weight to the point he can be more active. What he needs more than anything is parental participation as well as identification with peers. Praise for activity accomplishments will encourage him to win more praise. There's much you can do. Explore your circumstances. A ruined child bespeaks parent failure. I'm happy you want to remedy this situation, and I'm sure the desire will give rise to a solution.

You sound like exercise will create Utopia for us. I'm about sixty pounds overweight. I've read lots that says exercise would help me get down to a normal weight and that would be heaven for me, but I've heard very little about all the other good things you say. Aren't you putting us on just to get us to do this thing?

All the benefits I've spoken of have been gleaned from researches and published literature during my past 14 years as a student of the health scene. And I've experienced many of the benefits cited for myself. Why should I lead you on? Why not try a vigorous, regular exercise regime and find out for yourself." Open up your ears and eyes to those who do. You'll be surprised that, indeed, exercise is one of the primary keys to a personal Utopia.

Can I lose weight by exercise alone? How soon can I expect to go from 227 to 125?

Yes, you can lose weight by exercise alone, but there are many considerations. First, if you exercise extensively even without a change of diet, your hunger will be considerably lessened as a result; you'll lose weight not only because you eat less, but because you'll burn up more calories. However, I doubt that you'll ever lose 102 pounds unless you get to the point where you're exercising at least two hours per day, something you can do. And then it takes more than a year. I've read of a case where a meat-and-potato-diet gal lost over 125 pounds within a year-and-a-half and became a marathon runner as a result. But it's better to edge your diet over to more and more raw foods in conjunction with your exercise program. All raw will occasion drastic weight loss without much regard to your exercise program and food intake, though an exercise program and lowered food intake are always constructive.

How do you expect me to exercise if I never feel like it? You've said that you really shouldn't exercise if you feel against it. I never feel like it.

I've said that exercise makes you feel good. I've said that old practices make you feel progressively worse. How do you expect to feel like exercising unless you start exercising? Just start exercising regardless of how you feel. Do it because you know you must. Start off by fasting for a week or two. Go on an all-raw diet. Start walking vigorously and work that up to a jog, and then punctuate it with running and sprinting. The first thing you know, you'll be looking forward to those daily stints. You'll find your exercising period to be moments that give you some time to cogitate, and you'll discover you're cogitating more intense and productive while out jogging and running, even just walking. That which activates your body tends also to activate your mind. Do it and you'll be rewarded. Don't get roped in on a "which comes first, chicken or the egg" deal. Just do it because you know you have to force yourself to.

What you've said means everyone could become a real super person. If that's true, why isn't exercise pushed by the powers that be in this country?

If you've read the media, you find that the powers that be advise you to see a physician before undertaking any exercise program. And a physician is as likely as not to advise against it. Further, there's lots of adverse publicity about exercise and lots of pooh poohing of it. But, also, there's much publicity and much urging to exercise. Exercise is getting a better and better press. But there are many factors that militate against exercise, notably the sick diathesis that derives from your debilitating and slavish addiction to energy-draining foods. Pushing junk foods is far more profitable for industry (the powers that be) as a whole than pushing fitness. After all, the junk food industry; the medical trades; the drug industry; the liquor, beer, wine, soft drink, cigarette, and other industries constitute a powerful quorum that despoils us. Enlightened consumers don't patronize them and an exercise program scuttles them. Perhaps that's the reason only about a third of the country is active.

Lesson 99 - Restructuring The Way We Produce Our Foods - Part I

- 1. Having Enough Food For Our World
- 2. The Quality Of Our Food Is Determined By The Quality Of Our Soil
- 3. Questions & Answers
- Article #1: How Vitamin and Mineral Content in Food Decreases Step-by-Step
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1. Having Enough Food For Our World

The old man stopped for a moment to rest as the sun began to sink on the horizon. He shared a laugh with old Rob, the mule, as he wiped the sweat from his brow. Another day of plowing done, and maybe it will rain.

We're a long way from this quiet twilight hour on a small farm when we stare down the long brightly-lit aisles of a "modern" supermarket, and we're also a long way from our own *roots*. We now live in a society where we can actually pass through life without growing a single carrot or piece of fruit. All Life Scientists should become as involved with life in all its aspects as they possibly can. Hopefully all of us have experienced the joy and wonder of planting a seed and watching it bloom and bring forth its gift to us: life. It is truly miraculous to behold the transformation of life that occurs when food is ingested and it becomes a part of our very being.

Like air, food *is* a miracle; it is also a union of nature's creation and human effort. When food is available in sufficient quantities, we tend to take it for granted, like the air we breathe. World leaders come and go, astronauts circle the earth in the space shuttle, but without the farmers and harvests, all else would be meaningless.

In the twentieth century, only one out of two people works in agriculture (the majority are women). In the past, the vast majority of people who ever lived were farmers. More than 20 centuries ago, a Chinese poet wrote:

"When the sun rises, I go to work,
When the sun goes down, I take my rest,
I dig the well from which I drink,
I farm the soil that yields my food,
I share creation, kings can do no more."

And so it is.

In the midst of an era of persistent hunger and poverty, this fertile earth could produce more than enough food to meet our needs today and for the foreseeable future. Yet many people cannot afford to buy food; others are denied their ability to produce it because they have no access to land, seeds and tools. Others face erratic weather conditions, poor soil and a scarcity of water.

Two-thirds of our exported grain goes not to feed starving children, but to feed hungry animals raised for meat that is too expensive for hungry people to buy. Many areas of the world have the capacity to feed themselves but their cropland is being used to grow cash crops for *export* to the developed world.

1.1 Sharing the Harvest—Starvation and Malnutrition in the World

Population increases by exponential growth or multiplication; a system variable can continue through many doubling intervals without seeming to reach significant size. But in one or two *more* doubling periods, this size can be considerable. After 4,000 recorded years of human history (in the Bible), world population grew to an estimated 300 million people by 1 A.D., and reached a billion in the early 1800s. By 1930 (about 100 years later), the population had already doubled to 2 billion. Within another 30 years, another billion was added, reaching about 3 billion in 1960. Fifteen years later (1975), it was about 4 billion. From mid-1982 to mid-1983, world population rose by 82 million. In 1983 the estimated world population was between 4.6-4.7 billion (*twice* the global population of 20 years ago), and will probably reach 5 billion by 1986.

Today about 75% of the world's population live in the "underdeveloped" nations, 40% of these in extreme poverty. Political and economic pressures are rising in many nations. Countless refugees migrate, hoping to find salvation in a new country, just as our ancestors did when they came to this new world. Often those who themselves have next to nothing reach out to these refugees and offer shelter; others are not so pure in spirit and greet refugees with hostility, or even drive them away. Most Americans have, for the most part, been fortunate and have not really ever suffered from starvation, but as human beings we must ask ourselves how we would feel if the hand reaching out for help and a morsel of food were our own, and we were turned away.

Statistics indicate that a person born in the richer, industrialized countries will consume during a lifetime *20 to 40 times* as much as a person born in Africa, Asia or Latin America. Another statistic says that the average American consumes 2 1/2 times as many pounds of food over a lifetime as the average Asian, eating about 30 tons in a lifetime compared to an Asian's lifetime total of about 12 tons, which is mostly in rice. Westerners average almost 5 tons of meat, 1 1/2 tons of sugar (*not* including cakes, pastries and ice cream) and 12,000 eggs. Asians consume about 1/4 the sugar and "only" about 500 pounds of meat, fish and eggs combined. (*East/West Journal*, November 1982.)

A study on meat consumption gave the following figures: New Zealanders consumed the most meat worldwide—about 229.1 pounds of meat per person in 1982. The United States was second with about 222.2 pounds per person. We have already discussed how vegetarianism can help in alleviating world hunger—again, cropland would be used directly to feed the people, not indirectly to feed animals to feed people. We have seen that people are frugivorous by nature, and so land used for animals as food is both wasteful and contrary to our biological heritage (to say nothing of cruel, as far as the use of animals for food is concerned).

In the middle of the earth's bounty, over a billion of us—that is *1 out of 4 members of the human family* —go hungry. Fifteen to twenty million of us die from hunger every year. That is 41,000 of us each day, 28 of us every minute, 21 of us children. In Africa alone, 4 million children may die this year and next from starvation and malnutrition. Humanity has never lived without hunger, its oldest and most lethal enemy. Ours is the first generation that has ever had the possibility of calling forth a world in which hunger may be ended. What is lacking is not technology, but the individual and global will to take necessary actions to preserve human lives and our precious environment. Meanwhile, while 1 of 4 of us go hungry, and 41,000 of us die daily from hunger, at least dogs with wealthy owners on the Cote d'Azur in France are getting by. A news item (May 14, 1984) reports that a gourmet restaurant for dogs featuring 3-course meals costing up to $15 and "served on real china" just opened recently. (I read of a similar restaurant in New York a few years back.) The restaurant offers a selection of cheeses from Holland and France, elaborate main courses, and a pastry cart. Some examples of the plat du jour are "a selection of beef filet with artichoke," or "fish mousse with skimmed milk and fresh green beans." The dogs are served by white-coated waiters "under the supervision of a veterinarian, a profession dog handler, and a dietitian." It used to be that *dogs* were thrown table scraps, but perhaps now a few starving people could apply for jobs as waiters there and hope for a few table scraps themselves! Fifteen dollars would buy dinner groceries for a whole family, if this family were "worthy" enough to receive the same generosity bestowed upon these dogs.

The World Conservation Strategy was published by the International Union for the Conservation of Nature, and was the result of three years of research and discussion involving more than 450 government agencies and over 100 countries. It was "launched" on March 1980, in London and 32 other capital cities across the world. A summary of the strategy appears in the April 1980, *Not Man Apart*. However, it fails to recognize the naturally-retrogressed and humanly overexploited state of the biosphere and of the present late-interglacial soil, and does not emphasize remineralizing soils, reforesting large areas or establishing biomass energy plantations, or restoring the earth's poverty-stricken ecosystems. It is more concerned with "conserving" than *rebuilding*, but does say that most countries are too poorly organized even to *conserve*, that severe soil degradation is already a critical problem, that deserts could soon adversely affect 630 million people, that tropical forests were quickly becoming extinct—and that time was "running out." Because there is less and less to conserve in the first place, nowadays, it is now imperative that we *rebuild* our environment, while there is still some time left to do so. Conservation *alone* is not enough.

These times are characterized by a great awakening of the human force all over the planet, as more and more people become more and more conscious of the human potential for higher evolution. This is seen in the many popular movements, grassroots communities and local organizations that are flourishing everywhere. This world force is a new kind of leadership that can unify the expressions of groups and organize for action. Leadership from, and of, the group—and from the "least" among us—is the hope for change in our time!

The elimination of poverty is the ethical issue of our time, said John Sewell, President of the Overseas Development Council (Washington, D.C.), who says, "some 100 or more years ago, the idea that trade in human beings should be abolished was one that struck reasonable and rational observers as a political impossibility, yet that issue became the moral problem of that time, and eventually trade in humans was stopped. And I would guess that my children will wonder why we are not about our task faster in the last part of the twentieth century, when we have both the knowledge and the wherewithal to deal with global poverty."

R. Buckminster Fuller devoted his attention to the need for integrity in the world in the last months of his life, before he died at 87. "Human integrity," he said, "is the uncompromising courage of *self* determining whether or not to take initiative, support, or cooperate with others in accord with all the truth and nothing but the truth as it is conceived of by the divine mind always present in the individual."

As of 1983, 73 countries have "ended" hunger, at least as a basic, society-wide condition. This was true of no country on the planet in the year 1900. By 1940, it was true of only nine. It is clear that the individual—each one of us—is the key to realizing these, and future, achievements. When famine struck Biafra in the late 1960s, $6 million was raised in the U.S. for relief. It took more than a year. But in March 1980, $42 million was raised in only five months to aid Cambodia. On a global level, the growth in responsiveness to emergencies has been equally dramatic, and today, world response to emergencies is faster, more generous—and more effective, when it begins with the assumption that the purpose of aid does not end with temporary relief, but that its purpose is to find the resources for food-sufficiency within the situation. Recently, a Canadian nongovernmental organization called Inter Pares ("among equals") invited Third World farm leaders to live with their Canadian hosts; they had joint meetings and worked out solutions to mutual production problems. Successful education projects in every industrialized country show the same truth: *We share one planet and our opportunity is to succeed together or not at all*.

Crop yields are usually assumed to be continually increasing, but former USDA researcher Lester

Brown documented that chemically-induced yields were falling or leveling off in the U.S., China, France, and elsewhere (*The Worldwide Loss of Cropland*, 1978, Worldwatch Paper No. 24). Pollution by pesticides and fertilizers, and potential deterioration in climate or weather, are not taken into account when predicting higher crop yields. Brown says that major improvement in the food supply for the world's poorest populations isn't likely if things continue as they are, and what improvements do occur "will require an increase of 95% in the real price of food." (p. 415). Those who think that today's agricultural methods will increase crop yields in the future also think that food production will only increase fast enough to meet rising demands if world agriculture becomes "significantly more dependent on petroleum and petroleum-related inputs" (again, this would increase the real price of food over the 1970-2000 time period), but it is obvious for *ecological* reasons that it is now time for a world transition *away* from petroleum dependence, though it is uncertain how this will occur.

Meanwhile, farmer's costs of raising and maintaining yields have increased rapidly; yields will increase more slowly than projected. These yields also assume a (roughly) 180% increase in fertilizer use. These fertilizer projections are intended to apply to a full package of "yield-enhancing inputs," including pesticides, herbicides, irrigation, etc. Not enough emphasis is being placed on the fact that *there are only 2 1/2 inches of the original glacial deposit left in the topsoil, and there is no more on the way up*. (We'll talk more about this later.)

Because we have not fully recognized the natural operational principles of the earth's ecology, and applied these principles in the key areas of our lives, we have brought ourselves to the point where we must now courageously face the *totality* of our problems.

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2. The Quality Of Our Food Is Determined By The Quality Of Our Soil

2.1 Mother Earth: Our Soil and Giver of Life

2.1.1 Soil Structure

Good granulation or crumb structure of the heavier soils is essential for good results. Sandy soils show little if any granulation, because their particles are coarse. With soils containing a substantial percentage of clay, working them when wet results in destruction of the granular structure. Tillage also tends to break down the structure of many soils. Alternate freezing and thawing, or wetting and drying, and penetration of the soil mass by plant roots are natural forces that favor the formation of soil granules, or aggregates. Such aggregation is developed most highly in soils near neutrality in their reaction; both strongly acid and strongly alkaline soils tend to run together and lose their structural character. (*Organic Gardening*, Rodale.)

2.1.2 Porosity

Pore spaces may be large, as with coarse, sandy soils or those with well-developed granulation. In heavy soils, with mostly finer clay particles, the pore spaces may be too small for plant roots or soil water to penetrate readily. Good soil has 40-60% of its bulk occupied with pore space that is filled with either water or air. Too much water slows the release of soil nitrogen, depletes mineral nutrients, and hinders proper plant growth. Top much air speeds nitrogen release beyond the capacity of plants to utilize it, and much is lost. (*Organic Gardening*, Rodale.)

2.1.3 Soil Groups

Sandy soils: Gravelly sands, coarse sands, medium sands, fine sands, loamy sands

Loamy soils: Coarse sandy loams, medium sandy loams, fine sandy loams, silty loams, stony silt loams, clay loams

Clayey soils: Stony clays, gravelly clays, sandy clays, silty clays, clays

Sand particles are gritty; silt has a floury or talcum-powder feel when dry and is only moderately "plastic" when moist, while the clayey material is harsh when dry and very plastic and sticky when wet.

As we said, the ideal structure is granular, where the rounded clusters of soil lie loosely and shake apart readily. (*Organic Gardening*, Rodale.)

2.2 Erosion

Soil erosion rivals oil dependency as a threat to the economic progress of the world, according to a report issued in February 1984, by the Worldwatch Institute. "Under pressure of ever-mounting demand for food, more and more of the world's farmers are mining their topsoil, d soil erosion has now reached epidemic proportions; its feet on food prices could ultimately be more destabilizing than rising oil prices." Half of the world's cropland is losing topsoil faster than nature can replenish it. In the Soviet Union, an estimated half-million hectares of cropland are abandoned yearly because they are so severely eroded by wind that they are no longer worth farming. (*State of the World—1984*, Worldwatch Institute's analysis of global trends.) The report paints a grim picture for other resources, including forests and water supplies.

The main loss of soil occurs by sheet erosion, that is, each time it rains, the runoff water removes a thin layer of surface soil. As the topsoil becomes thinner, miniature gullies appear. After most of the surface soil is gone, gullies become the main problems.

There is usually a clear difference between topsoil and subsoil. Subsoil is finer textured, more plastic, and lighter in color than topsoil. Erosion is classified as follows:

No apparent erosion. All or nearly all surface soil is present. Depth to subsoil is 14 inches or more. The surface may have received some recent deposits as the result of erosion from higher ground.

Slight. Depth to subsoil varies from 7 to 14 inches. Plowing at usual depths will not expose the subsoil.

Moderate. Depth to subsoil varies from 3 to 7 inches. Some subsoil is mixed with the surface soil in plowing. Severe. Depth to subsoil is less than 3 inches. Surface soil is mixed with subsoil when the land is plowed. Gullies are beginning to be a problem.

Very Severe. Subsoil is exposed. Gullies are frequent.

Very severe gullies. Deep gullies or blowouts have ruined the soil for agricultural purposes. (Rodale Press.)

There is a direct relationship between erosion and a soil's ability for intake of air and water. When the soil surface becomes compacted, the danger of erosion increases, while the intake of water and air decreases.

Agriculture Department programs have been under heavy criticism because of severe erosion problems nationwide. One recent federal report said erosion was increased by the payment-in-kind program (which paid farmers who had surplus grain for *not* growing more) because many participants who were required to plow up fields to qualify for the program did little to protect the soil. In addition, congressional critics have charged that farmers were putting more of their fragile farmland into production to boost their acreage in government programs.

Overoxidation of humus by tillage exposure also increases CO2 in our atmosphere. Tillage exposure permits the oxidation that releases carbon to the air and, simultaneously, decreases the carbon storage the humus provides in the soil mantle. Forests conduct more photosynthesis worldwide than any other form of vegetation. *Photo-synthesizing plants are our source of oxygen*. When we harvest forests, extend agriculture onto soils high in organic matter, and destroy wetlands, we speed the decay of our precious humus heritage (Lesson 50).

Some soil scientists say that under the best conditions nature can build topsoil at a rate not faster than 1.5 tons per acre each year, and under some conditions, the rate is only .5 tons per acre per year. About 2/3 of U.S. cropland is experiencing a net loss of topsoil. From water-caused erosion (and wind erosion, such as on the Great Plains) we are losing topsoil, on the average, five times faster than nature can build it, even under the best conditions.

Soil conservationist Neil Samson explains the problem in his 1981 book *Farmland or Wasteland*. He says to think in terms of the acre-equivalents of farmland productivity we lose each year through erosion. Losing a thousand tons of topsoil on one acre—equivalent to six inches of soil— would destroy the productivity of most cropland. He says that well over one million acre-equivalents of farmland productivity are lost yearly. Over 50 years, this could amount to 62,000,000 acre-equivalents.

The government estimates that 43% of land planted in row crops in the Corn Belt is highly susceptible to erosion; plowing up fragile soils that should have remained pasture and will only produce a few harvests is like the "slash-and-burn" technique of jungle agriculture.

Most conventional farms in the Corn Belt grow corn and soybeans year after year, without the rotation with small grains and legume hay so important to the organic farmer. In addition to nutrient building, these crops help to reduce erosion by covering the ground with a living mulch and binding the soil with their roots, thus protecting the fields from the destructive forces of rain and wind that are destroying American cropland faster than at any time during our history.

Corn and soybeans have brought the best price in the export markets, but these two crops are linked to the highest rates of soil erosion. Planted in rows, they leave part of the soil exposed, unlike grasses or clover which cover the ground entirely. Soybeans have shallow roots that also leave soil more susceptible to erosion. Crops of small grains (oats, barley) and hay (alfalfa) have less cash value, but these crops are grown close together—this reduces surface water runoff and erosion. Because many farmers plant the same crops each year instead of rotating them or letting the earth lie fallow, the soil further loses its ability to rebuild itself. Chinese farmers have tilled the same land for at least 40 centuries. In America, farmers may wish to conserve the land they farm, but the economic forces at work do not "reward" soil conservation in the short term, so many farmers do not invest in soil conservation.

2.3 Farming in the United States Today

The United States currently exports one-third of its annual agricultural harvest, growing enough to feed about 240 million Americans, plus 120 million people abroad.

In 1980, the Rodale Press initiated the Cornucopia Project to document where the U.S. food system is vulnerable and to suggest how it could be transformed into one that maintains high productivity and also conserves its resources. The book *Empty Breadbasket?* is a report on the results of that study. Here are some of its findings:

- The size of the average U.S. farm has tripled since 1920.
- In 1978, 1% of farm owners controlled 30% of the land.
- The average molecule of processed food travels 1,300 miles before being eaten. (One of the first things I remember hearing in my transition to natural foods was that it is considered better to eat foods that are grown within several hundred miles of where one lives, the logic being that foods native to the area, those surviving in the climate where one lives, contain the nutrients best suited to maintain health in the climate of the particular area. Of course any food that is *fresh* is

certainly *always* superior to any processed—or sprayed, or otherwise altered—food, and contains more vitamins and nutrients, but all other factors being equal, you might want the *bulk* of your diet to consist of fresh foods local to your area, if you are able to obtain fresh, organic produce that is grown close to home, with nonnative foods used to *supplement* your diet.)

- Every year, enough topsoil is eroded to cover to a depth of one foot Maine, New Hampshire, Vermont, Connecticut and Massachusetts.
- About 15% of American cropland is irrigated—and on that land is raised 25% of the total value of U.S. crops. An estimated 25% of the groundwater used is being removed faster than it is replaced.
- America's farmers use an average of two pounds of pesticide and 120 pounds of synthetic fertilizer per acre of cropland per year. These chemicals lead to contamination of soil and water, destruction of wildlife populations and health problems for soil workers.
- It takes 10 times more energy to produce a calorie of food today than it did in 1910.
- In short, the study concludes that the U.S. agricultural system is productive but not sustainable, either economically or ecologically.

Much farmland is lost to urban growth, as cities spread; as the cash value of their land increases, some farmers sell to developers.

When the prairie grasslands were turned and plowed, a long line of ecosystems (that stretched back 30 million years) was broken. It had been a wilderness that supported migrating water birds, animals, *and* the native Americans. In the short run, the European crops grown by the "new" Americans would out-yield the old prairie, but they were not looking ahead. We have discussed over and over the intricate workings of the body, and how interference with nature's ways eventually distorts these workings. Imposing manmade chemicals on our systems, and altering our natural bodily rhythms by improper lifestyles, disturbs our balance. The new farmers forgot one important fact: the prairie is a *polyculture*. Crops are usually grown in monocultures. Whereas the prairie has many perennial plants, agriculture relies heavily on annuals, but species *diversity* is the key. There are millions of microscopic life forms, and nature prefers polyculture, not annual monoculture. We are also gambling foolishly with our chemical fertilizers, for if we could see on a microscopic level, we would see that life is much more intricate than a few calculations and "fertilizer" additions. Mechanical disturbances of the prairies, and chemicals, may make "weed control" effective, but the farm will be weakened in the long run as, soil compacts (increasing erosion), crumb structure declines, soil porosity decreases, and the loss of a "wick effect" (of pulling moisture down) lessens. Monoculture decreases the range of invertebrate and microbial forms. Even crop rotation doesn't give enough diversity when compared to the greater diversity that was in the prairies originally, and monoculture results in the loss of botanical (and thus chemical) diversity above ground. Plants are weaker and invite insect pests or disease. (Insects are also better controlled if they have to spend some energy looking for the plants they evolved to eat among *many* species of polyculture.)

Organic farming methods attempt to take more of nature's plans into consideration, and work *with* nature, not against it. There are an estimated 30 to 50 thousand organic farms in the U.S. When Chinese farmers were forced to move south and east because of deforestation and destructive agricultural practices, they had to relearn how to farm. For 40 centuries Chinese peasants have been developing a culture that survives because it return everything to the land.

2.4 Poverty and Hunger at Home

A report in January 1984, showed that demand for emergency food or shelter increased in the United States last year in 95% of the cities surveyed, despite an improving employment picture in 70% of the cities. Even in America, there are thousands of homeless people who sleep in streets, alleys and abandoned cars. Chicago estimates that there are 25,000 people in their city alone who "don't even have a ragged hut or camping tent to call their home—an indictment of us as a people," says the mayor.

President Reagan's task force on food assistance announced in January that it could find no evidence of "rampant hunger" and saw no need for new assistance programs. But the Citizens Commission on Hunger in New England said its Harvard-based members and staff conducted five months of field investigation and reviewed every public and private study of hunger in the United States done since 1980 to support their statements about the national dimensions of the problem. Their report calls on Congress to increase funding for federal programs that affect hunger, saying that all the evidence gathered showed an increase in poverty and hunger over the past five years, and that hunger in America is no longer confined to the traditional poor or to ethnic minorities—they have been joined by other Americans who were not poor and not hungry several years ago. The hardest hit are poor infants and young children, the elderly, (especially those on fixed incomes) and families with an unemployed breadwinner.

2.5 Is Big Really Better?

Now that so much of our nation's farming is done on a larger scale than ever, with more complex machinery, can we expect a better food product at the end of the line? Sad to say, we pay in more ways than one for "progress," and we pay the most dearly when the end result of food processing is a drastic decline in nutritional quality. Even the *best* our supermarkets have to offer—fresh produce—is less tasty and healthful than organically-grown, sun-ripened produce. Anyone who has ever eaten both a commercially-grown strawberry and a sweet, juicy homegrown one, sun-ripe, can tell you about the difference in taste. Anyone who has eaten a vine-ripened tomato will cringe at the watery tastelessness of green-pulled tomatoes so common in supermarkets—there is simply no comparison. This is *aside* from the obvious advantage that organic produce is free from pesticide residues.

As to *processed* foods, we've discussed all their negative aspects in detail in earlier lessons and are by now quite familiar with them.

A 1983 newspaper article on food additives reads like this:

> "Let's say that you ate bacon and eggs for breakfast, with a muffin and jam on the side." (Let's hope you *didn't*, but to continue ...)
>
> "For lunch, you downed a hamburger with ketchup, some pork and beans and a cola. And for dinner you munched on tossed salad with Caesar dressing, gnawed on barbecued ribs and french fries and slurped ice cream with butterscotch syrup for dessert."
>
> "That feast would have filled your belly with about *150 food additive*s, many with frighteningly unpronounceable names—jawbreakers unknown before scientists started fiddling with food in the post-World War II era."

Still, the chemical companies try to save face by constant efforts to convince the public that only "safe" additives are used in food. Recently I saw a pamphlet put out by Safeway Foodstores entitled "Additives: Why Are They In My Food?" and I couldn't resist the temptation to hear what sales-pitch they'd come up with! Let's take a look:

- First of all, "additives make it possible for the shopper in the family to do the shopping only once or twice a week." (I manage to do this while just eating fresh foods, but we'll go on ...)
- "Additives keep our food, supply fresh and consistent." (*Unspoiled*, perhaps, but *fresh*?)
- "No longer is it necessary to slave over a hot stove, all day, every day." (No problem there for us raw fooders.)
- However, the statement that really caught my attention, lightly stated and casually tossed in there with all the others, leaving me with a somewhat eerie feeling, was: "And, if we all wanted fresh, there just wouldn't be enough to go around."

Is that the good news or the bad news?

2.6 The Fox is Guarding the Chicken Coop

The pamphlet goes on to tell us, among other things, that "in 1971 the Food and Drug Administration (FDA) began to review all 'Generally Recognized as Safe' (GRAS) additives. Most of the substances which have passed through this screening process have been reaffirmed as safe and remain on the list." (Those that aren't were undoubtedly consumed by countless unfortunate individuals until this point.) "Substances not listed as GRAS and substances new since the 1958 Food Additives Amendment must be safety-tested under the manufacturer's auspices and approved by the FDA. Manufacturers submit the results of all of their tests to the FDA. If they indicate the additive is safe, the FDA establishes regulations for its use in food." Are we really to believe that the *manufacturers* of these chemicals can be trusted to keep our best interests in mind if they are "safety-testing" their *own* additives? We can be sure that the *safest* foods are foods with *no* additives at all: fresh, raw foods, as nature delivers them to us.

A final note on ethics, or *lack* of ethics, as the case may be (excerpted from *Acres U.S.A.*, May 1984):

> It was discovered that "the International Biotest Laboratories in the United States had falsified results of some long-term pesticide tests so that some pesticides may have appeared to be less hazardous than they really are (though the company shredded records after the scandal broke). The scale was large: in about 10 years IBT did more than 20,000 tests for some 200 companies, and was responsible for about 1/3 of all pesticide toxicity and cancer testing done by government and industry."

Please review "The Case Against Commercially-Grown Foods," of Lesson 49.

2.7 Demineralization of Soils Worldwide

In Lesson 49, nutrient contents of organically-grown foods are compared with those of chemically-grown foods, and it was found that the foods grown by organic methods had higher contents of nutrients, as well as better flavor.

In the summer of 1977 a corn crop was grown on soil that was mineralized with glacial gravel crusher screenings, and tested with corn from the *same* seed grown with chemical fertilizers. The gravel-mineralized corn had 57% more phosphorus, 90% more potassium, 47% more calcium, and 60% more magnesium than the chemical-grown corn. The mineral-grown corn had close to 9% protein, which is good for a hybrid corn, and all the nitrogen in the mineral-grown corn (whose content in the food is the indicator for protein) came from the atmosphere by biological processes and was in the amino acids of the corn protoplasm. None of it was raw chemical nitrate, the precursor of the carcinogenic nitrosamines. No pesticides were used and there was no insect damage.

Microorganisms can reproduce abundantly only when all minerals are present, along with plant residue to supply carbon needs for energy and protoplasm compound building, plus nitrogen, oxygen and sea solids from the air, and (of course) water.

The chemical-grown corn of 1977 had substantially less mineral content than corn listed in the 1963 USD A Composition of Foods Handbook of nutritional contents of foods, but the mineral-grown corn of 1977 was substantially *higher* in mineral content than the 1963 Handbook's corn. Most people are now consuming food with less mineral content, and then further destroying what nutrients are left by processing, cooking and otherwise altering food. Then, with improper eating habits, overeating, bad food combinations, and so on, they reduce the value of their food even *further*.

Firman Bear of Rutgers University did a study on trace element contents of vegetables, published in the 1948 *Soil Science Society of America Proceedings*. His study shows the significant fact that foods that may *look the same* actually have huge variations in mineral content, and thus their health-promoting value. A chart summarizing his findings was reproduced in *Acres U.S.A.* (1977), as follows:

In a 1977 paper, John Hamaker compared Bear's data with the USDA's 1975 reprint of the 1963 *Composition of Foods Handbook*. He says that the Handbook only gives data for a single trace element (iron) and says: "but it is a very significant element. A comparison on a part-per-million basis with Bear's highest and lowest, followed by the Handbook average, is as follows: snap beans 227, 10 and 8; cabbage 94, 20 and 4; lettuce 516, 9 and 14; tomatoes 1938, 1 and 5. In the Bear study, if one trace element is low in all vegetables, then all the other trace minerals are low. Therefore, the *average* of these vegetables in 1963 were no better supplied with trace minerals than the lowest in 1948. It has been 14 years (now, in 1984, 21 years) since the 1963 studies. The USDA ought to have upgraded its information and included much more trace element information. Instead, they copied the old 1963 Handbook tables and put them out in a fancy new cover in 1975. An honest set of figures on trace elements would show a lot of zeroes on a part-per-million basis and would damn chemical agriculture for the monstrous fraud it is. All of our food should be as good or better than the best found by Firman Bear. Such standards can be and must be obtained very quickly if we are to survive."

A September, 1980 letter from the USDA said, in part, "Revised sections of Agriculture Handbook No. 8 covering cereal grains and grain products, fruits, vegetables, legumes, nuts and seeds are all underway, with publication dates scheduled for 1981-1982." It would be interesting to see what these revisions reveal, and if they are, indeed, *honest*.

The United Nations Food and Agriculture Organization (FAO) Soils Bulletin No. 17 is entitled *Trace Elements In Soils and Agriculture*, dated 1979. It gives data similar to Bear's in showing the wide variations in extent of soil mineral depletion. It notes the biologically-essential nature vitamin "therapies." We have discussed the futility of using "supplements" in earlier lessons.

Variations in Mineral Content in Vegetables

	Percentage of dry weight	**Millequivalents per 100 grams dry weight**						**Trace Elements parts per million dry matter**					
		Total Ash or Mineral Matter	Phosphorus	Calcium	Magnesium	Potassium	Sodium	Boron	Manganese	Iron	Copper		Cobalt
	SNAP BEANS												
Highest	10.45	0.36	40.5	60.0	99.7	29.1	73	60	227		69	0.26	
Lowest	4.04	0.22	15.5	14.8	8.6	0.0	10	2	10		3	0.00	

	CABBAGE											
High-est	10.38	0.38	60.0	43.6	148.3	53.7	42	13	94	48	0.15	
Low-est	6.12	0.18	17.5	15.6	20.4	0.8	7	2	20	0.4	0.00	
	LETTUCE											
High-est	24.48	0.43	71.0	49.3	176.5	53.7	37	169	516	60	0.19	
Low-est	7.01	0.22	6.0	13.1	12.2	0.0	6	1	9	3	0.00	
	TOMATOES											
Highest	14.20	0.35	23.0	59.2	148.3	58.8	36	68	1938	53	0.63	
Lowest	6.07	0.16	4.5	4.5	6.5	0.0	5	1	1	0	0.00	

Voison looks at the relation of cancer to soil depletion and imbalance in *Soil, Grass and Cancer: Health of Animals and Man Is Linked to the Mineral Balance of the soil (1959)*. According to Voison, "the dust of our cells is the dust of the soil," and "animals and men are the biochemical photograph of the soil."

Trace Elements in Plant Physiology (Wallace, 1950) says that the relation between cancer and the soil may be readily understood by a look at the four types of cell processes known to be subject to the balance of trace elements:

1. synthesis and breakdown of tissue structures.
2. energetic processes ("oxido-reductions").
3. regulation of nervous stimuli.
4. detoxification of cellular poisons.

These processes refer to the actions of about 5,000 soil-dependent enzyme systems, all of which can be disrupted or prevented by element deficiency, imbalance, or drugs, pesticides, radiation, etc. (Knight, 1975.)

Billions of dollars a year are spent on efforts to "find 'cures' for cancer," but very little, if anything, is spent on efforts to remineralize the soil and save it from chemical abuse! With the same money used yearly for cancer "research" about *15 million* doctors could obtain a round-trip ticket to the Hunza region, to observe the peoples' good naturedness and superior health. How many doctors *really* want to learn why the ten-bed hospital for about 40,000 Hunzacuts is practically empty all the time? How many "researchers" would be out of a job if people learned how to *prevent* sickness and had no for "cures"?

Schauss, an experienced criminologist, counselor and director of the Institute for Biosocial Research says:

> "Eskimos and Native Americans living in very remote territories on indigenous food supplies in the Stewart Islands of Alaska, who had been physically and psychologically healthy for centuries, experience the degenerative diseases and moral decay so prevalent in western culture when the foods (not specified) from that culture are allowed in. Crimes are subsequently committed for which these 'primitive' cultures didn't even have words in their language to describe; the words had to be *invented*."

As we said, virtually all of the subsoil and most of the topsoil of the world have been stripped of all but a small quantity of elements. In the Hunza region of the Himalayas many people live to a fine old age and stay healthy and vigorous. The valley's soils are irrigated with a milky-colored stream from the meltwater of the Ultar glacier. The color comes from the mixed rock ground beneath the glacier. Ten thousand years ago the Mississippi Valley was fed and built up by runoff from the glaciers. Illinois had a deep deposit of organically-enriched alluvial soil that resulted in a long period of luxuriant plant growth, but when the settlers plowed the valley, they didn't find topsoil that would give the health record of the hunzakuts. Ten thousand years of leaching by a 30-inch mal rainfall is the difference. There are several other places in the world similar to Hunza, such as the Caucasus Mountains in Russia, where 10% of the people are centenarians. There are glaciers in the mountains. Wherever people attain excellent health and maximum life, there is a continual supply of fresh-ground mixed rocks flowing to the soil where their crops are grown.

Robert McCarrison (Director of Nutrition Research in India years ago) did extensive studies on nutrition, health and deficiency-diseases. After observing the magnificent bodies of the people of the Hunza Valley, their sound teeth, strength, longevity, intelligence and happy dispositions—human health almost to perfection—he gave Albino rats the diet of the Hunzas. Then he gave other colonies of rats the diets of disease-ridden cultures on the Indian Sub-Continent. He found that the rats would duplicate the health of the people eating the diets: perfect health and contentment on the Hunzas' food, and the disease of the Madrasi on the Madrasi food.

Working seven years among the Hunzas and Sikhs, both good gardeners and farmers, he never found a case of stomach ulcer, appendicitis or cancer. It was his finding (*already in 1936*) that: "it seems clear that the habitual use of a diet made up of natural foodstuffs, in proper proportion one to another, and produced on soils that are not impoverished, is an essential condition for the efficient exercise of function of nutrition on which the maintenance of health depends," and combined with healthy bodily activity, "is mankind's main defense against degenerative diseases; a bulwark, too, against those of 'infectious' origin."

In 1948, J. I. Rodale, the well-known organic agriculturist, published *The Healthy Hunzas*, which revealed how the world's healthiest people annually add to their soils the mixture of stones finely ground by the local Ultar glacier, together with the abundant organic matter produced by these highly-mineralized soils. (Little animal manure is added as the Hunzas keep few animals.) Rodale stressed the great value of adding the wide variety of rock to soils in a "ground-up, flour-like form" by using the most efficient modern machinery (p. 100). He also pointed out the danger of adding imbalancing single-rock types, and concluded his chapter, "Rock Powders," by giving major credit for the Hunzas' outstanding health, longevity, and intelligence to the glacial rock powder, their provision for perpetual soil fertility, and high-quality foods. Rodale was emphatic that we in the United States *begin to utilize the billions of tons of rocks of all kinds, and apply them—equivalent of the Hunza sediments—to our* *lands, in a powdered form.*

Sir Albert Howard, (often called "the father of organic agriculture") also described the Hunzas in his 1947 book *The Soil and Health*, and he too observed the Hunza Valley's glacial silt fertilizer, and the powerful evidence suggesting that "*to obtain the very best results we must replace simultaneously the organic and mineral portions of the soil.*"(p. 177)

In the next lesson when we continue to tie in the links between soil demineralization and climate changes, we'll be talking about the Ice Age. Scientists have offered various theories on what causes the ice ages to recur every 100,000 years, and many of them used to think that they were caused by changes in the earth's orbit around the sun (Milankovich's theory). Recent computer modeling (by a man who has been the foremost modern exponent of this theory, John Imbrie at Brown University) has finally cast serious doubt on the validity of Milankovich's hypothesis, because Imbrie says that the most sophisticated recent of the minerals for health of soil-building microorganisms, plants and humans, and says that widespread deficiencies now exist. Soil zinc deficiency is documented for 12 European countries, as is boron for nearly every European country. It also makes note of the danger of trying to correct soil deficiencies by adding purified single elements, due to their toxicity (for example, boron has been used as a weedkiller).

Nowhere is soil *remineralization* considered in the bulletin, but it does say that generally from two to six times more of the main nutrients are taken annually from the soil than are added by mineral fertilizers. Crop and manure residues return some of them, but a negative balance of these nutrients likely remains.

As for trace elements, on page 1, the FAO soils bulletin says that deficiencies in these elements were first reported in the late 1800s, and that extensive areas of the earth's soils are no longer able to supply adequate amounts to plant life.

Furthermore, several factors are causing an *accelerating* exhaustion of the available soil supply:

- weathering and leaching
- stimulation of increased yields by one-sided NPK fertilizing
- decreasing use of natural fertilizer materials compared with chemicals
- increasing purity of these chemicals used to stimulate growth

The bulletin doesn't provide any solutions, but it does state the problems that need solutions, saying "trace elements are not regularly applied to the soil by the use of the common fertilizers. Their removal from the soil has been going on for centuries without any systematic replacement." (p. 1).

In Mount's *The Food and Health of Western Man* (1975) he said that 66% of American college women had low-to-absent iron stores. The 2nd World Symposium on Magnesium held in Montreal in 1976 said there was "a grave danger of magnesium deficiency in foods consumed in the developed countries." *The Ecologist* (12/79, p. 317) said that "cancer, arteriosclerosis, and heart and bone diseases are implicated as resulting from such deficiencies." A 1979 South African study showed 89% of the cancerous regions had poor soils, whereas 66% of cancer-free regions were on comparatively rich soils. (Life Scientists know that there are other factors involved as well, such as improper lifestyle and eating habits, exposure to environmental toxins, and so on, but these studies also point to factors as basic as the soil itself as contributing to dwindling health.)

Trace Elements in Soil-Plant-Animal Systems (Nicholas, 1975), shows continuing findings by researchers of "new" essential elements for human health, and shows that deficiencies can be expected to result in breakdown of the physiological functions where the element is involved. They say that there are now 14 known trace elements essential for animal life, and most or all of them are essential for soil microorganisms as well. In order of their discovery as essential, they are: iron, iodine, copper, manganese, zinc, cobalt, molybdenum, selenium, chromium, tin, fluorine, silicon, nickel and vanadium; also boron for "higher plants."

Weston Price wrote a book entitled *Nutrition and Physical Degeneration* (1945, 1975) that gave his findings from many years of studying people of cultures and lands worldwide. He proved how *rapidly* individuals and entire peoples degenerate physically, mentally and morally when their diet changes from natural whole foods from fertile soils to the refined and nutrient-poor foods of modern societies. Price was a dentist by training, and found, among other things, that people suffering from tooth decay were ingesting deficient amounts of vitamins and less than half the minimum requirements' of calcium, phosphorus, magnesium, iron and other elements. He also said severe malnutrition was a primary cause of juvenile delinquency and violent criminal tendencies.

In his chapter "Soil Depletion and Animal Deterioration," he says:

> "In my studies on the relation of the physiognomy of the people of various districts to the soil, I have found a difference in the facial type of the last generation of young adults when compared with that of their parents. The new generation has inherited depleted soil ... The most serious problem confronting the coming generations is this nearly insurmountable handicap of depletion of the quality of the foods because of the depletion of the minerals of the soil." (p. 392)

We might note that this serious problem was being talked about almost *40 years ago*.

Metabolic Aspects of Health: Nutritional Elements in Health and Disease by John Myers, M.D. and Karl Schutte, Ph.D. (1979) also stressed the widespread incidence of soil mineral deficiency; the innumerable forms of diseases brought on by these deficiencies, including psychobiological imbalances; that dozens of known human enzyme systems are absolutely proven to be keyed to soil elements, including zinc, boron, cobalt, manganese, barium, nickel, copper, magnesium and more; and the great need for the natural balance of these elements via the food supply. Schutte, the botanist, shows that the same principles apply for health disease/insect-resistant plant growth.

The exact relations between the many soil elements and cancer, atherosclerosis and hypertension haven't been defined, but Myers and Schutte say that it is now clear that they can also be associated with imbalances in the trace elements supply, which keys the normal enzymatic activity of the cell. (p. 193)

The Hunzakuts are virtually free of cancer, but in the U.S., one out of every four people will develop cancer in their lifetimes (Eckholm and Record, 1976). Gus Speth, Chairman of the Council on Environmental Quality, announced in 1980 that the incidence of cancer rate jumped by 10% from 1970 to 1976, whereas from 1960 to 1970 it "only" increased 3%. *Science News* (vol. 110, p. 310) says: "Diet can have a dramatic influence on the prevention and treatment of cancer." (How long have *you* and *I* been saying this?) He goes on to say that "spontaneous regression of cancer, for instance, appears to have resulted from a change in the balance of trace elements."

Remember, there is a difference between getting these trace elements naturally in foods and trying to manipulate the body through all manner of haphazard, random version of the Milankovich theory (Imbrie's) is capable of explaining only the smaller, climatic changes associated with minor fluctuations in glaciation, and these, only for the past 150,000 years or so—beyond about 350,000 years it seems to have little value in predicting any of the climatic changes we now know about. So with astronomical causes more or less ruled out, the great ice age cycle must be caused by something here on earth. This is where John Hamaker comes in.

John Hamaker was trained in mechanical engineering at Purdue. He became interested in climatology only after thinking about the environment for many years, watching it deteriorate from neglect and abuse. He got first-hand information on the danger of toxic chemicals while working as an engineer for Monsanto in 1940 (we'll mention Monsanto again later, so we can make a mental note of the name), long before the rest of us got the bad news from Silent Spring. After serving in the army for five years during WWII and coming out a captain in the reserve, he went to work designing oil refinery machinery in Texas. But he began to feel sicker and sicker, and realized that he had to get out of that toxic environment.

He bought a farm in east Texas, and "learned about really worn-out soil—and the mess that chemicals make on farmland." He noted that his cows kept as far away from agricultural chemicals as they could, and wondered if they were smarter than people. Later he moved to Michigan, where he is now retired. For many years he has been doing experimental work on a ten-acre farm outside of Lansing.

During the late 1960s, while thinking about big questions like the health of the soil and man's relationship the earth, he began to read every book and scientific tide he could get his hands on about climate and soil and the health of plant life, and he believed he then understood what causes the ice ages to come and go with such predictability.

Why, he had wondered, are the winters getting colder, the summers hotter and drier, the storms and tornados increasingly frequent with every decade? What forces on earth are large enough to cause such global changes?

When he looked at these steeply rising curves, another curve came to mind: the exponentially rising curve of carbon dioxide (CO2) in the earth's atmosphere. This CO2 is well-known (we'll talk more about this too in the next lesson), and many scientists link it to the greenhouse effect that traps warmth radiated off the earth from the sun and increases the temperature all over the globe, but there is no consensus as to when this global greenhouse effect could be large enough to cause such changes. In spite of the very large increase of CO2 that has already occurred, the earth seems to be in a *cooling* phase in recent decades (more details next lesson).

Apparently Hamaker saw what no one else did: that the greenhouse effect is occurring *differentially*—primarily in the warmer latitudes, which get the most sunlight (the poles don't get any sunlight for six months out of the year, and very oblique rays the rest of the time), and that the pics have *already* been heating and drying up for the last few decades, that consequently the northern latitudes have been getting colder and wetter, and that the increasing temperature differential between the two has taken on a life of its own and is accelerating the whole process.

John Hamaker tells us:

> "I have observed the things of the world for almost 66 years. The luck of the genes equipped me to observe and learn. I had the highest mechanical aptitude test score in a class of 110 students majoring in Industrial Engineering at Purdue University (class of 1939). In a Motor Maintenance Battalion of 650 men and officers in WWII, I had the highest army test score. So I became a "90-day wonder" and was discharged with a superior officer rating. In every engineering office where I have worked, the jobs requiring the most synthesis generally wound up on my drawing table. On the four occasions when I could not work because of chemical contamination, I have either worked on the problems that affect humanity or I have spent time on inventions. I have found that the solutions to the problems of the economy and the environment can be found by the same rigid attention to facts and established principles which yield solutions to problems of machine design
>
> In my 66 years I have seen more history made than any generation has seen before. Now it appears that I will see one more thing—the end of civilization as we know it during this interglacial period. For 10 years I have known that the soils of the world, were running out of minerals and that glaciation was inevitable. For 10 years warnings and the solution have been ignored by people in government.
>
> I don't think I care to see the tragedy which is scheduled to unfold in this decade."

In *The Survival of Civilization*, John Hamaker tells us that "failure to remineralize the soil will not just cause a continued mental and physical degeneration of humanity but will quickly bring famine, death and glaciation in that order."

Glaciation is one way of remineralizing the soil. Large amounts of plant life's carbon moves (as carbon dioxide) into the atmosphere, as the plant life dies out. We then see what is now happening: the carbon dioxide's greenhouse heating effect is causing large amounts of evaporation from the tropical oceans. Hamaker describes the resulting process as follows: Cold polar air moving over the cold land areas displaces this lighter, warm, wet air from the tropics, forcing the warm air to flow over the warm oceans toward the northern latitudes to replace the cold air, be cooled, lose its moisture to snow and descend over the land mass. The massive cloud cover will result in "huge amounts of cold air being generated, from which ever-increasing amounts of precipitation occur. Every winter must be worse than the last. At some point winters may carry over into summers and destroy crops with frosts and freezes. Numerous temperatures from 32 to 40°F were recorded in the summer of 1978 from Michigan to the Rockies. Cold waves can cause major crop losses in Canadian or Eurasian grain crops, which are mostly at the latitude of Michigan or farther north."

Chemical agriculture uses soluble chemicals that are either acidic or basic, but which have the final effect of acidifying the soil, destroying the soil life, using up the organic matter and, in the end, leaving the soil useless. Because choice soils have been almost fully demineralized in the 10,000-11,000 years since the last glaciation, the popularity of chemical agriculture has grown. However, chemicals, unlike microorganisms, will dissolve the carbonates and a few other rocks completely, liberating some of the remaining useful elements, so that enough microorganisms grow to support a crop growth, but the crop gets a short supply of an unbalanced protoplasm. The crop is then more prone to disease. Bits of useless demineralized skin (cell membrane) weathered from the stone are ignored by the microorganisms as they build the granular, capillary soil system that provides aeration and water retention to the soil. Percolating water carries the bits of subsoil down into cracks under large particles of unused stone. The cracks are caused by drying of the soil. The percolating water washes used material off the top of the unused stone, leaving a space into which the stone can rise when wetting of the soil forces the unused stone upward by the amount of material sifted under it. So, in 10,000 years, 8-10 feet of glacial deposit has been cycled to the topsoil, demineralized by the soil life, and has descended back into the subsoil to form a dense clay. As we said before, there are only 2 1/2 inches of the original deposit left in the topsoil, and *there is no more on the way up*.

We must provide minerals to the soil or glaciation will happen again!

2.8 Chemical Fertilizers and Pesticides

In *The Survival of Civilization*, John Hamaker has the following things to say about chemical fertilizers:

> Plant and animal digestive systems will readily pass water into the plant or animal. If toxic compounds are in solution in the water, they too pass readily into the plant or animal. Water-soluble chemicals used in the soil (and in foods and beverages) are dangerous. Any toxic substance can enter a plant or animal with the protoplasm if it has been taken in by the microorganisms. So, anything other than the natural balance of elements and the natural organic compounds produced from them by the microorganisms is damaging to the entire chain of life. The continued buildup in the biosphere of nonbiodegradable synthetic organic compounds is destroying humanity by alteration of the genetic compounds.
>
> As we said before, chemical farming depletes the organic matter in soil. Chemical fertilizer may release enough elements to grow sufficient microorganisms to feed a weak crop, but when the chemicals are used up (on weak soil this often happens before the crop matures if chemicals are inadequate or too fast in dissolving), the production of microorganisms virtually stops. Then too, the stalk is often taken with the grain (or vegetable, etc.), limiting the utilization of the few available minerals in the decreasing supply of passivated stone particles still in the soil. A look at mineralized organic gardens shows that organic farming methods are, by far, more beneficial.

"Farmers who returned corn crop stalks to the soil have the highest yields, maintaining a better reservoir of carbon and nitrogen in the soil to supply the crop. Unfortunately, the acid in NPK is constantly dissolving organic matter and inorganic material from the soil. With an estimated 30 to 50 percent of the acidic component of NPK winding up in the rivers, it is obvious that a lot of the fertility elements are going the same way."

"In the 50s and 60s, the agricultural 'experts' were helping the fertilizer industry by recommending to the farmer that dumping the barnyard waste into a pond was more 'economical' than spreading it back on the land, because the same amount of fertility elements could be 'obtained more economically from NPK fertilizer.' They learned the hard way that crops won't grow without organic matter, so now they say the organic matter is required to 'buffer' the soil. Technically, a buffering agent is one that tends to neutralize an acid or a base. Crop residue won't do that, but if it is put into the soil and there are any minerals at all present, microorganisms will multiply. Obviously, the basic elements in the protoplasm are the most available elements in the soil for buffering the acidity in NPK. If the rains are gentle, the dissolved protoplasm may be reconstituted into new organisms before it is leached or eroded into the river. And that can take place only if there are enough basic elements in the soil so the microorganisms can find what it takes to bring order out of chaos. The natural mixture of elements is geared to natural conditions—not to the absurd practice of deliberately acidifying the soil. Basic elements would have to be added to the natural mix to compensate for the manmade acid."

"Nitrogen is the most acidic component. If I can get 60 bushels per acre of wheat *without* nitrogen fertilizer, why should farmers buy it from the chemical companies?

"Phosphorus should be left where found, because those deposits contain large amounts of fluorides. The agricultural soils are now badly contaminated with fluorides. Fluoride levels in food are increasing. Cattle concentrate the fluorine in their bones. When the bone meal is used in pet foods, fluorosis results. Do we wait until the overt symptoms of fluorosis show up in half the population before we stop this nonsense?"

"There is plenty of phosphorus and potassium in the natural rock mixture* and at a much lower price. If a farmer uses 200 pounds of a 15-15-15 NPK fertilizer, he gets about 100 pounds of gravel dust* per acre. (*Rock mixture and gravel dust will be discussed again in the next lesson. River gravel screenings—to add to the soil to remineralize it—can be purchased for under $6 a ton!) The gravel dust in the NPK fertilizer costs about 75 cents, but the fertilizer is priced at $25 to $30. (Editor's note: these were prices at the time the book was written, several years ago). What the farmer pays for is five paper sacks and me chemicals, neither of which he needs, and sooner or later the chemicals will destroy the land —some 'bargain'!"

"The USDA's Conservation Service has finally come to the conclusion that we are not going to continue the habit of eating much longer. They base their conclusion on the following: we had 18 inches of topsoil a couple hundred years ago; now we have only several inches of topsoil. The U.S. is losing 6.4 billion tons to erosion every year. All of the soils are eroding, and 1/4 of them are eroding at a destructive rate."

"How widespread is the practice of using gravel dust as the filler in a sack of NPK, I do not know. In those areas where gravel screenings or sand has been the most economical filler available, the dust has probably been used for years. I suspect that it is now a general practice because all soils have been largely stripped of some elements, and there is no cheaper way to add them."

"Generally speaking, the fertilizers, as exemplified by 'Eco-Agriculture,' use a mixture of minerals in combination with a compost or compost-like material which is high in nitrogen and carbon."

"Organic farming, as advocated by the Rodale organization, concentrates on organic matter plus specific fertilizers such as greensand and granite dust."

The chemical NPK will accelerate erosion. Eco-Ag and organic methods will slow the rate of erosion and maintain better balance of elements in the soil. None of them are supplied in amounts sufficient to build-up the mineral supply in the soil. All of them are partially dependent on the dwindling availability of the small amount of gravel and sand remaining in the soils. They work best on the strongest soils."

"All three fertilizing methods are dependent on annual applications. If anything were to interrupt the production and distribution for one crop year, we would starve to death in large numbers."

"None of these will sustain our food supply indefinitely. They will also not do the all-important job of removing excess CO2 from the atmosphere. They are all too expensive. We must have a *bulk production* and *distribution* of gravel dust, or its equivalent. Without it there is no future for civilization."

" 'Hazardous Substances and Sterile Men' is the title of a powerful condemnation of the chemicals industry in the September 1981 *Acres U.S.A.* Ida Honorof has summarized research on this subject. In 1981, 10-23% of American males were sterile (very unlikely to father a child). In 1938 only 1/2 of 1% of males were sterile. According to this research, in 30 years, half of the males will be sterile, and 67-83% of all birth defects are caused by men—the chances of causing a deformed child to be born increase with the quantity of chemicals in the sperm. Ten chlorinated chemicals alone have been found in the sperm. Birth defect rates in the United States are believed to be about 6%—it seems only a few years since that estimate was 3%. Many of the chemicals contaminate our food supply. One statistic says that 94% of food has pesticides in it.

"If people keep eating the poisoned foods of chemical agriculture, there will be more cancers, deformities, stillbirths, and as many different ailments as there are parts in the body. Either we stop the manufacture of organic chemicals which are not readily biodegradable or we destroy ourselves."

"*The balance of nature*, in part, means that for every living organism there is a predator, so that no organism can populate the earth to the exclusion of all others. Our asinine, conceited view of ourselves as 'masters' of nature has led us to make a wreck of the balance of nature. We are paying a high price and we will continue to pay for a long time, even if we turn quickly to a rational concept of our role in the natural order. I have seen radical improvements in the ecology on two small plots of land when the poisoning was stopped and minerals applied to the land. Perhaps nature can rather quickly reestablish the animated part of the balance of nature."

John Hamaker

3. Questions & Answers

What can we do to lessen starvation and hunger in the world?

If you want to lessen hunger in the world, look around you. Many cities have some types of food distribution programs and/or "soup kitchens" (places where people can go for a meal). You can support these programs, or if your area does not have them, perhaps you can become involved in getting them started. If you prefer even more *direct* action, you can "adopt" (figuratively speaking) an elderly person or persons, and/or a family. In every community there are people who need help—just look or ask around, and you will find them

If you go on vacation in another country, you may want to meet some of the residents of its small villages, and spend some of your money into their local economies instead of just spending it all at a modern hotel in a big city. Your life will be enriched by the experience, to say nothing of learning a whole lot more about life and other cultures than you would back at the hotel! When you return home to the U.S., you will know someone *real* that you can send a "care package" to now and then (clothes or household items, etc.). This is easy to do, and a needy family in an impoverished area will really appreciate your thoughtfulness. When you send a package directly to someone you know abroad, you'll know exactly what they need and "who is getting what"—when funds are sent to "traditional" charitable organizations, they keep something for their operating expenses, and you may not be as sure about how much finally reaches anyone, or *how* the money is actually being used. (I once saw a group asking for more money "to provide medicine for children". They'd be better off with fruit or other fresh food, and clothing!) I went with friends to a tiny village on the Mexican seacoast once, and every few days we brought boxes of fruit and vegetables for the family we stayed with; each time, the next day there'd scarcely be a banana left over—the children *loved* fruit. Unfortunately, if we'd just handed money to their father, he'd have probably gotten a few bottles of liquor since he liked to drink—we just brought food and other things like laundry soap, batteries, candles—things the family used daily. (We did give Mom some money now and then; she used it for the family.) The day we left, we tucked a 1,000-peso bill into her hand. At the exchange rate then, this only amounted to about 10 dollars for us (an easy gesture), but for a woman who didn't work outside the home (there were *no* paying jobs for women in their village), this was like a *windfall* (it would also go further there than its equivalent $10 would go here in the United States)

Along with many beautiful memories, this was the gift these people gave to me: the chance to be on the giving end for a change, to feel as if I could actually make some difference in someone else's life—as much a gift to me as anything I could have ever given them. For we are truly *fortunate* when we are *able* to give, and this also means giving of ourselves as well as of our possessions. When we reach out to other members of our human family abroad, we draw our world family closer, we strengthen the bonds. We exchange a *mutual* gift, that of increased understanding, and of a vision of a world in greater harmony. We are indeed brothers and sisters—our mirrored smiles tell us this, even when we "don't speak the same language", At last we become *real* to each other

Another note on the joy of being able to give to people *wherever* we may be: someone once told me that members of the so-called "beggar caste" of India also had their "special life purpose", their purpose being to *allow others to be givers* (the givers thus being given a chance to enhance their own spirituality by an act of giving). This concept returns the dignity owed these "beggars" as human beings; it sees beauty in every person

Come to think of it, I remember the strategy used by some elderly women in the marketplace of Casablanca, Morocco, one that was quite ingenious. When the vendor gave you your change and you reached out for it, you'd suddenly be aware of another hand stretched out alongside your own, making it a bit *awkward* to "pretend you didn't have any money" (to say the least), but at least you were guaranteed an immediate increase in your level of spirituality!
When you are at home, remember too, as we said, that hunger may be as close as a mile from your house

Pressure your local leaders to take *real* action against hunger. Sometimes "surplus" food is just held in storage, or even *dumped*—I once saw a news item on TV showing perfectly good oranges being dumped to "keep prices normal" (they didn't want too many oranges to "flood" the market!). It is immoral to keep this food from hungry people

Another way to alleviate hunger around you may be as close as a few friends who live on a tight budget—invite them over more often for meals. Share the harvest

If you can't find someone who is hungry, you aren't really looking. Remember, most people are *much too proud* to ask or tell you, so you need to be aware and sensitive to others' needs

Years ago I was staying in the Canary Islands off the coast of Africa, in a small boarding house, and a young woman lived in the room next door with her three children. Every day she went to work and, although the landlady (who lived downstairs) looked in on them now and then, the little four-year-old girl was really in charge of her younger brother and sister. Once I saw her peel potatoes, light the gas burner on the stove, and fry them, and I must admit, it was the first time I'd ever seen a four-year-old cooking completely on her own. One day I went in to offer her an apple and she said no. Three times I offered it, to no avail. When I went back to my room and mentioned this to my roommate, she said, "just go in there and set it on her table". I was skeptical, having assumed the child just didn't want the apple, but I did so anyway. A minute later she'd finished eating it

The "moral" of this story is, not only will some people not ask for anything, but they may even refuse something you offer, because they "don't want to be a burden to you". When you ask "do you want this?" or "do you need this?", they're very likely just to say no, out of pride, whether they do or not. So, keep your eyes open and assess the situation. The idea is not to make someone feel like they are accepting "charity"—no one really wants to be in this position. There's always a way around these delicate situations. Let the person know that you "have extra and can't possibly eat it all yourself," i.e., they're doing you a favor by taking it off your hands. There's a subtle difference

The following was excerpted from *Mother Jones* magazine (September/October 1981), by Loretta Schwartz-Nobel:

> "I found her by accident, trying to crawl out of her doorway and down the broken concrete steps in an effort to get food. She was 84 and living alone in an abandoned house in Philadelphia. That afternoon in 1974 I went with my seven-year-old daughter Rebekah to our local supermarket and bought food for Mrs. Roca. In the months that followed it became a habit to take several bags of groceries to her each Saturday afternoon. Rebekah thought of it as the best part of our week. Another woman, Julia, also in her 80s,

> lived nearby. Once she had tried to go to a local supermarket, but tripped and fell in the gutter, and lay there until a little boy stopped and helped her. The next time she tried, someone grabbed the bag of groceries on her way home and ran off."

I saw a TV documentary one night on the elderly in Chicago—some of them were being shuttled to and from the store in a bus because they were such easy targets for muggers. These people helped to build our country, and this is their "retirement dream"—these are their "golden years"—having to go to the store in a group because it is dangerous to attempt it alone

A young boy interviewed on TV discussed his way of helping others—one night he saw a documentary on "street people" of his city, and asked his parents to take him to see them. They were a bit hesitant, but did so. Now he checks on the street people daily, bringing food, clothes, and so on. (In fact, other people began leaving boxes of things at his house, too, for distribution.) This boy sees these people as *people*, not "street people," and his father said that, while an adult keeps a distance, his son would touch these people or hug them—he now knows all the "regulars" there by name. A man on the street wrote a letter that was read on the show, and he sums it all up better than I ever could:

> "One day I was so tired of living that I decided to *end* it all. Then something happened—that day I looked up into the eyes of a young boy, who smiled at me and handed me a blanket. That day, not only did I fall in love with this child, but I fell in love with *life* again, because my faith in humanity was restored."

Unless we've known true hunger and need, it's difficult to understand what it's *really* like to "live on the edge," but we can be sure of one thing: every morsel of food we give to anyone, in nourishing a fellow being, *adds to life*, and what can we do on this earth that is of greater purpose and joy, than to add to life? Let's recall, in our humility, that each morsel of food given to *us* by life and the powers that be is a miracle—we are all *receivers* as well as givers—we should never take this miracle for granted.

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Article #1: How Vitamin and Mineral Content in Food Decreases Step-by-Step

In this lesson we have seen that there is more than one way in which food loses vitamins and minerals, but that most of our food is subjected not only to *one* but to a *combination* of assaults on its nutritional value, as indicated below:

- Food is grown on minerally-depleted soils in the first place.
- Plant breeding of hybrid seeds, and crop management, result in another measurable decline in protein and vitamin/mineral content.
- Pesticide spraying leaves poison residues in our food.
- Food processed by any of the techniques mentioned in the lesson (irradiation included) further decreases its value. (Note: It wasn't specified whether fresh food could also be irradiated *before*

being shipped to food processors; only irradiation of food destined for the produce stand in our stores was discussed. However, it is conceivable that some food could be irradiated to keep it "fresh" longer for the food *processors* as well, in which case it would undergo two assaults in this step alone.)

- As if all the above steps do not reduce the life in our foods enough, much of our food is then cooked, spiced with condiments, salt, etc., smothered in sauces, and, to top it off, eaten in excess and/or in improper combinations, washed down with beverages that dilute our stomach's digestive enzymes, and often eaten in a hurry, and/or according to "the time of the day" instead of true hunger, and sometimes in a state of mind that is not conducive to good digestion.

We are paying dearly for our ignorance, indifference and lack of good conscience, because we are destroying more and more of the *life factor* within our foods each time we alter them further from their natural, fresh state.

How can we expect food that is virtually *dead* to sustain life? It has been said, with reference to vegetarianism vs. meat eating, but this also applies in the case of lifeless, foodless foods, that: "from life comes life, and from death comes death."

The choice is ours.

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Article #2: Saving Open-Pollinated Seeds by Margaret Flynn

One of the first things to remember when saving seeds is *never plant all your seed from one stock*. Always save some in case anything should happen to your crop.

You need to be aware that cross-pollination of seeds can occur from other vegetables in the same family, or from other gardens within about 1/4 mile.

It's best not to save seed from just our largest tomato, for example, but to save seed from the smallest, largest, earliest and latest fruits. Equal amounts of these four types of seeds should be mixed. In this way we will have a much greater genetic diversity in our seed samples. We should look at the whole plant too, not just the fruit. Select several plants to save seed from, those with characteristics you want for your next year's plants: size, flavor, earliness, ability to survive a short season (where applicable), disease-resistance, drought-resistance, insect-resistance, lateness to bolt, trueness to type, color, shape, thickness of flesh, hardiness and storability. All these factors can and should be selected for.

Temperature and moisture extremes, especially in combination, can cause damage to seeds before harvest. For example: an early sustained freeze while the seeds still have a high moisture content. It is best to have dry weather before and during harvest, so that the seeds can dry on the plant and remain dry.

Drying Seeds

When drying and storing your seed, you want its vigor to stay as high as possible so that seeds will germinate rapidly with good disease-resistance. Vigor is destroyed by high temperature and high moisture during storage. Seeds can be dried on a screen or on wax paper in the sun, by sealing them in an airtight container with silica gel (until they reach the proper moisture levels for entry into storage), or by putting them in your oven with the pilot light on and the door cracked.

(WARNING: Damage to seeds will begin at temperatures of 96° F or more. Even at the very lowest setting, an oven temperature can vary enough to damage your seeds.)

Seeds *must* be completely dry before you store them and they should break instead of bending (less than 8% moisture). Store seeds in a completely airtight container at as low and constant a temperature as possible. Put each variety of seed in an envelope and write the name and year on each one. Put these envelopes into any glass jar that has a rubber gasket lid that can be screwed down tight enough to make the container airtight and moisture-proof. Homemade gaskets can be cut from old inner tubes.

Adjustable channel-lock pliers can be used to screw the lids on as tight as possible. Black electrical tape can be used to seal questionable lids.

Another possible container is a flat bag that has laminated walls of paper/foil/plastic. It can be sealed with a Seal-A-Meal, or sealed with an iron set on "wool" applied to the open end of the bag for three seconds. (The sealed edge can later be cut off and the bags reused.) They can be put directly into the freezer and take up less space than jars; they are also inexpensive.

Your containers can be kept in a freezer with no damage to the dry seeds. The next best place is a refrigerator, and the next is any cool area where the temperature will remain as constant as possible. When you take the container out of the freezer, you must let it sit out overnight to come to room temperature *before* you open it. If you don't, moisture will condense on the cold seeds and your effort to dry them will have been wasted. Do not leave the container open for any length of time, and don't go into it too often because temperature fluctuation is not good for the seeds. If you store your seeds by this method, they will hold their vigor for up to five times the period shown on viability charts.

We discussed reasons for saving nonhybrid, open-pollinated seeds, what to consider when choosing plants for saving seeds, and how to dry them. Let's look at some more detailed information on specific vegetables.

Beans

Phaseolus vulgaris contains common bush or pole beans, whether used for green snaps, green shell or dry. They are self-pollinating before the flower opens, so there is very seldom crossing. Sometimes you'll notice variation or oddities in the seed that may be due to a genetically unstable variety or a difference in conditions such as a change of soil pH or wetness at harvest rather than to any true crosses. You can plant varieties of Phaseolus vulgaris side by side.

Phaseolus coccineus are "runner beans." You can tell these when they come up because they develop with their two seed halves *under* the ground. Their flowers are self-pollinating, but bees or bumble bees and hummingbirds work them heavily and thus cross them. You should either grow only one variety of runner beans or separate two of them by at least the length of your garden.

Mark a few of your best plants, and let the pods dry out completely on the plant, weather permitting. When most of the leaves have fallen off, pull the plants and hang them under cover to finish drying. Small amounts of seed can be shelled by hand; for large quantities, make sure beans are thoroughly dry, crush or thresh pods, separate the beans from the chaff by winnowing in the wind; label, and store.

Weevil eggs are almost always present under the bean's seedcoat and can ruin your seed in a few months. They can be killed by placing the thoroughly dry beans in a tightly-sealed jar and freezing them for at least a day.

Broccoli

Broccoli produces seed its first season (unlike the other biennial members of the cabbage family) if you sow it early enough that plants are quite large by the long days of summer. However, it crosses readily with cabbage, kale, brussel sprouts, cauliflower, or kohlrabi, if any of these are flowering within 1/4 mile. Don't cut flower heads for food that you are saving seed from.

Chinese Cabbage

Brassica pekinensis is a cross-pollinating annual. It will not cross with any of the cabbage family, but will cross easily with other varieties of Chinese cabbage. It sends up a seed stalk which forms a pod that will turn brown when mature. If you plant more than one variety of Chinese cabbage, the isolation distance is 1/4 mile. The rest of the method is the same as with lettuce.

Corn

Corn is wind-pollinated, so any corn (sweet, popcorn, ornamental, dent, flint, etc.) will cross very easily with other corn. To keep corn "pure," you must grow it 1/4 mile from any other corn, or hand-pollinate it. Corn is very "plastic," so by observing and selecting carefully you can gradually determine characteristics your future crops will have. Let ears you are saving seed from ripen on the stalk until husks are dry, pick them, pull husks back, tie several husks together by the husks, hang in a dry, well-ventilated place until completely dry, shell, save only completely-formed kernels, and store. (An early and late variety can be planted side by side if the early one stops pollinating before the silks of the late one begin to emerge.)

Cucumbers And Cantaloupes (Muskmelons) And Watermelons

These all belong to different species and will not cross with each other (bug gherkins cross with cukes, muskmelon with casaba, and watermelon with citron). They are all insect-pollinated, so different varieties of each of the three *will* cross easily among themselves. If you are going to save seed, grow one variety of each. (Remember that with vine crops and any other vegetable that crosses very easily, that if you have any neighbors within 1/4 mile who are also growing that vegetable, you would be wise to try to supply them with your seed.)

Let a few of the earliest maturing well-formed fruit become completely ripe (cukes turn golden yellow, muskmelons crack at the stem, watermelons have a deep hollow sound when thumped). This ruins cukes for eating, but with watermelon and cantaloupe, the seeds are mature when they are ready to eat. Scoop out the seeds, wash them gently to remove pulp (a sieve may be used), and let them dry .totally on a piece of foil. Keep them separated and stir them occasionally so they don't stick together. When completely dry, label and store. (Remember, seeds are dry when they break instead of bending.)

Eggplant

Pollination is like peppers, so separate varieties by the length of your garden or with a tall crop. Leave the best fruits on several of your plants for as long as possible, and when fully mature, scrape out seeds, separate from the pulp, dry and store.

Gourds

Legenaria siceraria are hard-shelled bottle gourds with evening-blooming white flowers. They don't cross with vegetables in the squash section, edible varieties include: Cucuzzi (also called Italian Edible Gourd and Italian Climbing Gourd) and Guinea Bean Gourd (also called New Guinea Bean and New Guinea Buttervine). Saving seeds of squash, pumpkins and gourds is the same as with cucumbers (except that summer squash varieties must be left on the vine much later than the eating stage, until the shell is quite hard).

Lettuce

Lettuce is self-pollinating with little chance of crossing. Select several of the firmest heads or best leafy plants which are slowest to bolt (send up their seed stalks). When seed is fully developed, pull plants and hang them under cover to finish drying. Crush pods, separate seeds, label and store.

Okra

Okra is self-pollinating, so you can grow more than one variety with little separation. Leave at least two of your best plants completely alone. When pods are dry, but before they open enough to drop seeds on the ground, shell them and save.

Peas

Peas are self-pollinating, but cross slightly more easily than beans. So if you grow two varieties, separate them by the length of your garden or with a tall crop. Everything else is the same as with beans.

Peppers

Peppers are mainly self-pollinating, but insects may cause some crossing in varieties planted closer than 1/8 mile. When growing more than one variety of peppers (or if sweet *and* hot), separate them by the length of your garden or with a tall crop to keep them from crossing (and sweet peppers from becoming hot). Select several of your largest and best peppers from your best plants. Let them ripen on the plant until red and starting to soften, scrape out seeds, dry and save.

Potato

Potato varieties don't cross since tuber divisions are really just clones. Crossing between potato flowers affects seed balls, not the roots. Select a few of your best-looking plants that are surrounded by healthy plants to save for seed. Never keep potatoes for seed that show any sign of scab. You might be able to increase your production by planting small (egg-sized) whole potatoes, since they are less apt to be badly sprouted and often produce a vigorous plant more quickly than cut potatoes. If planting small whole sprouted potatoes in spring, don't damage the big sprout on the eye end of the potato since this will produce the most vigorous plant. You can just break most of the other sprouts off. Some people think that yields are improved by planting sprouted potatoes. Plants sometimes emerge in just a few days (sometimes two weeks) ahead of nonsprouted potatoes. Dig potatoes when the vines *begin* to dry up—when the soil loses its shade, it gets hot and your crop may be damaged. Washing/not washing doesn't seem to affect how well your potatoes keep. After drying in the shade for only a few hours to toughen their skins, they are ready to store, the colder the storage temperature the better (34°-40°F). It's been said that burying them in dry sand is the perfect way to store them.

Pumpkins And Squash

These are insect-pollinated and cross very easily. All pumpkins and squash belong to one of four species of the genus *Cucurbita*, so when saving seeds, plant only one variety of each of the following species:

Curcubita Pepo includes summer squash, all true pumpkins, varieties that are both bush and long-vined; stem and branches both have five sides and spines. Includes all *acorn* squash (Des Moines, Ebony, Ebony Bush, Jersey Golden, Royal, Table King, Table King Bush, Table Queen, Table Queen Bush, Table Queen Ebony, Table Queen Mammoth), Black Beauty, Casserta, Cheyenne, Chiefinei, Cinderella. Includes all of the *cocozelles* (Green, Vining), Connecticut Field, Cozini. Includes all of the *crooknecks* (Dwarf Summer, Early Summer Golden, Early Summer Yellow, Golden, White Summer), Crystal Bell, Delicata. Early Cheyenne Pie, Fordhook, Fordhook Bush, Fort Berthold, Golden Centenial, Golden

Custard, Golden Oblong, Hyuga Black, Jack O'Lantern, Kikuza White, Lady Godiva, Little Boo, Lunghissimo Bianco Di Palermo, Mammoth Gold. Includes all the *marrows* (Boston, English Vegetable, Green Bush Improved, Long White, Vegetable, White Bush, White Vining Vegetable), Naked Seeded, New England Pie Pumpkin, Omaha, Panama, Perfect Gem, Pie Pumpkin, Royal Bush. Includes all the *scallops* (Benning's Green Tint, Early White Bush, Early Yellow Bush, Long Is. White Bush, Mammoth White Bush, Patty Pan, St. Pat, Summer Bush, Yellow Golden), Small Sugar Pumpkin, Spaghetti Squash, Spookie, Stickler, Straightneck, Early Prolific, Streaker, Sugar Pie, Sweet Dumpling (Vegetable Gourd), Table Gold, Thomas Halloween, Tricky Jack, Triple Treat, Uconn, Winter Luxury, Winter Nut, Youngs Beauty, Vegetable Spaghetti. Includes all *zucchinis* (Black, Burpee's Fordhook, Burpee's Golden, Dark Green, Gold Rush, Gray), and any of the small Hard-shelled, Striped and Warted Gourds.

Cucurbita maxima have very long vines and huge leaves, stem is soft, round and hairy. Alligator, Arikara, Atlas, All banana squash (Blue, Giant, Orange, Pink, Pink Jumbo), Bay State, Big Max, Big Moon. All *buttercups*: Blue, Bush. All *delicious*: (Golden, Green), Emerald, Essex, Estampes, Gilmore, Gold Nugget, Greengold, Guatemala Blue, Hokkaido Green, Hokkaido Orange. All *hubbards* (Baby, Baby Blue, Chicago, Chicago Warted, Warted Green, Warted Improved), Hungarian Mammoth, Hungarian Mammoth (Cornell Strain), Ironclad, Kindred, King of Giants, King of Mammoths, Kuri Blue, Kuri Red, Mammoth Chili, Mammoth King, Mammoth Whale, Mammoth (Genuine), Marblehead. All *marrows*: (Autumnal, Boston, Orange, Prolific), Plymouth Rock, Rainbow, Red Estampes, Show King, Sibley, Silver Bell, Sweetmeat, Tuckernuck. All turbans (American, Golden, Turks), Victor Watten, Winnebago, Yakima Marblehead.

Cucurbita Moschata has large leaves and spreading vines, and a smooth five-sided stem which flares out as it joins the fruit. African Bell, Zizu Gokwuase, Alagold, Butter-bush. All *butternuts* (Baby, Early, Eastern, Hercules, Ponca, Puritan, Waltham, Western), Calabaza (Cuban Squash), Calhoun, Cangold. All *cheese* (Large, Long Island), Fortuna, Futtsu Kurokawa, Golden Cushaw, Hercules, Kentucky Field, Melon Squash (Tahitian), Patriot, Peraora, Ponca, Tahitian (Melon Squash), Virginia Mammoth, Wisconsin Canner.

Cucurbita mixta was formerly included with C. moschata and has similar characteristics. Chirimen, the *Cushaws* (except Golden Cushaw which is C. moschata), (Green Striped, Solid Green and White), Japanese Pie, Mixta Gold, Tennessee Sweet Potato.

Varieties *within* a species (one of the four groups) cross very easily, but don't worry about crossing between species. Crosses between different species are hard to make and their progeny are so highly sterile, that crosses by natural means are unlikely to cause concern. You do need to consider pollen from neighbors' gardens contaminating your efforts at keeping pure seed strains, if they are within 1/4 mile. Otherwise you can use these lists to keep four varieties of, pumpkins/squashes pure (one from each species). If your aim is purity (and/or if you are sending seeds to the Seed Savers Exchange) and you do have close neighbors, you need to hand-pollinate. Otherwise you could lose in one season what someone else has spent a lifetime of gardening to develop or preserve. (If you are afraid that a squash you are growing might have crossed, remember you won't see the variation in that summer's fruit. Grow it again to check it. If it has crossed, you'll see the variation when you grow the seed from the fruit that crossed.)

In an experiment to determine at what point there was the greatest number of fertile squash seeds, they found it to be 20 days after the fruit is fully mature—a 20-day after-ripening period when the seed actually improves in the fruit after you pick it.

Radishes

Radishes are insect-pollinated, so grow only one variety. Choose several of the largest, earliest roots to save seed from. The seed pod on the seed stalk will turn brown at maturity. At that point, pull the plants and finish drying under cover.

Spinach

Spinach cross-pollinates and has very fine pollen that is carried long distances by the wind. It only crosses with other varieties of spinach, very easily. Plant one variety only for purity in seed strains. Save seed as with lettuce.

Sunflowers

Sunflowers cross easily with wild sunflowers, making them unsuitable to save for seed. Some people call this home-saved seed that is "running out"—seed doesn't really run out, but if you don't take the right precautions, a gradual process of undesirable crossing over several generations can make the seed of some vegetable varieties practically worthless.

Tomatoes

Tomatoes are over 98% self-pollinating, but even such a slight amount of insect pollination over a number of seasons may be enough to destroy the characteristics that made the variety unique. Don't grow tomato varieties side by side if you want to save seed from them. Remember, don't just save seed from your largest tomato. For better genetic diversity, save seed from the smallest, largest, earliest and latest fruits. (This would only be twice the work if you saved seed from the earliest and also a large fruit at the beginning of the season, and the latest and also a small fruit near the end of the season). Mix equal amounts of these four seeds.

Select well-formed fruits from a few of your best plants and let them ripen on the plant beyond the edible stage until they are getting soft, but not to the point where they are going bad. Squeeze seed from several fruits into a glass, add some water, let the mixture ferment at room temperature for several days, stirring vigorously several times daily. After a couple of days the good seed will be on the bottom and bad seed and pulp will float on the top and can be washed away. This fermentation is said to kill several seed-borne diseases (many people use this method to separate seeds from pulp whenever seeds are embedded in soft fruit). If you don't want to use this process, squirt the seeds into a sieve and rub them with your fingers against the sieve under running water. Pick out or work all the pulp through the sieve and keep working seeds until the whole batch is really clean. Then spread them thinly and separately on wax paper. When they are completely dry, label and store.

All of the above vegetables are annuals, which grow and develop seed in one season. Biennials don't produce seed until the end of their second growing season. Biennials are: the root vegetables (carrots, onions, leeks, parsnips, rutabagas, salsify, beets, turnips, celeriac and winter storage-type radishes), the cabbage family (cabbage, broccoli, brussel sprouts, cauliflower, and kohlrabi), parsley, celery, kale (or borecole), collards, endive and Swiss chard. All these vegetables (except salsify and endive) are cross-pollinated, so to save seed and keep it pure, grow only one variety of each and only one member of the cabbage family, since they all cross. Select good-sized roots or firm heads to save seed from, dig them before frost, keep them in cool storage over the winter, replant them the following spring and they will bear seed that summer. If your climate isn't really severe (or with hardy roots like turnips and rutabagas) you may be able to just mulch them heavily over the winter, take the mulch off early in the spring and let them go to seed. Carrots will cross with wild carrots (Queen Ann's lace) if your garden is surrounded by meadow. Swiss chard, beets, mangels and sugar beets all cross. Celery and celeriac cross. Turnips and beets and broccoli will behave as either an annual or biennial depending on the climate they are grown in.

Hot Water Treatment of Seeds

This is a method for controlling the seed-born phase of diseases such as black rot and black leg in the cabbage family, bacterial canker and target spot in tomatoes, and Septoria spot in celery. You'll need an accurate thermometer, electric fry pan, large sauce pan, kitchen sieve and paper towels. Try a practice run without the seeds. Heat some water to 50°C. Pour a little into the warm electric fry pan, fill the sauce pan 2/3 full and set it in the fry pan. Regulate the temperature either by late the temperature either by turning up the fry pan or taking the sauce pan out of the fry pan. When you can maintain 50°C, pour in the seeds, stir until they are all wetted and not floating, then stir gently throughout the whole process. Treat broccoli and Brussel sprout seed for 20 minutes at 50°C, cabbage for 30 minutes at 52°C, cauliflower for 25 minutes at 52°C, celery and pepper seeds for 30 minutes at 50° C, and tomato for 25 minutes at 55°C. Then sieve the seed and spread it on paper towels away from direct sunlight, dry and store them.

Germination Testing

If you want to test the viability of your seeds, especially if you intend to exchange them with the Seed Savers Exchange (in fairness to fellow members), you can take 10, 25, 50 or 100 seeds for each variety, roll in a damp paper towel, put in a plastic bag, and put it in a warm spot. Count the sprouts after 7-10 days. Seven sprouts per 10 seeds is 70% germination, etc. The idea is to be sure that at least *some* of your seed will sprout; it's better to find out you have more to learn about saving seed than to have you or an exchange member waiting next spring for your seed to come up.

Cleaning Seed

Seeds that are harvested wet can be cleaned by floating off the light (and weak) seeds, hollow hulls and other debris. This works well for tomatoes (after fermentation), peppers, eggplant, melons and squash. Remove seeds from fruit, ferment if required, add water and stir vigorously. Good seeds are heaviest and sink; the rest of the debris floats and can be poured off. Repeat this four or five times or until the water poured off is free of debris. Rub wet seed over a sieve to remove attached pulp, rinse again, and dry.

Seeds that are harvested dry should be rubbed and winnowed to remove chaff.

Isolation and Purity

We have used isolation and planting only one variety of cross-pollinating crops to maintain pure strains, but it should be noted that even self-pollinated plants may cross if conditions are just right. If your aim is absolute purity and you are saving seed from more than one variety of a self-pollinating crop, separate varieties by at least a row or two of another crop.

Thanks for saving seeds!

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Article #3: Hand Pollination of Squash By Richard Grazzini

Excerpted from one of the Seed Savers Exchange catalogs.

This year I looked at about 150 different varieties of squash. A few were commercial hybrids or commercially-available standards, but most were heirlooms. On the other hand, some of the heirlooms were obviously crosses of two (or more) winter squashes, or winter squashes and summer squashes. If you grow squash for seed, PLEASE hand pollinate or grow only one variety of each species. You could wreck in one season what someone else has spent a lifetime of gardening to develop or preserve.

To keep varieties of squash from crossing and to make them come "true", you must self pollinate them by hand. First, in the late afternoon or evening, find both male and female flowers that are unopened, but firm and yellow (the female flower has a small "baby" squash below it). These will open overnight unless they are sealed. *Wilted* yellow flowers have already opened—don't use them. The flowers you will be using the next morning must be sealed so that bees don't do your pollinating for you and bees are early risers! I usually seal with 1" or 2" masking tape placed around the top third of the flower. The next morning, wait until the dew dries and then pick the male flower. Remove the petals from both male and female flowers. Swab the pollen-covered part of the male flower on the stigma of the female flower. A glassine envelope should be ready to use (so the open flower is not exposed for too long). Cover the female flower after pollination with the glassine envelope and hold it in place with a wired label which closes the glassine envelope and labels the pollination all in one step. This will let you keep track of your hand-pollinated fruit all during the summer until harvest.

That's it, except for removing the glassine envelope after three to five days. If the envelope is *not* removed, more often than not the fruit will rot. Always make as many hand pollinations as possible. A fruit may rot at any time and you can lose a variety because you quit one flower too soon. Self pollinating a naturally-crossed crop can lead to what's called "inbreeding depression" or a loss in plant vigor. Luckily for those of us who like to work with squash, squash don't seem to show any inbreeding depression. Watermelon and cantaloupe can be hand pollinated just like squash. The flowers are smaller and not as easy to manipulate. You may have to use tweezers, but it works.

Article #4: The Spirit Speaks

I have never once deviated
In my love for you

From the moment you were conceived
I have loved you with a love
Changeless
Endless
Irrevocable

There has never been a day, an hour, an instant
When I was not with you
Loving you

I nurtured you as a seed
Enfolded you as a child
Strengthened you as man

I was an invisible shield over your head
Though you knew it not

I am still that invisible shield!
With infinite care I attend your wounds,
Govern your heartbeat
Remove the wastes that do not belong

I sleep not at night

When you close your eyes
Yielding at last more fully to my care
I go to work
And heal, as far as I can
The ravages of your insane, inexplicable self-activity

You imagine in your blindness
That you can love or not
As you choose,
Condemn, criticize, hate
As you choose

Fortunately for you I have no such choice

I am true always to the solemn dictate of love

I respect to the last the covenant I made
When I came into the world

Yet I know too that you cannot survive
If you continue to fight against me,
Ignoring my government
Preferring strange impulses of your own choosing

Rejecting me you reject love

This is why you are always looking for love
But never find it

Just when you think you have it
Love
Like a bird
Flies away

Your songs, art, literature, all sing
This vain and fruitless quest
For a love that will never change
A love that will never die
A love that is ever new

Turn to me
Acknowledge me
Accept me
Love me
And you will know such love
Here and now

Together we will restore the world
To order and to beauty.

—Origin unknown

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Article #5: Origin of the World's Basic Food Plants

Almost all of the world's basic food plants originated in a few relatively confined areas of the planet, close to the equator, named Vavilov Centers after the renowned Russian plant breeder and geneticist N. I. Vavilov. Although these areas remain the sole source of all natural food plant varieties, they are rapidly being urbanized, and much of the agricultural land is being planted with patented hybrid seeds developed in Europe and the U.S.

Old World Centers

1 ETHIOPIA
Banana (endemic)
Barley
Castor bean
Coffee
Flax
Khat
Okra
Onion
Sesame
Sorghum
Wheat

2 MEDITERRANEAN
Asparagus
Beet
Cabbage
Carob
Chicory
Hops
Lettuce
Oat
Olive
Parsnip
Rhubarb
Wheat

3 ASIA MINOR
Alfalfa
Almond (wild)
Apricot (secondary)
Barley
Beet (secondary)
Cabbage
Cherry
Date palm
Carrot
Fig
Flax
Grape

Lentil
Oat
Onion (secondary)
Pea
Pear
Pistachio
Pomegranate
Rye
Wheat

4 CENTRAL ASIATIC

Almond
Apple (wild)
Apricot
Broad bean
Cantaloupe
Carrot
Chick pea
Cotton (G. herbaceum)
Flax
Grape (V. vinifera)
Hemp
Lentil
Mustard
Onion
Pea
Pear (wild)
Sesame
Spinach
Turnip
Wheat

5 INDO-BURMA

Amaranth
Betel nut
Betel pepper
Chick pea
Cotton (G. arboreum)
Cowpea
Cucumber
Eggplant
Hemp
Jute
Lemon
Mango
Millet
Orange
Pepper (black)
Rice
Sugar cane (wild)
Taro
Yam

6 SIAM, MALAYA, JAVA
Banana
Betel palm
Breadfruit
Coconut
Ginger
Grapefruit
Sugar cane (wild)
Tung
Yam

7 CHINA
Adzuki bean
Apricot
Buckwheat
Chinese cabbage
Cowpea (secondary)
Kaoliang (sorghum)
Millet
Oat (secondary)
Orange (secondary)
Paper mulberry
Peach
Radish
Rhubarb
Soybean
Sugar cane (endemic)
Tea

New World Centers

8 MEXICO-GUATEMALA
Amaranth
Bean (P. vulgaris)
Bean (P. multiflorus)
Bean (P. lunatus)
Bean (P. acutifolius)
Corn
Cacao
Cashew
Cotton (G. hirsutum)
Guava
Papaya
Pepper (red)
Sapodilla
Sisal
Squash
Sweet potato
Tomato

9 PERU-ECUADOR-BOLIVIA
Bean (P. vulgaris)
Bean (P. lunatus)

Cacao
Corn (secondary)
Cotton
Edible roots (oca, ullucu, arracacha, añu)
Guava
Papaya
Pepper (red)
Potato (many species)
Quinine
Quinoa
Squash (C. maxima)
Tomato

10 SOUTHERN CHILE
Potato
Strawberry (Chilean)

11 BRAZIL-PARAGUAY
Brazil nut
Cacao (secondary)
Cashew
Cassava
Mate
Para rubber
Peanut
Pineapple

12 UNITED STATES
Sunflower
Blueberry
Cranberry
Jerusalem
Artichoke

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Article #6: You've Just Been Poisoned By Mike Benton

Have you had a headache recently? Maybe you've felt tired or nervous or irritable for no particular reason. Or has there been some pain somewhere in your body, but you didn't know just where?

Well, consider yourself poisoned—pesticide poisoned, that is.

You may be a victim of pesticide poisoning if you've experienced any of these symptoms lately: fatigue, aching bones, headache, indeterminate body pains, chronic tiredness, mental confusion, fever or other "cold-like" and "flu-like" symptoms.

Many times you may be poisoned by pesticide residues in your food and just not realize it. Pesticide poisoning goes virtually undetected by doctors because they rarely recognize the symptoms for what they are. Since you may not have become immediately sick after eating pesticide-contaminated food, you may not connect your negative feelings with the poisons you just ate.

While few people do know that many aches, upsets and illnesses are pesticide-related, over 500,000 people each year are *seriously* poisoned by pesticides each year—over one every minute.

Another 5,000 people die each year as a direct result of pesticides. Up to 5 *million* or more cases of pesticide poisonings go unreported or undiagnosed each year.

Everybody in the world—no matter where they live or what they eat—have pesticide residues throughout their body. That's right—you've been poisoned!

Pesticides and Your Health

Pesticides seem especially damaging to the liver and spleen. Blood disorders such as leukemia, anemia and "tired blood" have increased with their use of pesticides. More leukemia cases are reported in the farm states that have had the highest amount of pesticide spraying.

Liver disorders such as hepatitis, jaundice and other ailments have skyrocketed with pesticide use. "It is now believed," says Dr. W. Coda Martin, "that the greater number of hepatitis cases may be caused by DDT on the leaves of green vegetables."

In 1969, Miami University did a study on cancer patients. A random selection of terminal cancer patients revealed that they had exceptionally high pesticide residues in their liver, brains and fatty tissues.

Although we can't blame all our nation's ills on pesticide use, pesticide poisoning is real. Stillbirths, miscarriages- and deformed babies occur most where pesticide use has increased the most rapidly.

Why Is This Happening?

The government is doing a miserable job of keeping pesticides out of our environment. Agribusiness aggressively promotes the use of these poisons for profit—even when they know they are killing people! Does this sound incredible, do you still believe that people are crying "wolf"? Well, read on.

Poisons For Profits

In 1977, workers at a pesticide plant in California discovered that they had been made sterile due to exposure to DBCP (a pesticide). Some of the companies making this poison suspended production while the government investigated. One company, called Amvac, did not.

Amvac told its stockholders that although DBCP had suspected "carcinogenic and mutagenic" properties, they would continue to sell it. They explained: "It was our opinion that a vacuum existed in the marketplace that (we) could temporarily occupy...(and) with the addition of DBCP, sales might be sufficient to reach a profitable level."

Finally, after two years that it was determined DBCP did indeed cause sterility, the Environmental Protection Agency banned its use in this country. So, do you think you're safe? Nope. Read on.

Deadly Bananas

Although DBCP is now banned in this country because it is believed to cause cancer and sterility, there are no restrictions on selling this pesticide to foreign countries.

Banana plantations in Costa Rica, Honduras and Ecuador buy DBCP from us. They use it to kill soil-dwelling worms that attack the bananas. Then they ship the sprayed bananas back to the United States where you eat them.

Foreign Killers

Imported produce is more likely to be highly poisoned than food grown in our country. The reason? "Americans eat with their eyes," a Mexican agribusinessman said. "They won't buy a fruit or vegetable with any insect marks or blemishes, so we spray them heavily. About four times as much spray as we use on our domestic crops. No insects ever touch that food."

And probably neither should you.

Strawberries from Mexico often have residues of *60 or more* pesticides. A single head of imported lettuce had 11 different poisons used on it.

Bananas from Central and South America had 45 "allowable" (by FDA standards) pesticides *plus* 25 prohibited pesticides *and* 37 additional poisons that are not normally detected by FDA tests. Mexican tomatoes had 53 "allowable" pesticides, another 21 banned pesticides, and an additional 28 unidentifiable sprays and poisons. The FDA frequently finds mysterious, unknown poisons in imported foods no doubt illegal pesticides that were manufactured and sold by the United States.

The FDA rarely, seizes these poisoned food shipments or refuses them entry. Instead, they remove a small sample of the food for testing and send the rest to the marketplace. By the time they run the test and discover the deadly pesticides, the food is already in your stomach.

During one recent 15-month period, half of the imported food identified as *heavily* pesticide-contaminated was sold without penalty or warning to the American public.

The government is not protecting you. The pesticide manufacturers certainly won't protect you. It's up to you.

What Can You Do?

You cannot avoid pesticide poisoning. By now, the waterways, the soil and the rain are so polluted by them that it will take at least 20 to 40 years to eliminate them from the environment even if we start today.

Is it hopeless? Do we have to sit back and allow ourselves to be poisoned for someone else's pocket-book? No. You can take actions today that may save the lives and health of all the people and wildlife on this planet. Here's how:

Economic Action

As much as possible, boycott the giants of agribusiness who are chiefly responsible for pesticide production and use. Buy local and organic produce as much as possible. Support the small, independent grower.

Tell your local grocery store that you want more homegrown and unsprayed produce. Spend your dollars wisely so as to give little support to the food industries that use poison for profits.

Political action

Let your congressmen at the state and federal levels know about your deep concern for the pesticide problem. Write letters, emphasizing that their actions in this one area will greatly determine how you will vote.

Protest the exportation of pesticides to other countries. These poisons find their way back to your dinner table. Insist that federal agencies be more responsive and stringent in monitoring pesticide levels. Tell your representatives that you want more funding for environmental protection agencies.

A list of consumer action groups that are lobbying for stricter pesticide control is included' with this article. Contact them for additional information about how you can help.

Consumer Action

You can consume less pesticides by growing your own food. If you have extra room, grow additional poison-free food for friends and relatives. However, realize that pesticides are now throughout the environment. Rains carry deadly poisons from around the world and deposit them in your garden. Even homegrown and organically-grown food is now being pesticide contaminated due to our polluted waterways. You can't run away anymore from the problem—it's being brought home to you, like it or not.

If you can't garden or raise your own food, grow sprouts. These are virtually poison tree food and may be had fresh all year round. Sprouting dried seeds and grains can help you consume less supermarket poisoned foods.

A Good Diet Can Help!

Yes, you can eat certain foods and avoid others to reduce your pesticide poisoning. By wisely choosing your foods, you can consume up to 100 times less poisons than the average person. Here's how:

1. *Avoid meat and dairy products*. Pesticide residues are 16 times to several hundred times higher in meat and milk products than in fresh fruits and vegetables
   Animals must eat 16 pounds of plant material to produce one pound of flesh. The poisons in the feeds and plants are concentrated in the fat and vital organs of the animal. When you eat the meat, it's like getting a super-concentrated dose of pesticides. The pesticides that are bonded in the animal fat is even more difficult for the body to handle than the pesticides found in the fruits and vegetables. When pesticides are subject to heating as well (as in the cooking of the meat), additional dangerous chemical changes occur

   The former secretary of Health, Education and Welfare, Robert Finch, said: "If strict enforcement of pesticide residues in meat, dairy products and eggs existed, I fear we would have to become a nation of vegetarians." Actually, the fear should be that we *won't* become a nation of non-meat eaters

   Although DDT contamination of fruits and vegetables has now slightly decreased since the limited 1973 ban, pesticide poisons in livestock, poultry and fish have steadily increased. Animal fat is a storehouse of poisons. The more fat in your diet, the more poisons. It's that simple

   Remember too that it is now impossible to consume any dairy food in any form and *not* receive dangerous levels of DDT. High-fat dairy products are, of course, the worst.

2. *Limit or reduce grain products*. Grain farming is most conducive to heavy spraying and mono-crop farming. After a few years of continual spraying, the grain fields become saturated with high doses of pesticides
   The safest grain to eat is wild rice. Corn and wheat are among the heaviest sprayed.

3. *Buy organic food or grow your own*. Obviously if you grow or buy unsprayed food, you'll get less pesticides. Remember, however, that as long as there are pesticides used anywhere in the world, your food will still be contaminated. The only sure way to prevent pesticide poisoning is to make certain that these chemicals are not released into the environment in the first place.
4. *Use careful food preparation*. You can remove some surface pesticides by washing them with a harmless soap to remove oil-based poisons, vinegar or lemon juice to remove alkali-based sprays, and soda for acid-based sprays. Make sure all such washed produce is then cleansed with water (preferably distilled to avoid other contaminants)
   You can peel some fruits and vegetables (especially waxed produce). You should remove outer leaves of green vegetables

Once again, however, these are not sure protection measures. Most pesticides are not on the surface of the food, but are throughout the entire system of the plant. The poisons may be entirely *intercellular* and none may be on the surface at all.

5. *Avoid most imported produce*. Food that is imported has often been more heavily sprayed and with poisons banned in this country. This is not always true, however. For instance, many foreign countries will not let U.S. produce come into their country because of the poisons we use. Oftentimes, the food you get *inside* these countries is safer than what is grown inside the U.S. It's just that to produce high-cosmetic produce for Americans, the foreign countries heavily spray their export crops.
6. *Avoid produce that receive the highest amount of spraying*. This is often difficult to determine, as pesticide use is not consistent for any crop across the country. In general, "soft" fruits which are more prone to insect attack will usually be more heavily sprayed than those foods with a naturally protective layer or skin.
7. *Don't worry.* Strange advice after all these warnings, but you should realize that at this time, it is impossible to avoid all pesticides. Worrying does no good anyway; action is what is needed.

If you follow a good diet, you can be protected from most of the harmful effects of pesticides. For instance, uncooked foods present less of a problem to the body as it tries to separate the poisons from the food. If you cook your food, you're creating chemical bonds with the poisons that may present difficulty. A little poison on your fresh fruits and vegetables won't hurt you as much as the high amount of poisons most people get in the typical high-fat, high-meat American diet.

Fasting can help your body eliminate the pesticide poisons by burning up those fat deposits where the residues are stored. As these poisons are released during the fast, you may experience the usual symptoms of pesticide poisoning—nausea, headaches, irritability, etc. It's uncomfortable, but fasting and/or the eliminating of this body fat may be the only way of ridding yourself of the pesticide load.

Fight Back!

Remember, you don't have to sit back and be continually poisoned. You're not helpless. You have to take action. You're fighting for your life.

No one is immune from pesticide poisoning. We are killing the birds, the animals, the children and all life on our planet by the crazy, unjustifiable use of deadly pesticide poisons.

We have a chance. There are still people—people like you—who believe health, life and, well-being are more important than a few extra dollars for a poison manufacturer or for the chance to eat an "unblemished" apple.

But you can't wait any longer. You've got to fight back—now —because with the next bite you eat, you've just been poisoned

Lesson 100 - Restructuring The Way We Produce Our Foods - Part II

- 1. Introduction
- 2. Water, Water Everywhere?
- 3. Ecology And Climate
- 4. Politics Of Food Production
- Article #1: Tropical Rain Forests: Earth's Green Belt

1. Introduction

"The Sky is Falling!" ... or is it?

Once upon a time there lived a storybook character named Chicken Little, who said the sky was falling—this is about as cheerful as most of the news we're subjected to nowadays, and if it appeared as tomorrow's newspaper headlines, it probably wouldn't even raise many eyebrows in comparison. (It'd make a nice *National Enquirer* headline!) In gathering material for this lesson I was soon saturated with one piece of "bad news" after another—certainly no shortage of negative environmental factors to be found, and I began to wonder how I could ever present both the good and the bad sides of the story without sounding like a "doomsday prophet"! Yet, reality *is* made up of both sides. So, before going any further with our discussion on ecology, let me clarify what my intentions *are* in opening our Pandora's box of world problems. I'd much rather be the bearer of good news, so my purpose in this lesson is a dual one: to admit our mistakes honestly *and still* count our blessings, the *good news* being that we're finally discovering the limited scope and potential of *self* consciousness, and evolving to an awareness of the broader scope and potential of our *collective* (or universal) consciousness, i.e., *what we do to others, we do to ourselves*. We are creating our *mutual destiny* daily, and what we create also depends upon the strength of our *will to live*. Since negative attitudes are self-fulfilling and self-defeating, please keep your chin up when reading this lesson. Its purpose is also not to attempt to *predict* future events, climates, or cataclysms, but to evaluate our world as it *is* and *could be*. The question is not so much whether the sky is falling, it is whether *we* will let *ourselves* fall. If we give up hope, and throw in our cards early in the game, we give up our destiny as well. My purpose in writing this lesson is to present the rose in all its beauty and to smell its sweet fragrance, but to *watch out* for the thorns. I hope the lesson will inspire you and challenge you to discover, and create, a beautiful future for all of us.

When we see the reality of what is happening to all of us, the total picture can't help but stir up many mixed emotions. Few of us enjoy speculating on potential destruction/devastation of our planet. We want to be positive and cheerful, and would almost rather not hear the bad news at all, but there's also a difference between the bad news given by the broadcaster with little emotion and the bad news that comes with suggestions as to how changes can be made and how we can help ourselves—the latter news is motivated by a desire to help humanity. We can listen and learn from Hamaker, for example, and should get over our resistance to confronting reality. Not only does it keep us ignorant, but avoidance of the truth does *nothing* to change the situation. When we have a flat tire, we know that we'll have to fix it—a temper tantrum or flood of tears might fit the mood of the occasion, but they won't *fix* the tire. It's the same with world problems. When we're faced with the complexity and seriousness of our *total world reality*, the tendency is to become overwhelmed at first. This is only natural. After grudgingly *adding up* all the environmental factors involved, in our minds, we can't see our earth's state of health without an overwhelming sense of urgency that *so much* needs to be done—like looking at stacks of dirty dishes the morning after a party, only we have a lot more to clean up on earth. Where to begin? What can "just one" person do? Well, it becomes apparent what "just one" person can do if we look at the world around us—we're already doing it *now*, every day, all together at every moment, and the continual combined impact of *all* human action/interaction at once on the globe is no small matter. What "just one" person can do (and does) amounts to a lot since we're all doing it at the same time, and it adds up even more quickly when *everyone* is doing it *constantly*.

Our collective energy is just as capable of *healing* as it is of *destroying*. Once we *imagine* what we can do with this incredible healing power if our collective energy is used in a positive way, we have but to realize our fullest potential by *living* it. Unity and harmony will bring a new dimension of growth to our collective human energy. If we could but see the *heights* our spirits will reach when we build together, we would shun the *depths* our spirits sank to with pettiness, violence, and destruction. We would outgrow these primitive rituals—we have no use for them in our quest for a better world.

We must pass through the "crisis point", and bypass the *emotional traps that keep us from changing what we dislike, by misdirecting and draining our energy*: anger, blame (of self and others), revenge, guilt, self-pity, fear, confusion, delusion, anxiety, wishful thinking, depression, apathy, and inertia. All of these traps can become *obsessive*; they immobilize us; and, in fact, we often confuse the emotions themselves with actual *action*. Strong emotions drain us physically as well as mentally, giving the impression that we've expended a lot of energy (we have, but it was misguided and wasted). Emotions do not *act*—*we* act—our feelings are incapable of *acting* on their own (aside from their mental effects). We often resort to them because they offer immediate "satisfaction", an outlet or channel for our feelings—they become harmful when used in excess or to harm others. What is needed is *action*, after the reaction, not more expenditure of energy in the reaction itself. All time spent wondering "what if?" and "why?" is better used doing something or changing something, or even watching your garden grow or simply *smiling* at someone.

If we try to submerge negative images into our subconscious minds, we'll never be able to bury them deep enough as long as they exist. Just as with the Pandora's box, as long as the problems remain unsolved, keeping the lid shut won't make them go away. Ostriches have devised an ingenious way of dealing with "scary things they'd rather not see"—if the enemy approaches, they merely bury their heads in the ground—unfortunately, what we don't see or don't know can also hurt us. If we avoid looking at our problems, because we don't want to *see* the "enemy", how will we *know* our enemy? We need to know the enemy in order to keep one step ahead of its *grasp*. Refusing to look at the world as it really is, is like our avoiding mirrors when we have a pimple—we'd rather wait until it goes away. Is that what we're planning on doing with our world problems?

Once upon a time there was a happy ending for every story, and like breathless children listening to a fairy tale, we anticipate the book's final moment of magic and salvation *in just the nick of time*. Are we lured by the thrill of danger that comes with our defiance of Nature, and thereby *daring* our life source to *react* to our defiance? Well be sadly disappointed when we discover that the knight isn't coming on his horse to carry us off to safety *at the last minute*, and it's time we realized that the horse has been waiting for *us* all along in an empty pasture, for it is we ourselves that are meant to be the heroes in this story. We've been writing this one all together, all our lives, and it's about time we paused for a moment to read the chapter on psychic numbing. We get "tired" of bad news, try to harden ourselves, desensitize ourselves so as to feel less pain, to feel less vulnerable. This is understandable considering the harsh realities we face at times, but it is also a type of psychic defense mechanism we've adopted to deal with our environment—we try to "adjust" our reality to our own particular tolerance level. Whereas we find the ostrich's defense mechanism ludicrous, our amusement should fade when we realize we're doing *exactly* the same thing with our numbing mechanisms.

Sensitivity is our best defense against numbing apathy— the less we close our eyes to truth, the more we see. Sensitivity can also help us deal with *in*sensitivity around us—we can imagine how little an insensitive person feels because we know how *much* we feel, as sensitive persons. People of the strongest character, courage, honor, clarity of perception, vision, and greatest physical strength, are often the most *sensitive* persons around. The more sensitive you are, the more you experience in life.

A bird can't fly until it jumps out of the nest. As we busy ourselves in our nests, rearranging furniture and curling up in front of the fire for a cozy nap, we sometimes hear the distant rumblings of change on the horizon. The thought of jumping from our nest disturbs us, but if we want to feel the freedom of spirit possible in our lives, we'll have to take a chance *someday*. The light of a new dawn is breaking on the horizon. It's a good day for learning to fly.

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2. Water, Water Everywhere?

It can easily cost 500 to 2,000 gallons of water to produce a typical American meal. According to Rep. Tony Coelho (D., Calif.), agriculture accounts for 80% of all water consumption in America. It takes the use of 408 gallons of water to get one serving of chicken to a dinner able, 12 gallons for one 8-ounce baked potato, 18 gallons for one serving of green beans and 6 gallons for a salad. A dinner roll takes 26 gallons of water, plus 100 gallons for the pat of butter on it. That adds up to 570 gallons for one "conventional" meal. *A steak alone costs 2,607 gallons of water*. On the average, it takes about 1,630,000 gallons of water to feed *one* American for a year. (*Parade Magazine*, Sunday newspaper supplement, 3/25/84.)

It must be obvious that water is, indeed, a very precious resource and one that is all too often taken for granted.

Soil water has three forms: hydroscopic, gravitational and capillary. Hydroscopic water is chemically-bound in the soil constituents and unavailable to plants. Gravitational water is water that normally drains out of the pore spaces of the soil after a rain, and if drainage is poor, it is this water that causes the soil to be soggy and unproductive. Excessive drainage, on the other hand, makes capillary water run short sooner, and plants suffer from drought. Plants depend on capillary water for their supply of moisture, so the ability of soil to hold water against the pull of gravity is important. Organic matter and good soil structure add to this supply of water in soils. Plants can't extract the last drop of capillary water from soil since the attraction of soil materials for it is greater than the pull exerted by the plant roots. The point at which these two forces are equal is called the willing coefficient of a soil, that is, the percentage of water in a soil when water loss from transpiration exceeds renewal of the water by capillary means. Medium-textured loams and silt loams (because of their faster rate of movement of moisture from lower depths of the root zone, and the fact that they can bring up moisture from greater depths than either sands or clays) provide the best conditions of available (but not excessive) soil moisture for best plant growth. (*Rodale Press*)

The following excerpts on water come from *The Survival of Civilization*, page 22:

> "The microorganisms in a rich soil build the soil to take in rainwater and hold it in storage. The proper proportion of water in protoplasm is 90%. It is important that protoplasm be maintained as a dilute solution. Water evaporates from the leaves of the plant, concentrating the protoplasm solution. It is characteristic of water solutions that the water of the more dilute solution will pass through a membrane into a more concentrated solution. This force of osmosis is very powerful. It is the force that moves the water to the top of a sequoia. Water is, of course, necessary to all cells in order for them to function. Cells have a way of opening up and engulfing the very large molecules of protoplasm. Since the cells are alive and expend energy, they probably pass the I molecules or its components from one cell to

> another until it reaches the part of the plant where it is needed. If dry weather depletes the water held by the soil and the microorganisms to the concentration of the water in the leaf cells, all protoplasm feeding stops and growth is arrested.
>
> "Irrigation is not the answer to water shortage problems. If all farmers irrigated, the underground water supplies would soon be depleted (as they are in the process of becoming now). The answer is to keep feeding microorganisms until the aerated zone is 18 to 24 inches deep and capable of holding all the rain that falls until the excess can seep into the subsoil and reach the underground aquifer, instead of running off the surface and taking the soil with it. It will take a decade or two for roots and earthworms to deepen the topsoil significantly below plow depth.
>
> "Nitrogen from the air is the ultimate source of most of the nitrogen in the protein compounds of the microorganism protoplasm, the solid matter of which is about 2/3 protein. It is not, however, the principal source of crop-growth nitrogen. The same is true of carbon, which is the dominant element in all organic matter. The leaves take in CO2 and give off oxygen, retaining the carbon for the necessary carbohydrate construction and for energy requirements. When the plant dies, it goes into the soil or on the soil where it is used as a part of the food supply of various soil organisms. Eventually it is all carried into the soil, principally by earthworms as they combine leaf mold with minerals ground in their gizzards to produce microorganisms. Their castings are almost all microorganisms, and a source of protoplasm not overlooked by the hair roots of plants. Since the rye plant has been estimated to have a root system seven miles long, it is apparent that plants can do a lot of searching for protoplasm. The root tips grow a lot faster than microorganisms can move, so the microorganisms are easy prey to roots. When in intimate proximity to the cell, the flow of protoplasm begins.
>
> "The root cannot take in the cell membrane of the organism. The membranes are held against the root by the pressure of other cells forced against the root by the diffusion pressure between the microorganism cells and the root cells. Soon the older root cells are all plugged with microorganism cell membranes, which subsequently turn the brown color of all mature roots. The root functions simply as a pipe, while the rapidly-growing white root tips continue to devour cell protoplasm.
>
> "If the protoplasm of the root cells gets too dry, then the protoplasm intake must stop because osmosis requires that the more concentrated solution in the microorganisms must flow toward a more dilute solution in the plant cells. For this reason the root tips (which can take in soil water) constantly remove water from the zone where they are feeding, and the water is moved upward toward the leaves, keeping the cells saturated and evaporating the excess.
>
> "The intestinal tract of all animals works essentially the same way, except that the microorganisms and their food supply are inside Intestines and the protoplasm compounds feed into the intestinal wall where they are picked up by a blood vessel system for sorting out in the liver. Excess water passes readily through the system and is ultimately evaporated from the sweat glands or extracted by the kidneys and excreted in the urine.
>
> "Nature has used just one basic design for all the living organisms with variations as required by each type of organism."

As we said in our section on chemical fertilizers and pesticides, plant and animal digestive systems will readily pass water into the plant or animal, so if toxic compounds are in solution in the water, they too will pass readily into the plant/animal.

> "We see, then, that the rate of production of microorganisms will be high if: the soil contains a large surface area of available elements; a large supply of plant residue for carbon and a little nitrogen; plus the nitrogen that many organisms can take from the air as the air breathes in and out of the soil with temperature changes; water and the other necessary factors from the air."

We have seen that the key to achieving crop growth depends on a *delicate balance* between minerals available/absorbed, water, climate, and so on. It must be obvious by now that we cannot just "dump chemical fertilizers onto the soil at random and pour lots of water onto it," and expect to match nature's achievements! Irrigation is not the same as natural rainfall (i.e., rain as it *should* be, not acid rain) in the first place; in the second place, most water is full of chemicals by the time it flows through our taps.

2.1 We Don't Miss the Water Till the Well Runs Dry. . .

We will also talk about drought later in this section and again in our section on climate later on in this lesson. Barry Slogrove (ecologist) says the Southern hemisphere is suffering droughts like never before because of the transfer of cloud cover across the equator to the north—this is visible on satellite photographs. The results are felt in Australia, which has the worst drought in human history, and also in Africa, which has also suffered severe drought. The rain *volume* may be the same, but the precipitation patterns are different, which means that less moisture actually gets into the soil. (Slogrove also maintains the view that an Ice Age is on the way.)

In 1984, much of Texas suffered under *heavy* drought and in the Austin area, water use during the spring of 1984 far exceeded previous spring consumption (and exceeded peak use in the summer of 1983). To encourage public awareness of water use, the newspaper published water consumption figures daily. *Voluntary* water conservation was at first in effect (each day, households whose last number of their street address is the daily given number may water their lawns on that day—this amounts to watering every *fifth* day only). *Mandatory* water conservation began after three consecutive days at 150 million gallons usage. In Corpus Christi, Texas, mandatory water rationing to limit lawn watering and car washing began July 1 in this drought-plagued city. The new ordinance, carrying a fine of up to $200 for violators, was to continue indefinitely until the Nueces River watershed was replenished. (Alice, Texas, also instituted mandatory rationing in May.) Corpus Christi had called for voluntary water conservation in May, but officials said that residents didn't heed the request.

The following tips on conserving our precious water supplies were offered by the Austin newspaper, suggestions which can be put into practice by *all* Americans to save water and to increase consciousness so that water won't be taken for granted and wasted so often.

2.2 The Lawn

Water deeply and infrequently to get a good root structure, which can't be achieved by frequent shallow waterings. Water long enough for water to seep down to the roots. Check soil before watering; if it springs back when you step on the grass, it doesn't need water yet. Water during cool parts of the day, and don't water while the wind blows, because wind increases evaporation. Oscillating sprinklers are among the least efficient because they spray many thin streams of water high in the air. Use sprinklers that make big drops and keep the water close to the ground. Among the better sprinklers are the smaller versions of sprinklers used by golf courses or park operators, which rotate, sending pulses of water in a circular pattern (Rainbird makes these). Try a drip hose in odd-shaped areas. The least evaporation occurs when water is applied directly to the ground with a perforated hose or other drip irrigation method. Don't water the gutter—arrange hoses and sprinklers so the water doesn't run onto concrete. Even in instances where it appears the water is running off a sidewalk onto a lawn, a large part of the water evaporates. If you have an automatic sprinkler system, set the timer to operate between 4 and 6 a.m., when demand on city systems is at its lowest. Don't scalp your lawn. Set your mower to cut no lower than 1 1/2 inches; better still, 2 inches. Taller grass holds moisture better. A rule of thumb is not to cut more than 1/3 of the height of the grass. If planting new sod or grass, prepare the soil with compost so water won't run off (the same idea works in gardens).

2.3 Landscaping

Use native trees and shrubs that are hardiest in your area. Put a layer of mulch around trees and plants. Not only does this conserve moisture and keep the soil around plants cooler, but it also adds nutrients if leaves are used, have *some* weeds for insects and balance (polyculture), but not so many that they are taking too much water away from vegetables.

2.4 Other watering

Don't use a hose as a broom, to "sweep" sidewalks and driveways, etc. Use a rake or broom. Use a bucket or a water can to water hanging plants—using a hose to go from basket to basket wastes more water than makes it to the plants. Cut down on car washing (if nothing else, for the sake of your paint job), and wash with a bucket of soapy water, using the hose only for rinsing. Put a nozzle on your hose.

For almost every outdoor job, you'll save water by using an attachment that lets you turn the water on and off at the end of the hose rather than at the faucet. (Don't forget to turn the faucet off when done.) Wash your car at a commercial car wash, since the high pressure equipment used by most will wash your car in less time and with less water than most people use at home.

2.5 Showers

Showers usually take no more than 1/2 as much water—sometimes less—than bath tubs. If you don't have a shower, you can still save several gallons of water simply by reducing the water in your tub baths by a few inches.

You can check your use by plugging the drain during a shower and comparing the water level with your normal bath. Also, bathing and shampooing at the same time cuts water use. Take a shorter shower. Most showers use 6 to 10 gallons of water per minute. If you install a low-flow shower head, that can be cut to 2 1/2 to 4 gallons per minute, and the new shower head will pay for itself within a few months.

2.6 Sinks

Use aerators in sinks. Aerators which are made to screw into most standard faucets will cut your water flow. Check faucets for leaks. *Even a small drip from a worn washer can waste more than 50 gallons of water a day—steady drips can waste hundreds*. When brushing your teeth, turn off the water until you rinse your mouth. (Children can be helped to develop this habit while still young.) When shaving, partially fill the sink to rinse your razor rather than rinsing with running water.

2.7 Toilets

Cut down on the number of flushes. An old-style toilet can use five or more gallons per flush! Frankly, that's a lot of water for a cupful of urine. Newer models use 3 1/2 gallons per flush or less. Cut the water level in the toilet. Fill two one-quart bottles with water and replace the caps. Put them in the tank, to reduce the water used per flush. Don't use bricks for this, because they will crumble and possibly damage the toilet. You can also reduce the level of water with the toilet's own equipment. Many have adjusting screws. In older toilets gently bend the float rod downward to reduce water level. Check for leaks. Add a few drops of food coloring to the tank. If the color appears in the bowl in a few minutes (without flushing), you have a leak. Common sources of leaks are that the water level in the tank is too high or that the flapper ball and other parts are worn. Some plumbing supply stores and many stores that specialize in energy conservation sell inexpensive devices such as plastic water dams which will help reduce the amount of water used in each flush.

2.8 In the kitchen

Don't rinse the dishes with running water. If you have two sinks, fill one with hot rinse water. If you have only one sink, buy a small plastic tub for rinsing or gather washed dishes in a rack and rinse them when done with a spray device or by pouring water over them. Don't rinse vegetables with running water. Rinse them in a partially-filled sink or pan. Cooking with less water, such as by steaming, saves water and retains more vitamins in the food. (Of course, we might note here that *not* cooking retains even more vitamins!) Those who use garbage disposals are encouraged not to cut the disposal on (with water running all the while) for every little scrap, but to let them accumulate a bit—better still is to compost your scraps, of course. *Dishwashers use about 25 gallons of water per load*. Not only is this wasteful, but some people don't even fill the dishwasher with dishes each time. Any housewife who had to walk several miles for water and haul it back to the house would definitely think twice about using 25 gallons to wash dishes, that's for sure. Some new dishwashers have cycles that use as little as four gallons of water, but I still wouldn't promote the use of dishwashers. (Again, think of all the dishes and pots and pans you'll save washing on a raw food diet ...)

2.9 Laundry

Use the washing machine for full loads only. *Each load requires as much as 35 gallons of water — (some older machines actually use as much as 59 gallons)*. Try hauling that from a well. If you must wash only a few pieces, do it by hand. If you replace your machine, be sure to buy one with adjustable water levels. If you have a small family, consider a European-style, front-loading machine, which uses far less water than top loaders. If you live in a city, washing clothes, cars, etc., can be done on week-days since the heaviest demand on the water system tends to be on weekends. Check for leaks. In many older homes, the washer isn't located in the most convenient spot, which means that leaks can go undetected for weeks. Use cold water when possible.

2.10 Around the house

Turn down the hot water thermostat. High settings can waste water because you turn on more cold water at the faucet to mix with the hot. Check your buyer's guide or ask the store where you bought the appliance if you don't understand the range of settings on the dial. (If you don't know where the thermostat is, find out before an emergency.)

Evaluate your inside plant-watering schedule—check before watering—many plants die from overwatering as well as underwatering.

Insulate hot water pipes. The less time it takes for hot water to reach the tap, the more water you save. Check for system leaks. Turn off all faucets, then check your water meter. If it continues to run, you've got a leak.

Even if you don't live in an area that is prone to drought, it would be well to adopt as many water-saving habits as possible, because water is wasted needlessly, and is being used faster than nature can replace it in many places. As we said, children can be encouraged to develop a conscious attitude toward natural resources from the very beginning so that their conscientious habits become second nature to them—this is always easier than making the change later on in life. The next time you and your children brush your teeth, imagine that you live in a country where you must go to a distant well and carry your water home. How much water would you use in a day for all your needs? Could you imagine carrying that extra gallon or two that *each* of your family members lets run down the sink while brushing their teeth? It would then become apparent how wasteful this really is. Nor could you afford to carry the extra few gallons that run down the drain each time you rinse your hands, a glass, or something to eat. These all add up—if you're fond of mental exercise, you may want to calculate your average daily household water use in gallons and multiply by 365 for a year's use. You'll be *amazed*.

2.11 Odds and Ends

Use dishwashing detergent sparingly. I've lived for months in areas where our dishwashing consisted of rinsing dishes in streams without even using soap *at all*, and the only available water was, of course, *cold* water. Since dishes were rinsed right after eating, there was certainly no real food decomposition yet, and we all remained as healthy as ever. Most people seem to think they need "*lots of suds*", but soap residue is unhealthy—and more suds also mean more water for rinsing. If dishes have been sitting a few days, soaking them first will help, and a pad that is "scratchy" but made not to harm dishes (such as those sold for Teflon surfaces) can be used to get them clean with very little soap.

If children want to play in the sprinkler in the hot summer, put it somewhere where the water can serve a triple purpose: water the grass, entertain the kids, *and* serve as their shower/bath that day. Many of us in today's society have become so "clean" conscious that we actually shower and bathe too often for our real needs, especially if we "scrub daily with soap". This destroys the skin's natural oils and protective bacteria—while many people believe that their "cleanliness will protect them from germs/illness", it is more the opposite that is true: they'll be hardier if they *don't* attempt to "sterilize" their bodies. For freshness sake, we may take a quick shower/rinse with a loofa sponge or washcloth. As children, my 2 sisters and I often took our baths all three at the same time—another way to save water.

If everyone were to develop even the minimal suggestions given above for conserving water, *billions* of gallons of water would be saved constantly with very little effort, i.e., just by cutting *wasted* water use alone. Imagine the following savings:

Gallons of Water Used	**Households that change**	**Gallons of water saved**
59-gal. washing machine to 35-gal. one	1,000 1,000,000	24,000 gal. each time 24,000,000 gal. each time
Not running a gal. of water down the drain while brushing teeth	50,000,000 people	50.000.000 gal. daily
Fixing a drip that wastes 100 gal. daily	1.000,000 people	100,000,000 gal. daily
Miscellaneous: 5 gal. of water saved daily by any change made	10,000,000 people	50,000,000 gal. daily

We can see how quickly this all adds up!

2.12 Soil Drainage

Many soils in the world have only enough water reaching the drainage layer to keep small streams flowing at intervals of 6 or 8 feet; the rest of the gravel layer has become infiltrated by clay, and the gravel has begun to rise toward the surface. We are in the process of losing the drainage layer on a worldwide scale. The destruction of the drainage layer has been further intensified because some farmers have installed toxic plastic drain pipes a few feet below the surface in order to short-cut the percolating water and thereby further dry up the drainage layer.

Over 25 years ago, John Hamaker dug a pond in East Texas, and along 250 cut into the base of the hillside, there were only 2 or 3 sand channels where the water was still coming down the hill—all the rest had been sealed up by clay long ago. The water simply penetrated the 8" of sandy loam, to the dense clay beneath it and drifted downhill—an ideal set-up for sheet erosion if anyone tried to plow the land. Topsoil there eroded in heavy rains. There is a penalty for failure to maintain the drainage layer.

When lands begin to fall off in yield, they usually cease to have useful productivity in a few decades, and no amount of agricultural chemicals can bring that production back or keep it from dropping to a lower yield—at this point, the unused, fine rock material has stopped coming up from the subsoil because there isn't anymore. During the few decades when the soil collapses in yield, the fine material is used up and the major part of the surface area of rock is gone, i.e., the availability of elements has all but ended. This is why remineralization, as discussed later in this lesson, is needed—not random chemical "fertilizer" application, which is either unbalanced and/or lacks elements needed for proper growth of microorganisms, and thus, plant life itself.

All underground water eventually drains into a stream bed, or lake; it then comes up in springs at a lower elevation or runs directly into the ocean. The point is that the capacity of the subsoil drainage layer in any area has been geared to the annual rainfall and water penetration under natural conditions. When we alter the amount of water reaching and being maintained in the drainage layer, we are in trouble. If we decrease the amount of water by losing it to surface run-off, we will lose water and therefore sand and gravel from the drainage layer. This sand and gravel cannot be replaced. Arid soils have very little drainage layer left, simply because a drainage layer which isn't kept full of slowly-flowing water will clog up with fine, worn-out particles which will eventually displace the drainage sands and gravels and lift them to the topsoil. The sea salts carried in by infrequent rains accumulate in the soils for lack of sufficient water to establish drainage systems and thereby flush the salts back to the ocean. When dry lands are irrigated, they tend to become water-logged for lack of drainage. The salts dissolve and are left on the surface when surface moisture evaporates. The best use of arid soils is to put them back into grass, the way most of them were when the land was settled. With remineralization, more and better grass can be grown for animals. Many remineralized arid and semi-arid lands could also be afforested with valuable drought-resistant trees and shrubs (e.g. pistachio, jojoba). The water left in the underground reservoirs should be reserved for people and livestock. The refill rate of the reservoirs is much too slow to support irrigation, as shown by steadily-falling water tables in most exploited areas.

The mineral requirements to support the growth of soil organisms (hence plants) are a *natural* balance of the available (to the microorganisms) elements in the total mixture of the rocks on the top layers of the earth's crust, and the *natural* balance of the elements dissolved and suspended in sea water brought with the clouds. The mineral balance of salted soils must be restored by remineralization and by allowing large quantities of plant refuse to go back into the topsoil. The plant refuse would provide the carbon requirements of the microorganisms; the gases in the air and water complete their food requirements.

2.13 Drought

The Ethiopian drought is a forewarning of widespread regional water crises in the 1990s that could rival the energy crisis of the last decade, according to a study by the worldwatch Institute. Falling water tables and dry riverbeds indicate a widespread overuse of water resources, and if current trends continue, fresh water in many areas may become a constraint on economic activity and food production over the coming decades. In the United States, areas where excessive withdrawal of undergound water supplies threatens its future availability include the High Plains from Nebraska to Texas; the Colorado River basin, particularly the areas around Phoenix and Tucson; the Florida and Pacific coasts; and much of California. The report cites statistics from the U.S. Geological Survey estimating that the Ogallala Aquifer, used for irrigating one-fifth of U.S. cropland, is now half-depleted under 2,200,000 acres of Texas, New Mexico, and Kansas. Rising pumping costs and falling well yields associated with the depletion of the Ogallala are causing farmers to take land out of irrigation. Still, most officials continue to take a "frontier approach" that looks to dams and other multibillion-dollar diversion projects as a solution, failing to see the unfortunate irony in the situation. While the government pays farmers to idle rain-fed cropland in an effort to avoid price-depressing surpluses, farmers are exhausting a unique, underground water reserve to grow these same crops. The government is encouraging waste of water from the Ogallala by giving farmers a depletion tax break based on the drop in the water level under their land. Instead, says Worldwatch, the government should be *taxing* that water use.

If we continue to ignore warning signs of future water shortages, and close our eyes to the waste and overuse of decreasing water supplies, we will pay dearly for our indifference. We need not imagine what our lives would be like without water—we need only look at the suffering people in Africa to see the stark reality of what extensive drought can do. Television brought the starving, emaciated bodies of drought victims into our living rooms in 1984, and it is a painful sight, but one that we must face up to. Thousands of people have been reduced to skeletons as the drought takes its toll.

In the African country of Mauritania, not only must they cope with the severe drought plaguing 6ther African countries as well, but they must also cope with the spreading Sahara desert—one government official says the parched and rainless country "could disappear from the map in 10 years, and become only sand." The Sahara is literally pushing southward; crews along a key highway passing through 690 miles of Mauritania wage a daily battle with the desert, trying to keep the road clear of wind-blown sands. Crops are gone after being withered by a drought that has affected some areas since 1969, and covered by the shifting dunes of the Sahara. With two-thirds of its land already swallowed up by the desert, Mauritania now produces only about 5% of the food it needs. Cereal production used to average 100,000 tons annually, but was estimated at 15,000 tons in 1984. The government is trying to, drill holes for water in the countryside to slow the rush to the towns. Vast herds of cattle (about 80%) have died, or have been driven into neighboring Senegal for grazing (Senegal agreed to allow up to 300,000 animals to graze there), but now Senegal is also suffering from a drought. Although it defies all laws of common sense to keep cattle in areas so dry that even human beings can scarcely find enough to eat (and many don't), these people are raising animals because they've done so as long as they can remember; they don't know any other lifestyle. (If we are tempted to pass judgment, let's look at our own Society—we've certainly made enough environmental errors ourselves, wasting resources for rapid gains that result in long-term losses. Being more educated, what excuse would justify our *own* lack of foresight?) Some Mauritanians have goats, and donkeys are, of course, a necessity for those who depend on them for work. The nomadic way of life has been a tradition for many people here. In the past, during the worst times of drought, nomads moved to farming areas, then returned to their old way of life when pasture became available. International aid agencies now argue that there is no longer sufficient grazing land or water to sustain a nomadic life, and the U.S. embassy's 1984 economic report said there was no question that Mauritania's centuries-old nomadic way of life has been irreparably damaged. Nevertheless, those who can survive as nomads still cling to life and try to continue on as best they can. In all these countries affected by the drought, Africans struggle to survive with a severe shortage of water, limited resources, and less opportunities for education than we have here. Their courage should be a lesson to all of us who have been blessed with advantages that we far too often take completely for granted. Some of us panic at the mere thought of missing a single meal, or consider ourselves unfortunate if we can't afford a new outfit of clothes. Some of us would even feel underprivileged if we couldn't own a yacht. As a nation of consumers, we pride ourselves on our "high standard of living", and are dazzled by a vision of "progress" that has led many of us to become obsessed with "success", this success being measured in terms of our wealth and possessions. Swept along in the tide, inundated by commercials in the media urging us to "buy more", we tend to forget that what we perceive as a normal way of life here in this country is very *rare* in most of the world. In Lesson 53 we mentioned that our country uses more of the world's natural resources than any other country; our "high" standard of living is more expensive than we may care to admit.

Objectively speaking, we may be accused of being selfish. How do we justify this use of natural resources? Are we using them to better the lives of all our brothers and sisters around the world, to make the world a better place for all human beings to live in? Or are we using them to add to our own comfort, and patting ourselves on the back for our technological marvels, choosing to forget that millions of people in the world are still hungry? We have a right to survive, to secure the things that we need for our survival in this world—this is true. But if we already have 6 pairs of shoes and find ourselves gazing longingly into a store window at "just one more pair" we might stop and ask ourselves why we want to have *more* than we need. What is it within us that keeps us unsatisfied? Why do we never seem to have enough?

We've trailed a bit off the subject of water here, but it is time to see ourselves honestly in the mirror. It is time to appreciate the things that we *have*, because it is too easy to forget where all these things come from if we don't stop for a moment to realize how precious water and *all* our natural resources are, and to do everything in our power to appreciate them and conserve them all, *before* "the well" runs dry.

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3. Ecology And Climate

3.1 Deforestation

The earth's remaining forest cover is being destroyed by human exploitation at an almost unbelievable rate: about 50 million acres a year, or 50 acres per minute. Trees are cut down by hungry people to get fuel or a few more crops off demineralized jungle soils, and the lumber business takes its own heavy toil. *Our forests and jungles must be saved*. Our rain forests have been called "the lungs of the earth", because so much of the earth's life-giving vegetation is contained in them. The present level of carbon dioxide over "normal" levels will increase 50% in the next decade. Many jungles are now living off the minerals in the decaying wood of dead trees, but they are usually in areas of high rainfall, and if minerals are added to the decaying organic matter, the trees will increase their growth rate and be immensely valuable in taking up and storing carbon from the atmosphere.

When water evaporates, oxygen is released into the air. Photosynthesizing plants are also a source of oxygen; leaves of the trees absorb carbon from the air and produce oxygen, releasing it into the air. We are disturbing the whole oxygen-carbon dioxide balance of our biosphere with our unwise activity.

Volkswagen Foundation has about 300,000 acres of former virgin forest land in Brazil, that is now used for an expanding cattle export operation involving *deforestation* at an average 13,000 acres per year (Grainger, 1980). Weyerhauser Corporation has 6,000 square kilometers of timber concession in the fragile rain forests of Indonesia (Myers, 1979).

If the jungles are not saved, John Hamaker says we have no chance at survival, and that they cannot be saved unless croplands of starving people are *remineralized*. Rain forests have been virtually eliminated from most parts of West Africa, Southern Asia, and the Caribbean. The world's forests are also affected by climatic extremes, soil degeneration, insects, diseases, worsening climate, air pollution and acid rains—fires also ravage our forests, especially in dry seasons and times of drought. As more forests burn, a *cycle* of destruction actually takes place, because forest fires contribute to adverse conditions that, in turn, accelerate the destruction of *more* forests. In forest fires, not only are more precious trees lost, but destruction occurs on all these levels:

- climatic stress (including record heat and drought)
- when trees burn, carbon dioxide increases in the atmosphere, so pollution—and acid rain—are

increased (they're already caused by burning fossil fuels and by auto/vehicle *and* industrial exhausts/emissions)
- deforestation and spreading deserts
- chronic insect and/or disease epidemics

Data on tropical forest fires is scarce, but it is reported that the nutrient-poor soils and highly-carbonaceous (mineral-poor) vegetation there burns quickly when moisture is withheld for a time. Wide-scale drought and acid rains not only lead to destruction of forests; they can also lead to more tropical forest fires. At present rates of human deforestation and desertification, most researchers say these forests are scheduled for virtual extinction in 15-30 years.

The April 1961, *American Forests* magazine warned of the explosive fire situation building up in U.S. forest lands—this was already 23 years ago.

	1964-1975	**1976-1978**	**% Increase**
Average # of fires per year	119.000	207,000	74%
Average total acreage burned per year	2,720,000	3,612,000	33%

"War Technology Comes to the Forests", by J. A. Savage, was printed in Friends of the Earth's *Not Man Apart* (December 1980), and described how the U.S. Forest Service is adapting technologies used in Vietnam to "modern" silviculture. In addition to the arborcide Agent Orange, flame-throwers and bombs of napalm-like jelly are used to achieve a "clean burn" of all the "debris" left after clearcutting. With these methods, no "slash" (from the slash-and-burn technique) is left, only "charred dirt". I assume their "clean" overlooks the damage to the environment and toxicity of the chemicals involved. In 1984, nationwide publicity of Vietnam veterans who had been exposed to Agent Orange revealed its effects in victims and their children; I hope the U.S. Forest Service isn't making more victims.

American Forests (March 1969) said that in a few years *all varieties* of trees were dying in a tract of forest in the Adirondack Mountains, except for hemlock and tamarack. Insects that attacked the trees multiplied greatly in the same span of time. The same thing that happened to this forest land is happening in all of the forests and jungles. The last of the minerals have come up in the forest lands, as in the croplands. Over the last 30 to 60 years, the finer fraction of used rock has been turned into subsoil, greatly reducing the surface area, and therefore, protoplasm production. Because these compounds build health, and resistance to disease and insects, the trees become easy prey to parasites. Acid rain (heavy in the northeastern states) has wiped out the last of the carbonates, resulting in excessive acidification of the soil. The lakes of that region have also been acidified. When acidity of water and soil drops below about pH 5.5, it begins to kill off various kinds of microorganisms. Only a few acid-tolerant organisms can survive, and only a few acid-tolerant trees and plants can survive on the poor quality and quantity of protoplasm which the soil provides. No amount of pesticides can stop this dying in a forest—only immediate aerial remineralization can save what's left of it.

In September 1961, W. Schwenke presented a paper on "Forest Fertilization and Insect Buildup". The paper described work done in the previous nine years at the Institute of Applied Zoology at the Forest Research Center, Munich, Germany. The work was based on the observation that forest parasites had greater population density on poor forest soil than on more fertile forest soil, and on the observation that forest soils can be improved by fertilization. They used 1/2 to 1 1/2 tons per acre of limestone plus a light application of NPK. This minimal soil remineralization cut parasite population from 30 to 50%. On some of the oils the effect was still observable nine years after the application. The increase in growth rate produced a value hat far exceeded the cost of fertilizing the soil. Limestone probably has a broader range of elements to support living organisms. This was shown by the observed fact that the lasting effect of the fertilization depended on the minerals that were in the soil *before* fertilization.

Severe deterioration of tree foliage and declining tree growth are also being observed throughout the Ohio Valley (AP news, April 16, 1984). The damage is a result of air pollution more acidic than the acid rain believed to be destroying freshwater life in the Northeast, according to a scientist who studies the valley trees. Dr. Orie Loucks said the decline can best be explained by the *cumulative impact of over 20 years of stress from a combination of air pollutants*. One important pollutant was the sulfate emitted from power plant and factory smokestacks. The acidity of the sulfate particles exceeds that of battery acid, he said. The major difference between the air quality of the Ohio Valley and that in the Northeast, he said, is that the sulfate content of the air is significantly higher in the Ohio Valley region (which includes Ohio, Indiana, Pennsylvania, West Virginia, and Kentucky). For some years forest deterioration has been reported in parts of the Northeast and other areas of the world—now Loucks has found that tree damage may be even more severe in the Ohio Valley, where there is a heavy concentration of coal-burning power plants that lack devices to clean emissions. The region is also believed to be he source of much of the acid rain now falling over the Northeast and Canada.

States in the Ohio Valley have been resisting legislation aimed at curbing acid rain through programs requiring modifications of power plant smokestacks, because such measures would mean higher costs for public utilities—but it's now obvious that the cost to *life* is far greater in the long run. In August 1984, New York became the first state to pass a law to curb acid rain, with legislation designed to reduce smokestack emissions 30% in the next decade. State environmental officials said the cost of the program, including pollution control devices, would add from $2.40 to $4.80 to the monthly utility bill for the consumer by 1991. Which of us would not gladly forfeit the price of a movie or a few magazines, if it would mean better air quality for everyone?

As we said, acid rain also comes from sulfur dioxide from lignite and coal-burning power plants and nitrogen oxides from auto exhausts and factories. It changes chemically in the atmosphere before falling to earth, killing freshwater life and damaging crops and forests. Acid rain has destroyed fish populations in 200 lakes in the upstate Adirondacks (many lakes have become so acidic that no life can exist in them) and, as we said, has damaged millions of acres. Congress must adopt legislation to require a nationwide reduction of 10,000,000 tons of emissions.

Lewis and Grant (*Science*, 1/11/80) also present some frightening statistics. On the Colorado section of the Colorado Divide where there is very little industrial pollution in the direction of the prevailing wind, the pH of all precipitation still dropped from 5.43 to 4.63 in just three years. Neutral pH is 7.0. Hamaker says that since the CO2 curve is almost vertical at the year 1995, we can go back 20 years to 1975 for the start of the 20-year critical period (to be mentioned in a moment) and not be off by more than a couple of years. The pH then must have been about 6.

Acid rain occurs "naturally" in some places—in the Canadian arctic, natural fires in exposed lignite coal beds produce tremendous amounts of sulfur oxides. These chemicals fall to earth, rendering nearby lakes as acidic as lemon juice. Studies of the Greenland ice cap show that acidic depositions on the earth's surface have been rising since the beginning of the industrial age, with the greatest increase occurring since the 1940s. Central Europe seems hardest hit. Forests are dying throughout Czechoslovakia, Poland, and East Germany. In West Germany, 3,700 acres of woodland died from 1978-1983, and 200,000 acres were seriously damaged, the most vulnerable being dense, pure stands of conifers between 20 and 40 years old that will probably not survive another 10 years (Bernhard Ulrich, German biochemist, 1983). Mr. Ulrich estimates that almost 5,000,000 acres of German forest soils are at the threshold where toxic aluminum will begin its lethal work. Industrial emissions *drift* from England to Scandinavia. The industrial Ruhr and Rhine area in Germany affect most of central Europe, and Russia (the largest burner of sulfur-bearing fuels) is also polluting Finland. America's industrial Midwest helps render the rain acidic in virtually every state east of the Mississippi; much of the Midwest's emissions join those from Canada, acidifying eastern Canada and threatening its fish and forests—two of its chief resources. In the U.S., only some of the Rocky Mountain states and parts of the Southwest enjoy healthy rains of pH 5.5 or more.

Crops and temperate zone vegetation cannot grow on acidic soils, so the large number of dead and dying trees in our forests is attributable both to increasing soil acidity *and* decreasing quantities of available elements. Dead forests burn easily with a hot fire which oxidizes large quantities of atmospheric nitrogen. Lewis and Grant found that the oxides of nitrogen were dominant in the acidic precipitation. The more trees die and burn, the more the soils become acidified and the more trees must die. There are also a number of mildly acidic gases released from burning wood. These, plus the acidic gases from volcanism (volcanic power or action), are nature's way of bringing on glaciation. Man's fossil fuel fires are also a big factor in the destruction.

Belgian scientist Genevieve Woillard showed that the final changeover to sub-arctic climate and vegetation (to be discussed later) took only 20 years at previous interglacial-to-glacial transitions, as recorded in the undisturbed pollen deposits of Grand Pile, France. In Woillard's study, the change in vegetation was from hazel, oak, and alder to pine, birch, and spruce—that is, a change from warm-weather to cold-tolerant trees. But even more significant: this change is from nut-bearing trees to trees that can't yield a proteinaceous crop. That translates to mean a decline in soil minerals to the point where there are insufficient microorganisms in the soil to grow proteinaceous trees.

It now appears that the 20 years for the change in vegetation can be shortened because of industrial pollution; we are actually speeding up the deterioration process on all fronts, by the sum total of all our environmental errors. Hamaker said: "Judging from the CO2 curve, we are actually 5 years into such a period."(This was at the time his book was written.)

The Amazon forest is the largest tropical rain forest left in the world, but it is paying a heavy price for "progress". Deforestation of large tracts (such as Volkswagen's aforementioned tract) is causing a change in the region's climate, something climatologists have warned of for some time. A change in the region's water balance seems to be the result of increased runoff due to deforestation. If so, the long-predicted regional climatic and hydrological changes expected as a result of Amazon deforestation may already be beginning. Increased flooding is the first sign of damage to the Amazonian ecosystem. A heavily-deforested area has developed along the edge of the mountains in upper Amazonian Ecuador and Peru during the past 10-plus years, the result of large slices of forests being cleared for roads, housing, and other development, all of which are exposing the land to increased runoff and erosion. Scientists have found that runoff is increasing in the area while rainfall patterns remain the same; this is caused by interference in the process of transpiration—trees take up moisture that falls and send it back into the air. Now that the trees have been eliminated, the recycling process has been curtailed to an extent that the report warns "might eventually convert much of now-forested Amazonia to near desert." Note: While in most areas (such as the North American Great Plains or Western Europe) most of the rainfall represents moisture blown in from the sea, *about half of the Amazonian rainfall is water that is recycled within the basin*. Thus, in tampering with the balance of ecology in the Amazon rain forest, one tampers with its rainfall cycle as well.

Since population and farming are concentrated along the Amazon's seasonally-flooded river margins, scientists warn that the magnitude of damage is potentially great, and say that the "rapidity with which relatively-limited forest destruction (which has since *increased*) appears to have altered the Amazonian water balance, suggests the need for planned development." This is obviously an *understatement*—planned reforestation *and* remineralization are also needed to save the Amazon area, before going about any so-called "planned development". When viewing the earth via satellite, you can literally see the moisture that swirls and sweeps outward from the Amazon area—it covers such a large area that it is seen as a giant moving form that takes on a life of its own—rapid development in the Amazon not only tampers with local ecology, it also affects areas farther away that would normally be affected by these huge, moving atmospheric systems of the Amazon.

Throughout the Third World, unchecked erosion is washing away valuable topsoil. Reforestation could stop the process, aid in CO2 removal, and aid rainfall cycles—it must be a top survival priority. Because it can take years for reforestation's results to be felt, local governments and villagers have been reluctant to take on what appear to be long-term, labor-intensive projects, but they are failing to realize what failure to do so will mean to their ecosystems.

Researchers are working on what they call a "miracle tree", the *Leucanna leucocephela*, which is an extraordinarily fast-growing, all-purpose, self-fertilizing tree, used for both fodder and timber. Under ideal conditions it reaches a 10-inch circumference in one year.

Arbor Day began in Nebraska in 1872, when more than one million trees were planted to help prevent erosion and moisture loss in a state with few trees. Within two decades, 100,000 acres had been turned into forested preserves. Arbor Day is now a legal holiday in four states and is celebrated in all the states, but please don't wait for Arbor Day to plant trees—do so whenever you can. Fruit trees are especially needed everywhere.

Over 100 countries grow tobacco; flue-curing about 2,500,000 tons annually uses about one hectare of trees for every ton, amounting to about 12.5% of 18-20 million hectares of trees cut yearly, which means about 1 in 8 trees is axed just for drying tobacco! Cropland used for tobacco should be used for growing food instead.

3.2 Carbon Dioxide—Global Climate Changes—Weather Patterns

The increase of carbon dioxide in the atmosphere is our most urgent problem. John Hamaker drew a carbon dioxide curve projection in 1979 and said that unless we gained control of the curve shortly after 1985, by 1990 the rate of breakdown of the environment would be occurring much faster than we could repair the damage. However, in order to gain control by 1985, we would have had to start in 1980 to have a fully-operating program of soil remineralization, pollution reduction, and so on. As of 1985, few people took seriously what the curve was saying—nevertheless, Hamaker hasn't given up hope for humanity's survival, even though he's also considered the possibility that "if we were to start to work in the next few months, we could have less than a 50% chance of success". He's written countless letters and says three world science organizations finally agreed to meet in 1985—he thinks action is long overdue, with "nature just beginning to show her teeth". While we wait around for statistics and more data, the power of centralized wealth is holding us to a system of soil destruction. World leaders, concerned with what they must do to get re-elected (if they are indeed elected), merely serve the interest of a wealthy *minority* that controls an economic system that is ruining our lands, keeping millions of people poor and/ or in debt, keeping our countries in debt, and threatening our very survival with destructive weapons, aggressive foreign policies, and decisions that continually compromise the quality of our environment.

The Global 2000 Report to the President was commissioned in 1977 by President Carter and finally released in July 1980, as a three-volume work of over 1,000 pages. The report's findings aren't represented as predictions, but as depictions of conditions likely to develop if there are no changes in public policies. Some of its findings on CO2 were:

- CO2 emissions will increase to 26 to 34,000,000,000 short tons per year, roughly double the CO2 emissions of the mid-70s.
- 446,000,000 hectares (each is 2.47 acres) of CO2-absorbing forests will be lost.
- Burning of much of the wood on 446 million hectares will produce more CO2.
- Decomposition of soil humus will release more CO2.

By June 1979, the percent of increase of CO2 over an assumed "normal" level of 290 ppm was about 15%. In 1985, it could be 18%. By 1990, it could be 22% (50% more than it is now). Yet we go on bringing carbon out of the ground and putting it into the atmosphere.

John Gribbin (*New Scientist*, 4/9/81), noting the intensification of worldwide forest destruction and fossil fuel combustion, reports that the present annual CO2 increase has jumped to 2 to 4 ppm, and "is increasing rapidly today, in 1981". (Hamaker's CO2 curve projection could even prove conservative.)

"The Role of CO2 in the Process of Glaciation", published in April 1980, was written as a concise explanation of the glacial process which could be understood by the U.S. Congress, at a time when the

CO2 problem was just being recognized by some of its members. It appears in Hamaker's book, and refers to the relationship that has been virtually never considered by the hundreds of researchers of glaciation, starting with the first "Great Ice Age" theory of Louis Agassiz in 1837 (Imbrie and Imbrie, 1979).

This excess carbon dioxide is causing what is known as "the greenhouse effect "because carbon dioxide behaves like the glass in a greenhouse, permitting the sun's rays to reach the earth, but not allowing the heat to escape. The effect is like that of a "thermal blanket" around the globe. As a result, some scientists think that the earth will become warmer, but others, including John Hamaker, say that it is now getting colder. *All* scientists now agree that carbon dioxide levels are too high, and with acid rain, forest fires, deforestation, and trees dying from soil demineralization, CO2 levels continue to *increase*. Nature will complete her necessary cycles and go about her own self-healing processes, just as our bodies do. We'd do well to understand her cycles and healing crises better, and offer help instead of waiting for chronic illness to set in. We tend to forget that the earth is very much alive, and a living being/entity (albeit a *large* one!)—it regulates itself as surely as our bodies do. Because we need the earth to survive, its state of health is very fundamentally—and really—speaking, *as important as our own*.

I'll present both the warm *and* cold predictions to show how complex climate "analysis" becomes—all environmental factors interrelate to affect it. Having considered their total impact on our ecology and weather, heard both sides (warm/cold) of the story, and watched worldwide weather trends these past years, my intuition tends to believe scientists who say the world is cooling. In any case, we can't deny that our planet is being manipulated (and often assaulted) on all sides *daily* by millions of its inhabitants. Some of these assaults are very *serious*; we discussed long, periods of time that some radioactive waste materials remain dangerous in Lesson 53—this is only *one* example. Life Scientists know of chemical medicines adverse effects in the body. Can you imagine how our planet's health is affected and weakened by millions of daily assaults on its body?

The saying "do unto others as you would have them do unto you" is not just a suggestion on how to be "nice". It says, in essence, that *what* you do unto others you do unto *yourself*—more and more we see how true this is. Now we must also *do unto our planet as we would have our planet do unto us*, for what we do to our planet, we do to *ourselves*.

3.3 Warmer or Colder?

Before continuing, let's clarify the fact that scientists who see the world as cooling do not necessary dispute the greenhouse effect's warming potential in and of itself—some see a preliminary warming as part of an "energy booster" or catalyst in the Ice Age transition process: the tropics do become hotter/drier as precipitation increases farther north, but increased cloud cover and other factors, to be discussed later, lead to increased cooling conditions.

Let's take a look at the two opinions ... warmer or colder:

In the fall of 1983. the federal government, based on an Environmental Protection Agency report, said that a "dramatic warming of the earth's climate could begin in the 1990s because of the greenhouse effect, with potentially-serious consequences for global food production, changes in rainfall and water availability, and a probable rise in coastal waters". The report said that "levels of CO2 in the air created by burning of fossil fuels could result in an increase of 3.6 degrees Fahrenheit by the middle of the next century and a 9-degree rise by 2100, representing an unprecedented rate of atmospheric warming".

"It's going to have a very profound impact on the way we live," said John Topping, staff director for the EPA's office of air, noise, and radiation. "Some of the effects will be beneficial; some will be detrimental. But our ability to accommodate them will depend much on our planning beforehand. Temperature rises are likely to be accompanied by dramatic changes in precipation (more rainfall in some areas, more drought in others) and storm patterns and a rise in global average sea level," the study said. "As a result, agricultural conditions will be significantly altered, environmental and economic systems potentially disrupted, and political institutions stressed."

Stephen Seidel, one of the authors of the report, said that milder winters and much warmer summers by the 1990s may no longer be unusual. The report said the trend will occur regardless of what steps are taken to reduce the burning of fossil fuels.

The study said a warmer climate would raise the sea level by expanding the oceans and by melting ice and snow now on land. An increase of only two feet "could flood or cause storm damage to many of the major ports of the world, disrupt transportation networks, alter aquatic ecosystems and cause major shifts in land development patterns". The warming is expected to be greater at the North and South Poles and less at the equator, the EPA said. John Hoffman, head of strategic studies for the agency, said "New York City could have a climate like Daytona Beach (Florida) by 2100".

A major report issued in 1983 by the National Academy of Sciences said that the approaching warming of the earth "is reason for concern, not panic". The report warned, however, that a warming trend and decreased precipitation could "severely affect" the Texas gulf, Rio Grande, upper and lower Colorado River regions; California; and other Western regions. One projection in the report shows a possible reduction in water supply of nearly 50% when the full force of the warming phenomenon is felt after the year 2000. The tone of the academy warning was less urgent than the EPA's, stressing the need for "more intense research". However, the academy found that since (in their opinion) there is no politically or economically realistic way of heading off the greenhouse effect, strategies must be prepared to adapt to a "high temperature world." The EPA report said that even a total ban on coal would only delay the process for a few years, and said that, because the CO2 in the earth's atmosphere retains heat rather than permits it to escape into space, thus creating the greenhouse effect, the buildup of gas will be accompanied by a rise of global surface temperatures, most likely in the range of 2 to 8 degrees F. These projections are roughly similar to those in the EPA report; it is expected that this rise will be accompanied by "rapid climate change, including changes in rainfall patterns, as well as a rise in the sea level of over two feet".

Some additional notes on the greenhouse effect are of importance:

Recent investigations have established that other man-made pollutant trace gases may increase the greenhouse effect by another 50% (Flohn, 1979; Kellogg and Schware, 1981). These gases come primarily from burning vegetation, release of industrial halocarbons (freons), and the denitrification of nitrogen fertilizers in the soil. *The Greenhouse Effect* by meteorologist Harold Bernard, issues a strong warning that the heating effects alone will likely be devastating to humanity due to increasing climatic stress; agriculture in particular will suffer greatly. He cites increasing storminess with tornados, hurricanes, floods, searing "dust bowl"-type droughts, water depletion, and massive forest fires if we continue on the fossil fuel route, presenting a whole bank of reasons against doing so.

The last few years *have* seen dramatic changes in precipitation—more rainfall in some areas, more drought in others— but these are also part of the weather forecast given by scientists who say the world is cooling. Apparent warming trends could be superceded by *cooling* trends in the long run, if we are due for transition into a glacial period.

Systematic measurements of atmospheric CO2 began only as late as 1958 (Calder, 1975). Most climatologists seem fond of repeating the dangerous oversimplification of CO 2's greenhouse effect, that is, that the earth will warm up as a result.

In a 1977 paper, Hamaker asked, "How Rapidly is CO2 Increasing in our Atmosphere?" In 1977, a National Academy Sciences panel on energy and climate provided a frightening statistic (Charles Keeling, *Science*, 9/2/77). Keeling said there'd been a 13% rise since the Industrial Revolution began. Alarming is the fact that five of this 13% had occurred since 1962". That same *Science* article discussed the *oversimplified* computer models of CO2's "general warming" effect, and stated that there are some scientists who "privately suggest" that because of "complex feedback phenomena", global *cooling* could result.

Hamaker says that even if the *average* temperature of the atmosphere is getting warmer, it is false to assume polar ice will melt and temperate zones will move toward the poles. According to Hamaker, "the experts have given us a time scale for weather changes that is longer than we have. Many things are operating at once to affect climate. They all have long overlapping time lags so that we cannot say that this happens, then this, and then this. But the first stage of glaciation, which is initiated by a change from temperate zone to northern latitude types of trees, and by dying of tropical forests, is here *now*."

Hamaker says "the theory that the world will get warmer is based on the absurd idea that the earth's average temperature depends solely on the sun's energy and the heating effect of atmospheric CO2. On that basis these scientists have projected a rise in temperature in the next century when the CO2 has doubled, so they have drawn a line tangent to the recorded curve and ending up in the next century." He disagrees with the projection, saying that nature is clearly drawing a curve that is constantly increasing at an *accelerating* rate of increase, and the scientists have merely decided that nature must change her ways to suit their predictions.

The time to stop the onset of glaciation is before it starts, because it starts with the destruction of agriculture. Hamaker says that we must act now, before our technological capacity to remineralize the soil is lost in the chaos of a world of starving and dying nations. As we said, climatic cycles and factors may overlap, but we *can* identify a point in the whole climate cycle at which the temperate zone climate is destroyed and we stop eating! We *can* chart the CO2 content of the atmosphere and know whether we have enough minerals in soil and water. The CO2 curve is showing us that the time of no temperate zone could be approaching. We must remineralize the world's soils and put carbon back into the earth as fast as we can to reverse the CO2 curve and bring it back to a safe level.

Hamaker says that scientists predicting a warming also aren't taking into consideration the role of life in and on the soil in demineralizing it in a period of 10,000 to 15,000 years, depending on the amount of ground rock supplied by the last glacial advance, nor do they all understand the earth's tectonic system and its role in determining the weather. The climate cycle is a by-product of the *entire* life system, all of which rests on the expenditure of atomic energy in the tectonic system. There are two energy systems which are powerful in comparison to other factors (such as sun spots, Milankovitch's theory, or the alignment of planets in space)—the effects of these other factors may be noted, but they don't substantially alter the glacial process—both of the *primary* energy systems use the energy in the atom. *One is the sun and the other is the tectonic system*.

The earth constantly intercepts the sun's energy. If the energy incident to the earth at the higher latitudes is deflected into space instead of being absorbed at ground level, the total amount of energy available to warm the earth is decreased by that amount. During a glacial period the total amount of sun energy reaching the earth is decreased because the CO2 (from the tectonic system) directs a heavy cloud cover to the polar latitudes. The clouds have a very high albedo, that is, ability to reflect the sun's rays back into pace.

The tectonic system constantly removes materials from the mantle of the earth, separates the compounds containing a balance of elements useful to living organisms, and moves them into the mountains or into the atmosphere. Compounds containing elements not required for life processes are consigned to the core or are recycled to build the basic ocean floor at the ridge.

Everything on earth is totally dependent on the tectonic system; if it were to run out of fuel, the earth would be cold and lifeless like Mars. Climate is directly controlled by the discharge of carbon and sulfur oxides by the tectonic system. Now that mankind has a hand in adding CO2 to the air (and making *other* environmental errors), climate is *also* affected by the human factor. There is a scarcity of minerals on the land and in the sea, further contributing to the CO2 buildup in the atmosphere as more and more CO2 is supplied by the tectonic system and less and less is put back into the earth's crust by the living organisms. All these factors overlap and affect climate. We *can* say that the minerals (those available to microorganisms) and the carbon released by the tectonic system can be monitored—and thus, theoretically, can be *controlled* to some extent—we still have much to learn in this area, but we can and do have an affect on climate.

The burning of temperate zone vegetation will carry huge quantities of CO2 into the atmosphere. In the zones of latitude where the sun's rays are most intense (the equatorial region), CO2 holds the sun's heat at the surface of the earth, increasing surface temperature and providing the energy to increase the evaporation and to move the massive cloud cover to the polar regions; CO2 has no heating effect at the poles in the winter when it's dark 24 hours a day. The warm, demineralized ocean can't take up the CO2 as fast as it is being put into the air, and decreasing plant life and less trees also mean less CO2 is being converted. We cannot allow the CO2 increase to reach the point of no return—that is, the increase in CO2 from the tectonic system *and* our own input must not be allowed to exceed the capacity of the *remaining* forests and sea life to remove the CO2. When the minerals are too few to support enough life to hold down the CO2 level, the level begins to rise and the death of the temperate and tropical zone forests swiftly initiates the air flow pattern which brings glaciation to polar latitudes and extreme, killing heat and drought in between.

When air gets hotter, its atmospheric pressure decreases. It's then easier for the cold air moving down over a cold land mass to displace the warm equatorial air and force it to move poleward over the warm ocean to replace the cold air moving toward the equator. This is the normal air circulation pattern impressed on the west winds. During glaciation, when there is an extensive ice field, there is no summer because the refrigerated air from the ice field maintains the temperature differential required to carry the clouds to the northern latitude. Thus there can be unusually large masses of hot air in the equatorial latitudes and unusually large masses of cold air in the polar latitudes. Glaciation, or for that matter, anything else on earth, can't take place without an expenditure of energy. Without a buildup in CO2 and hence temperature, glaciation cannot happen.

Hamaker says that the average temperature at the start of a glacial period must be higher than the interglacial temperature, and must remain higher until the cooling effect of the ice sheets starts bringing it down, but says this won't help agriculture: the southern temperate zone will have excessive heat/drought; northern/temperate zone: summer freezes and frosts; cloud cover lowers the temperature and increases the quantity of cold air which flows south over the land masses. With early cold snaps and longer, colder winters, the temperate zone will become a part of the subarctic zone. The summer frosts/freezes, short-growing seasons, drought and violent storms, rapidly diminishing soil minerals, and increasing rain acidity will destroy the world's grain crops; we can't grow grain in the subarctic. Growing seasons have already been shortened and interrupted by freeze damage. (The local areas to survive will be the few near the equator that are blessed with a constantly renewed supply of basic minerals sufficient to maintain a neutral soil in spite of the acidic rains, says Hamaker in *Survival of Civilization*.) We've already seen indications of these patterns. He says we can stand cold winters for some time, but not if they carry over into summers to destroy crops and trees. Cold waves, just a few degrees lower in temperature, can cause major crop losses in Canadian and Eurasian grain crops that are at the latitude of Michigan or farther north. Hamaker says food production in the northern hemisphere in 1980 had lost about 20% of potential because of adverse weather (drought/ heat in the U.S.; cold, wet weather on the Eurasian continent; and, in the southern hemisphere the growing season started with drought in Australia, Africa, and South America). He fears that famine could begin soon, that it could be a few years away; 1978 and 1979 fruit and vegetable losses in California, Texas, and Florida, as well as wintercrop losses in 1983/84, show what could happen to crops in the years just ahead.

Anyone interested in studying the whole glacial process in more depth is urged to read Hamaker's book—there is an entire section on the tectonic system, plus more details on the role of CO2 in glaciation and many other facts and figures on the glacial process, including the period of glaciation itself. Our space in this lesson requires us to focus more on the *transition* period from interglacial (warm) to glacial (cold) so that we may become more aware of signals observable during a change to glaciation.

Let's take a look at what some other scientists who foresee a *cooling* have to say about the energy expenditure required for glaciation; we've seen that scientists agree, in general, on some information about past glacial periods and our present interglacial, but they don't all agree on *why* glaciation happened. What force could bring such a change about? We've said that Hamaker saw the greenhouse effect as occurring *differentially*: the increasing temperature differential between warmer (hotter/drier) and colder (colder/ wetter) latitudes has taken on a life of its own and is accelerating the whole process. When the supply of minerals ground from rocks by the last glaciation is used up in the soil, this exhaustion of soil minerals by the life in and on the soil initiates a whole chain of events which results in restocking the soil with minerals and a new proliferation of life.

David P. Adam of the U.S. Geological Survey, a longtime student of glacial periods, has emphasized that to understand their causes, one must solve the "energy problem" they present. His *Quaternary Research* paper (1976, "Ice Ages and the Thermal Equilibrium of the Earth (II)") shows that an essential requirement to begin and sustain a glacial period is an increased transfer of (excess) energy towards the glaciated regions, and that energy is in the form of moisture. This is of course precipitated largely as snow, thus forming the initial perennial snowfields and subsequent ice sheets. He states that some increased energy source must therefore be invoked to sustain these vast energy transfers, yet he does not consider in his paper the fact of excessive CO2's solar heat-trapping effect as the possible "booster" for providing this increase of effective energy, which, as Adam points out, is "required to fuel a continental glaciation".

In a personal communication to Hamaker, David Adam agreed that Hamaker's theory (CO2) indeed fulfills the requirements of providing the glacial energy fuel. Yet, surprisingly, David knew of no one in the history of modern Quaternary research who had postulated a CO2-glaciation relationship, perhaps due to the relative state of infancy of modern CO2/climate studies, but he said there was one well-respected climatologist who had presented an explanation of the basic glacial process very similar to Hamaker's, Sir George Simpson of Britain. He was first to point out that the glaciation that characterizes an ice age can't come about by a general cooling of the earth's atmosphere—because some source of *increased* energy is required to transport poleward the huge amounts of moisture which make up the glaciers. Most climatologists now agree, because a decrease must lower the mean temperature of the earth's surface (especially in the tropics), decrease the equator-to-pole temperature gradient, and distinctly lower the moisture content of the atmosphere. He realized that it's obviously paradoxical to expect fulfillment of certain fundamental requirements for glaciation (*intensified* equator-to-pole temperature gradients, *stepped-up* atmospheric circulation, and *increase* of poleward heat and moisture transfer) with a declining surface temperature, especially in tropical regions.

John Hamaker, while unaware of Simpson's theory, was apparently the first to correlate the basic heating and circulation principles operating at glacial initiation with the soon-to-be-infamous" *differential* greenhouse effect. Other recent warnings on this differential heating effect have come from Lester Machta (head of National Oceanic and Atmospheric Administration (NOAA) Air Resources Labs), saying that CO2 could indeed cause the massive cooling cloud coverage and cooling at the poles, and from Justus (1978) of the Congressional Research Service: "If the earth's temperature rises, the water vapor content of the atmosphere is likely to rise. A rise in water vapor would quite likely increase the fraction of the globe covered by clouds. Such an increase could cause the amount of primary solar radiation absorbed by earth to fall." In a document prepared for Congress ("Weather Modification: Programs, Problems, Policy, and Potential," Chapter 4), Justus says: "In geological perspective, the case for cooling is strong. ... If this interglacial age lasts no longer than a dozen earlier ones in the past million years, as recorded in deep-sea sediments, we may reasonably suppose that the world is about due to begin a slide into the next Ice Age." (p. 153.)

Hamaker says that failure to remineralize the soil will cause continued mental and physical degeneration of humanity and quickly bring famine, death, and glaciation, in that order.

The majority of the world's people fall into one of these categories: those who are aware of problems and take action; those that are angered by problems, but talk or worry about them and don't *take action*; those who just give up hope; those who trust in the system, right or wrong, problems or no problems; those who are just plain indifferent to problems; and even those who are unaware that problems exist at all!

Most people probably think that the last ice age was "a million years ago", but the fact is, it ended only about 10,000 years ago—a few seconds in geological time. Everything that we know in terms of our "civilization" has taken place in that brief span of time since the earth last warmed up. The potential global climate changes that face all of humanity could re-arrange everything on the planet, and affect every living creature on earth more than any other ecological issues in question—*even beyond* such crucial concerns as world peace—for the issue here is whether we want to have a world *at all* in which to *live* in peace. We *must* make the ecological changes necessary for survival. Because most of the subsoil and topsoil of the world have been stripped of all but a small quantity of elements (by time, water, erosion, chemical fertilizers, pesticides, and so on), Hamaker says man can stay on this earth only if the glacial periods come every 100,000 years to replenish the mineral supply—*or if we get smart enough to grind the rock* ourselves and apply it everywhere on soil that is depleted. Glaciation is an acceleration of the normal process of using evaporated water to carry excessive heat energy from warm zones to cold zones, and the greenhouse effect (of an increase in atmospheric CO2) is to increase cloud cover over polar latitudes. The clouds have a cooling effect as well as providing the snow for glaciation. The energy is dissipated in arctic space. Glaciation occurs whenever the soil minerals left by the last glacial period are used up and the plant life (forests are the major factor in CO2 control) can no longer regulate the carbon dioxide by growing faster in response to its increase in the air.

3.4 The Glacial-Interglacial Cycle

The glacial-interglacial cycle was revealed by numerous workers in many fields of Quaternary research as of the 1970s. (The Quaternary is the present geological period including the Pleistocene epoch and the Holocene—recent—epoch, the present interglacial in which we now live). A National Academy of Sciences (NAS) publication, *Understanding Climate Change* (1975) says: "The present .interglacial interval—which has now lasted about 10,000 years—represents a climatic regime that is relatively rare during the past million years, most of which have been occupied by colder, glacial regimes. Only during about 8% of the past 700,000 years has the earth experienced climates as warm or warmer than the present. The penultimate interglacial age began about 125,000 years ago and lasted for approximately 10,000 years. Similar interglacial (warm) ages—each lasting 10,000 (+- 2,000) years and each followed by a glacial (cold) maximum averaging 90,000 years—have occurred on the average every 100,000 years during at least the past half-million years. During this period, fluctuation of the northern hemisphere ice sheets caused sea-level variations of about 100 meters."

This NAS publication concludes that: "If the end of the interglacial is episodic in character, we are moving toward a rather sudden climatic change of unknown timing. ... If, on the other hand, these changes are more sinusoidal in character, then the climate should decline gradually over a period of thousands of years." All factors considered, Hamaker doesn't think we have that long.

Paleoclimatologists *agree* that the major warm periods (interglacials) that followed each of the ends of the major glaciations (cold periods) have lasted from about 10,000 to 12,000 years, and that, in each case, a period of considerably colder climate has followed immediately after these intervals. About 10,000 to 10,800 years have now passed since the onset of our *present* period of warmth, so the question certainly arises as to whether we *are* really on the brink of a period of colder climate. The 100,000-year cycle of glaciation is now recognized as occurring with regularity, so, technically-speaking, we could be due for another ice age "any time during the next 1,200 years". As we said, though, signs that signal the changeover or transition from temperate to colder climate are already in evidence, and increasing due to our environmental errors.

Most scientists are noncommital, but those who are beginning to express concern say that these signs mean that we may be much closer to the first stages of the next ice age than anybody would like to think. Let's review some of the signs we've already talked about:

We have already seen that the earth's total soil microorganism and earthworm populations have been dying back over the recent centuries and decades due to soil demineralization, and so the earth's plant and tree life has been forced to die back—known as "retrogressive vegetational succession" in the literature of ecology. Deserts (now growing at a rate of 15 million acres per year) are generally a final stage of this retrogression process. Our abuse and neglect has reinforced this desertification, as it has deforestation. Soil demineralization (with acid rains accelerating the devastation) is causing the increasingly rapid sickening and dying of whole forests. The massive death and burning of the forests is signaling the "telocratic" or *end phase* of our present interglacial period. Svend Th. Andersen saw the broad picture of glacial/interglacial stages and said that the interglacials were stable intervals between the glacial stages of disturbance and chaos. The vegetation had a chance to develop until the new glacial released its destructive forces. He divided the *interglacials* (warm intervals) into four broad phases:

1. *Protocratic phase*. At the start of warm intervals, open forests of pioneer species entered—these were quickly-spreading trees and shrubs with unpretentious requirements to climate and soils. Birch, pine, poplar, juniper, and willow were most important in Denmark, Andersen's home.
2. *Mesocratic phase*. The soil had developed a high fertility, and plants of rich soils reached maximum frequencies. Immense forests covered great portions of the earth in the last mesocratic phase (from about 6,000 to 3,000 B.C.) Some of these trees, such as oaks, were reported to be often of remarkably large size; these are found preserved in now-degenerate treeless peat soils in England and elsewhere. The phase is dominated by trees such as elm, oak, lime, hazel, ash, hornbeam, and alder, growing on stable mull soils which Dr. Johannes Iversen (State Geologist, Geological Survey of Denmark), showed to eventually begin to retrogress. Iversen tried to find out at what point in the interglacial the retrogressive vegetational succession starts, and said it is "when the yearly disintegration of the plant debris no longer keeps pace with the fresh supply from the living plants, and consequently a layer of 'mor' (raw humus) is accumulated on top of the mineral soil". "Mull" humus has a richness of available minerals; "mor" is acidifying humus. He studied soil conditions and said that, from the point approximately 10,000 years ago commonly accepted as the beginning of our present (warm) interglacial, it took about 3,700 to 4,500 years for the first of the glacially-deposited raw mineral soils of basic or alkaline pH to "mature" and then go into a gradual "irreversible" degradation/depletion. Iversen says this degradation process is characterized by reduced soil organisms, earthworms dying out, and by the vegetation regression that comes when soil is depleted and lacks minerals. Andersen and' Iversen have similar descriptions of this process. In these mull soils, of roughly 6000 to 3000 B.C., the leaching of the soil salts is to some extent counteracted by the mixing activity of the soil fauna and the ability of the prevailing trees and shrubs to extract bases from the deeper soil layers and contribute them to the upper layers during the decomposition of their litter. However, a slow removal of calcium carbonate will bring the soils into a less stable state, where the equilibrium may be more easily disturbed. This leaching of calcium carbonate (lime) is shown to be so significant to the topsoil ecology because, according to Andersen, "the leaching of soil minerals other than lime will be insignificant, until the calcium carbonate has been removed". With this gradual leaching, the mull forest could not maintain itself, and with the lapse of time, caused itself a depauperization and acidification of the upper soil layers, which extended so far that the dense forest receded and more open vegetation types expanded. The changeover from mineral-rich mull soils to acidifying mor soil conditions begins in the mesocratic, and with the gradual demineralization of formerly-calcareous soils, growth of impenetrable hardpans and soil life die-outs follow. This creates *shallow topsoils* susceptible to drought or being easily swamped; and this infertile state leads to takeover by heathlands, peat bogs, and *trees with ability to survive on acidic soils*—spruce, pine, birch, poplar, etc.
3. *Oligocratic phase*. This condition becomes prevalent in this phase, and is brought on as a result of degeneration of soils. The increasing podzolization, characterized by increased demineralization and acidity, continues up through the telocratic (end) phase. (Podzolization is a process of soil formation, especially in humid regions, involving principally leaching of the upper layers with accumulation of material in lower layers and development of characteristic horizons; specifically, the development of a podzol. Podzol: any of a group of zonal soils that

develop in a moist climate especially under coniferous or mixed forests and have an organic mat and a thin organic-mineral layer above a gray leached layer resting on a dark alluvial horizon enriched with amorphous clay.)

4. *Telocratic (end) phase*. The final interglacial phase is the time when the demineralized soils begin to be removed. The rigorous conditions at the end of the interglacial are reflected by an increase in allochthonous mineral matter, no doubt due to increasing surficial erosion.

The information in virtually every textbook on soils, forestry, or ecology leaves no doubt that the present world civilization is at least deep into the oligocratic phase. Andersen's work also shows that the Scandinavian lakes and soils reflect a close parallel development from basic to acidic conditions—again, many thousands of lakes there, as well as in other parts of the world, are now already acidified into lifelessness from acid rain. Rapidly accelerating worldwide erosion rates are evident; the figure in 1981 was already 6,400,000,000 *tons* of topsoil lost per year to erosion.

These facts, along with increasingly rigorous conditions imposed by the weather since at least 1972, very strongly indicate that the *telocratic end phase* may indeed have begun. As we said, the final changeover to sub-arctic climate and vegetation has been seen to have been made in only 20 years in other interglacial to glacial transitions.

What other changes come with the end of a period of interglacial warmth? From studies of sediments and soils, George Kukla agreed that "major changes in vegetation occurred at the end of the previous warm period. Deciduous forests that covered areas during the major glaciations were replaced by sparse shrubs, and dust blew freely. The climate was considerably more 'continental' than it is now, and agricultural productivity would have been marginal at best." George Kukla and Julius Fink studied interlayered soils exposed in excavated brickyards of Czechoslovakia. Seventeen major cycles of glacial loess deposition (loess is mixed rock dust and silt ground by the glaciers and swept by the winds) and subsequent interglacial soil "decalcification" (and overall demineralization) over the last 1.7 million years were revealed. The interglacial soils are shown to have supported the deciduous forests native to northwest and central Europe until in some way they died off and gave way to the steppe vegetation of a chilled, wind-torn glacial desert with blowing dust. Loess always returns to cover the demineralized soils. Then, again, over the centuries, the loess becomes mostly consumed by the soil formation and development process.

The cycle of glaciation is complete when the supply of minerals ground from rocks by the last glaciation is used up and glaciation occurs again. Whereas plant life normally removes all excess CO2 from the atmosphere by growing faster as CO2 increases, it can no longer do so, since it gets its cell protoplasm from the soil microorganisms and, as we know, the microorganisms start dying too when insufficient elements are available to them.

A conference was held at Brown University in 1972 with paleontologists, sedimentologists, stratigraphers, paleoclimatologists, and others, entitled *The Present Interglacial, How and When Will It End?* They strongly confirmed the 100,000-year average glacial-interglacial cycle, and many stressed the fact that we should be at or close to the end of the present interglacial.

The search for causes of the Ice Age began over a century ago, and Hamaker says the answer literally lies beneath our feet: progressive soil demineralization of the earth's soil mantle causes an eventual collapse of the global carbon cycle. The cycle is:

soil remineralization -> interglacial soil demineralization -> vegetational succession and collapse -> the glacial process -> soil remineralization

Hamaker also believes the large increase in earthquakes can be attributed to the steadily-increasing weight of snow and ice cover pressing on the molten layers just underneath the earth's crust, causing shifting and slippages. He notes that the sharp rise in major earthquakes began about 10 years after the climate began to get noticeably colder beginning in 1940. He also predicts a steadily-increasing incidence of volcanic eruptions, for the same reason, and suggests this has already begun in the last few years.

Glaciation usually comes at a time when the earth's tectonic system has fired up volcanic activity by feeding ocean floor into the continental heaters, mostly located in the Pacific "ring of fire". Volcanic action releases larger amounts of liquified gases trapped in the molten rock. Carbon dioxide and sulfur dioxide are the main gases released, and both cause the greenhouse effect, resulting in our present "100-year cold cycle". These cycles vary in their time interval, intervals being determined by the pressure in the tectonic system. Carbon dioxide from decaying and burning mineral-starved vegetation is then added to these volcanic gases—together, they initiate the change from interglacial to glacial climate. Acidic gases from volcanism and burning forests can then stifle life on earth by leaching the few remaining basic elements into the subsoil. In this way the change from interglacial to glacial conditions can be made in 20 years (*Nature*, G. Woillard, 1979). Hamaker says that man may have moved the present glacial process! forward in time by 500 years by the continued pouring of CO2 into the air, by acidic gases and acid rain, and by forest; and jungle destruction by people seeking lumber and fuel or farmland ... the 20-year change period can also be shortened. Hamaker estimates that the beginning of a 20-year changeover period from interglacial to glacial conditions was about 1975. If this estimate is accurate, then tremendous weather changes should have begun by that time, signified by growing intensification of all storm effects, including unusually heavy rains and snows, record cold and heat, drought, hail, tornados, etc., all *symptomatic* of increasing temperature and pressure differentials, greater evaporation of moisture, and an overall speeding up of global atmospheric circulation.

Iversen warns us that in former interglacial epochs, the anthropogenic factor was negligible; i.e., *man*'s impact on nature was less dramatic than it is today.

According to Hamaker, all the requirements for glaciation are now in place and accelerating in intensity at a very fast pace: CO2 increases; precipitation pH moves toward intolerable acidity; earth's soils (demineralized) can't support a strong, healthy plant/forest cover; the carbon of the soils and trees is being transferred back to the atmosphere in huge amounts as carbon dioxide gases. As the primary infrared heat-trapping "greenhouse effect" gas, CO2 excess causes the sustained overheating of the vast oceans (especially tropical oceans), thus causing the sustained evaporation increase required to nourish the polar regions with the "food" of glaciers: water, *snow*—and keep them shaded from melting with *clouds*. This increase of glaciation is now occurring and has been since about 1950, so, although some scientists expect a warming from the greenhouse effect, the rise isn't being found over the last century—on the contrary, the earth seems to have been cooling in recent decades. The polar ice field is expanding and growing in northeast Canada (more on this in weather section), and pressure is rising in the tectonic system, indicated by the accumulation of lava flows along the ridges, and by increased volcanic activity. We're in the high-pressure part of the "ocean floor feeding cycle", which has occurred about every 100 years, at least for a few centuries.

It's certainly not a good time for CO2 to rise!

3.5 "Hope Springs Eternal"

Scientists tell us of a glacial/interglacial cycle of 100,000 years, and say we are now about 10,000 to 10,800 years into a warm interval that can last from 10,000 to 12,000 years. Some scientists also say there is a "magnetic pole reversal cycle" of 200,000 to 1,000,000 years and that, since the last one took place about 710,000 years ago, we could be "due" for one "some time in the future". As of 1984, there hasn't been much talk among the general public about Ice Ages or magnetic pole reversals; if either of these possibilities do exist, even *remotely*, as calculated by scientists, one would expect at least *some* debate on these issues to have hit the national/international media by now.

There are several explanations for the apparent lack of awareness. For one thing, countless brilliant minds go into fields totally unrelated to science, so Ice Ages and pole reversals aren't necessarily familiar to them. Then, *within* the field of science, scientists *specialize*, usually in one specific area of research, often depending on the project(s) they've received funds and grants for. They may be experts on one particular subject, but unfamiliar with either fields of science (even related fields) or even with other areas of study within their *own* fields. They may have spent years refining a certain body of knowledge and focusing on one aspect of one branch of science. This narrows down the number of experts available on *any* given subject, let alone that of glaciation or magnetic pole reversal. Most scientists accept as fact many things they don't have the time, knowledge or money to prove for themselves, relying on research done by other scientists to fill in the gaps. This means the number of informed people who *could* "accurately" predict art onset of another Ice Age is quite limited anyway. *Within* this number of *informed* people there are: scientists *too busy* working on something else to become involved in speculation about an Ice Age; others *uninterested* one way or the other; some who have considered it, then given it no further thought; others who may have speculated on when it could come, but don't want to give their opinion because they don't want to make a mistake or prefer not to contradict scientists who think the world will warm up; others who don't want to alarm the general public (or perhaps fear causing "mass panic" or migration?); and finally, there might be a *few* who *are* willing to make a statement. As we said, this will be a rare person, one with courage of convictions, faith in his/her calculations, enough concern about humanity to bring something of such epic proportions out into the open, and nerve to contradict other scientists' theories, such as theories of scientists who initiated the Environmental Protection Agency report and the National Academy of Sciences report. Anyone who disagrees with them has to prove his own theory and discredit theirs—somewhat comparable to a single doctor challenging the entire American Medical Association—it happens, but this is probably considered an awesome task, one many professionals would undoubtedly prefer to avoid if at all possible, having their "careers" and reputations" to think about.

Scientists and experts need more than knowledge and facts—they also need intuition, the ability to synthesize what they know into an *overall picture* from all the little random bits and pieces of information. Beyond book learning, they need sensitivity and awareness, consciousness and creativity. Educated experts often lack some of these qualities needed to make good judgment and a proper diagnosis. We can see, in light of the above "analysis", that it could *indeed* be possible for the general public to miss something of such magnitude, even if it were true.

John Hamaker puts it this way: "It may seem incredible that up to now this work could have escaped becoming common knowledge, at least to workers in agriculture, forestry, geology, climatology, and other such immediately-related fields. Apparently the many diverse pieces of the glacial/ interglacial climate cycle 'puzzle' had to be gradually discovered through various disciplines over decades, before at least enough pieces were evident to be joined in a coherent picture by a trained ecological thinker."(John Hamaker in this case.) Yet now everyone may see for themselves the truth in his synthesis.

He continues: "Congress has evaluated the CO2 problem on the basis of a consensus reached by 'specialists'. They freely admit that they do not know what causes glaciation, yet say the average temperature must drop several degrees C before we can have glaciation simply because they have evidence that it does get much colder during glacial periods. They ignore the fact that, historically, glaciation has alternated with interglacial periods on a roughly 100,000-year cycle and the fact that glaciation is due. Do they think that crop soils turning to deserts (due to erosion and soil demineralization, etc.), and weather catastrophies we've observed, are all just coincidence? They haven't thought about soil and its relation to glaciation, nor the role of the tectonic system in the glacial process.

"The people charged with the responsibility for the CO2 problem are simply not trained to solve problems. They are trained to be observers and have done a creditable job of that. But the job of making a rational synthesis of the facts as a basis for Congressional action ought to have been assigned to engineers and physicists, both of whom have been trained to work with the facts and laws of Nature. The fault lies at the higher levels of education, which have neglected the necessity for interdisciplinary education and action in favor of *specialization*."

The meteorologist Harold Bernard, who also warned of CO2 increases and effects on climate, wrote a chapter "We Can't Put Weather in a Test Tube," which criticizes scientists' incorrect assumptions, inaccurate modeling techniques, and ignorance of important processes through lack of knowledge. It is clear that the interglacial soil demineralization is one such process they have ignored. The knowledge is .now freely available.

Let's consider a parallel that Life Scientists are very familiar with by now. The concept of the body as self-healing and the body of knowledge found in the Life Science philosophy both follow the laws of common sense, of Nature, and of logic. We need only *try it* for ourselves if we want "proof", since Truth is self-evident. We have come to accept as obvious the fact that *live* food (uncooked fruit, vegetables, nuts and seeds) imparts the most perfect state of health possible. We have experienced our bodies' self-healing powers and learned about fasting as a means of allowing our bodies the chance to rest and divert all their energy into healing. We have decided that medicine and herbs interfere with the body's self-directed healing actions, and that suppression of symptoms (which are manifestations of the healing process going on) likewise interferes with the body's innate wisdom. We have found that health is produced only by healthful living and that sickness will vanish only when cause is removed (not when symptoms are suppressed). That about sums it up in a nutshell.

What I'm getting at is this: if all the above is so obvious to *us*, why isn't it obvious to the countless doctors and "health" professionals all over the world? Why is it obvious only to a *few* people? How can something be true and not be recognized by more people? All we can say is, truth is still truth, in and of itself, even if not *one* single person sees it. Truth doesn't need believers in order to be true; it doesn't need followers or majority acceptance in order to be valid. Truth doesn't have to wait for everyone to catch up. The earth was still *round* when everyone believed it was flat, despite what "everyone" thought. Microscopic life existed long before we saw it in microscopes; it didn't have to wait for us to see it in order to exist. If we are sliding into another Ice Age, and the scientists who foresee its arrival are correct, an Ice Age won't need our approval or belief in order to be a reality, that much we can be sure of.

Of course it would be easier for our own "practical purposes if some of their calculations we are "off ." After all, many so-called scientific theories *have* fallen by the wayside throughout the years, as new knowledge superceded old knowledge. Even the "world is flat" theory fell prey to the test of time. Whereas truth is truth despite what people believe, knowledge may or may not be true despite what people believe. Even if it isn't true, it may be paraded around as fact for years, centuries, or even indefinitely.

In the meantime, many people continue to believe what they're told, looking to "experts" for answers and depending on them for knowledge; it's not a foolproof learning technique, but it's often the best they can do. So, when the experts themselves make mistakes, it doesn't matter how *big* their herd of followers is—but, of course, many people *are* influenced by the size of the herd when choosing their beliefs. They feel safety in numbers, and prefer the comfort and "security" of a large herd. If "everyone else" believes something, it must be true, says their inner logic, or if nothing else, they'd *still* rather be with the majority. There *is* an alternative to joining herds and following experts: *intuition*. If you can trust your intuition, you are fortunate. As a free thinker, you can ask yourself what your intuition tells you about the world's current situation, the state of our environment, weather patterns, and Ice Ages. I've tried to present various opinions on these subjects, but I don't presume to have all the answers.

My intuition tells me to keep an open mind, and not to give up hope. If the observations and premonitions of the scientists who see the world as cooling are correct, I for one would rather have had a *hint* ahead of time than be surprised at the last minute! At least this leaves us with the option to take action, and to *try* to survive on this planet. It's been said that we don't fail until we give up trying. Hope is our strongest ally—it reinforces our will to live. Without it, we are lost, for without hope, nothing matters anymore.

So, even if an Ice Age were approaching during our lifetime, we would still have hope as our "open door". For one thing, we have the potential for *change*. Some people believe that there is a future that can be known in the present (often called destiny), but that, at the same time, there is still our free will—a powerful force that can change or alter "what is meant to be". This gives us control over our "destinies" and the ability to create the lives we choose. As we said in an earlier lesson, we *ourselves* are responsible for our states of being; we underestimate our power as individuals when we believe that random outside influences alone shape our lives. Ironically, though, there *is also some* element of "chance "in life that can weave its influence into what we are busily creating; while we often tend to define things in simple dualities of *yes* and *no* we actually have *yes*, *maybe*, *maybe not*, and *no*. We can *predict* that something will or will not happen, and we can be very sure that it will or will not happen, if we are accurate. Even so, the fact still remains that, beyond our free will *or* any so-called destiny, there are also other powers and forces of life in the universe that can enter into every situation and coincide with any variables involved, and these sometimes alter the outcome or cause slight variations between what we expect and what actually happens. For this reason, when considering the return of an Ice Age, we can still allow for the possibility, however small, that something completely unpredictable at this present time—some unforeseeable factor—could still come to pass, something we cannot even conceive of or envision with our present knowledge or awareness. This is *not* to say that we should resort to an escapist mentality or rationalize our way out of solving our serious environmental problems by using the excuse that "a miracle could happen" as a justification for *inertia*—this would be wishful thinking and sheer delusion! We're merely trying to show that everything that happens in life is affected by the intricate interworkings of *many* multi-faceted forces, and that this includes our attempts to predict specific global climate changes. We've attempted to speculate on the past and present factors pertaining to Ice Ages, so now we're considering future factors, which, of course, also lead us to the *unknown*. Technology and scientific knowledge that we use daily and now take for granted were unimaginable to people a century ago, so it is conceivable that someone could still discover an energy force/source that is presently unknown to humanity, or find a new technique for cleaning and restoring the environment, or invent something that we can't even imagine that would change our world or its course of events. We can hope that our ingenuity *will* prove itself once more; we've gotten ourselves *into* our present world state —maybe we can get ourselves *out* of our problems, as well. There is a tremendous growth in spirit evident all over the planet—we ourselves can perform the miracle of increased awareness—with a quantum leap in consciousness, we could save ourselves by realizing what must be done before it is too late.

It has been said that our strongest instinct is to survive. When I finished reading Hamaker's book, I began to see our world ecology as a whole, and realized the importance of seeing our environmental problems collectively, as they interrelate, rather than individually. There's an old expression that comes to mind: "Couldn't see the forest for the trees." We've been looking at the trees so long that we've forgotten what the whole forest looks like. Few things can make us appreciate *life* more than the realization that it can *end*. The suggestion that time could run out for our planet forces us to reassess our values as human beings. Where are we going? What are we doing to our environment, our source of *life*? What are our real priorities? Ask anyone who's ever been told s/ he would have "only 3 months to live". The first thing that happens is a total overhaul of priorities, a total rethinking of what the person can still do. Time becomes more precious than ever before. Energy becomes focused as never before. Life is no longer taken for granted. I guess we never wake up until after we've been asleep. Let's hope we wake up in time—it seems we've ignored the alarm clock already.

Even if we are "let off the hook" somehow and an Ice Age is averted or postponed, or its timing was miscalculated to some extent, we *still* have some very important moral decisions to make regarding our ability—and, moreover, our will—to revitalize the world for our continued survival on this planet, because we are *still* left with our CO2, soil, water, and other pollution problems, and as long as we continue to put money and technological "advances" before the welfare of humanity and our ecosystem, we still have our greed to deal with. And we *still* have to figure out a way to keep from destroying ourselves in nuclear war.

One way or the other, we have to get together worldwide and face the problems that we ourselves have created. We call ourselves civilized, and we want to believe that we have advanced and evolved, but an honest appraisal of our collective self-portrait reveals that we are painting ourselves into a corner every time we compromise our ethics and assault Nature's principles. We cannot hope to survive if we destroy our planet, because it is our source of life, but we must also understand that our survival is just as surely threatened by the destruction of our basic human values— love for humanity—and that we now have a profound need to revive and restore these basic values. Only by realizing that we *co*-exist—*what we do to others* (both psychologically *and* environmentally) we do to ourselves—can we expect to rally on the large scale necessary at this point for our survival on this planet.

It's obvious that we've been born into a time of incredible challenge, so let's meet this challenge with all our strength—and with a smile—for as always, life continues amidst the chaos. We must see the world as we *want* to be, as it must be for our survival, and use this positive image to create this world. The key to our survival lies in visualizing *and* acting for our survival over and over again until it becomes a reality. Every time another individual loses hope and gives up, our survival *as a group* is also threatened, because the force of our *collective* will to live is diminished once again. Every time our basic values of faith, hope, and charity are abandoned, the quality of life on earth is tarnished for everyone, and if we continue on a collision course with Nature, life on earth will only become more miserable. Without love, food, natural resources, and an environment clean enough to support life, people everywhere would have little to live for or to look forward to. We create our reality, and if this is the reality we choose to create, humanity as a whole will despair, and it doesn't take a genius to imagine what will happen if *no one* cares. As surely as we need faith, love, and action, we need *hope*.

Fear is the lock and laughter the key to your heart. —Stephen Stills

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4. Politics Of Food Production

Since countless members of our human family are already hungry or starving, it is imperative that we find solutions *now*. Anyone who has ever grown a garden knows the disappointment of losing some plants, whether to a hungry forest animal or to an early frost, and seeing the work of *months* of tender care vanish before their eyes. A neighbor's cows got past a broken fence once and visited my garden; every corn plant was reduced to stubble and all my salad greens were lost to their hearty appetites overnight—*months* of growth were gone. Anyone who has ever planted a small fruit tree and watched its slow, steady progress, knows that it takes years before fruit will be harvested. It takes *time* to grow all food, and nothing can replace growing time when a crop is lost.

We may think we have enough food today, but we've long been pushing our luck, by pushing Nature time and time again and tampering with our environmental quality. We can no longer refuse to acknowledge and deal with our environmental and agricultural problems, and with the profound impact their *combined* effects have on our ecosystem and food supplies. We are dangerously out of touch with reality if we think we can defy the laws of Nature indefinitely with no consequences. We can't just "wait for the weather to improve", because the atmospheric carbon dioxide which is destroying temperate zone climate is increasing at an accelerating rate. Everyone who has ever studied the CO2 problem has warned that the result of permitting the rise of CO2 would be to alter the weather in ways which would be destructive to agriculture. Meanwhile, while our use of fossil fuels is increasing, our forests and jungles are fast disappearing. All this is a sure prescription for mass suicide.

What, if anything, are our world governments doing about all this? Our politicians should have begun programs for soil remineralization and biomass solar energy 15 years ago. We would now have major growing machinery and equipment industries related to food and fuel, and a better food supply with more mineral content. But what can we expect from an elective system that lets the Farm Bureau and the corporate structure buy candidates at election time? This makes the legislature and the executive branch putty in the hands of corporate interests. The situation is the same at the federal level. Congress dispenses (out of our pockets) palliatives by the hundreds, but if we suggest solutions to problems that conflict with corporate interests, they start squeaking like mice. Ralph Nader says that 80% of the time Congress comes down on the corporate side of an issue. It really takes massive public demand to make them listen, if they listen at all.

Our ancestors came to this country to be free and independent—we are being manipulated by the power of centralized wealth, and our system of soil destruction threatens our agricultural and technical civilization. The devastation of the biosphere is seldom perceived as the ultimate threat to survival because, for many people and their governments, this issue is overshadowed by what they imagine to be more immediate concerns: war, poverty, sickness, the energy crisis, inflation, unemployment, drought, famine, and so on. What they don't realize is that the failure to conserve and rebuild living resources is closely linked to the worsening of these other problems.

Soil remineralization is a *priority* now. We were once blessed with an abundance of natural resources, but we have squandered them over the years; and we must now redirect our energy, money, and resources into positive, peaceful enterprises that will benefit all of humanity and life on this earth.

We can no longer wait for our governments to "take action"—nor can we depend blindly on systems, authority, scientists, experts, professionals,, specialists, doctors, or *someone else in general*, for our existence and survival. We cannot wait for someone else to *care* about our survival—it is *we ourselves* who have to survive. We are responsible for our own lives.

4.1 The Land of the Free, and the Home of the Brave

We, the people, *are* the government. Imagine you're a passenger in a car and the driver falls asleep just as the car is heading toward a cliff. Earlier in this lesson we mentioned some of the different types of people who make up our world. Let's listen to what *they* have to say, as the driver loses control of the car:

- Those who're unaware that problems exist: "What a fantastic view!"
- Those who remain indifferent to problems: "So what if we go over a cliff?"
- Those who trust in the system, right or wrong: "It's not the driver's fault that we're heading for a cliff—after all, his *intentions* were good."
- Those who give up hope: "Too late now—I'd better cover my eyes!"
- Those who recognize problems, but are all talk and no action: "Maybe the driver will wake up in time! Whatever happens, it's the *driver's* fault—*I'm* not to blame!"
- Those who are aware *and* take action: "I'd better grab the wheel and steer for my life!"

What would *you* do?

If our leaders, "experts", or drivers of our vehicles are asleep at the wheel, and we see the cliff coming, we're not going to have *time* to "think things over", evaluate more scientific facts, wait for the driver to wake up, or wait for a new driver. We will have to act with all the survival instinct within us, on a moment's notice.

Are we ready?

Article #1: Tropical Rain Forests: Earth's Green Belt

Left in peace, rain forests would ring the Equator with vegetation wherever days are hot and precipitation is high. But farming, ranching, logging, mining, and roads have greatly reduced their actual range.

In central Africa and Amazonia huge tracts remain largely untouched, but rain forests have been virtually eliminated from most parts of West Africa, southern Asia, and the Caribbean.

In 1980 the U.S. National Academy of Sciences estimated annual loss at 20 million hectares (50 million acres). The World Wildlife Fund speaks of 25 to 50 acres a minute. A 1982 study by two United Nations agencies reported 7.5 million hectares lost each year.

Estimates vary so widely largely because of different criteria. To biologists, loss means either conversion of primary forest—say, to agriculture, pasture, or tree plantations—or modification, implying biological impoverishment through selective logging or shifting cultivation. To foresters, loss means deforestation—the removal of all tress.

A world survey of rain forest status appears below.

South America

BRAZIL
Earth's largest rain forest little disturbed except for fringes of southern Amazonia and areas in the east. Small chance of major losses in the west for the near future.

PERU
Vast area covered by undisturbed Amazon forest. Farm settlement expected to become more extensive in next decade or two.

COLOMBIA
About one-third forested, mostly in Amazon region, some along Pacific coast. Efforts to colonize have been slowed.

VENEZUELA
Large tract in south barely touched. Smaller areas in north heavily cut, converted to ranches and farms.

GUYANA
Most of population lives along coast. Little threat to forest.

SURINAME
Virgin rain forest covers most of country, much protected by parks and reserves.

ECUADOR
Large forests along Pacific already gone, oil exploration and agriculture encroach on Ecuadorian Amazonia.

FRENCH GUIANA
Population lives along coast. Little pressure on undisturbed forest of interior.

BOLIVIA
Not much exploitation of forests yet. But government has begun roads, farming, and ranching.

Caribbean

Most island forests long ago reduced to remnants after heavy exploitation by dense populations. Small

tracts survive, for example, in the
DOMINICAN REPUBLIC, TRINIDAD AND TOBAGO, and PUERTO RICO, where a U.S. national forest protects 104 square kilometers.

MEXICO
Shifting cultivators, timber harvesters, and cattle ranchers encroach on the country's last rain forest area on the southern border with Guatemala.

Central America

A strong trend toward cattle ranching on this highly-populated isthmus has greatly reduced primary forests, now believed to be two-thirds removed. Small areas found in the Peten region of northeastern GUATEMALA, the Mosquitia Forest of eastern HONDURAS, parts of eastern NICARAGUA, southern BELIZE, the national parks of COSTA RICA. and much of PANAMA.

South Asia

INDIA
Patches of forest along the western Ghats and on Andaman lslands disrupted by landless poor, forest farmers, and logging.

BANGLADESH
Narrow belt of rain forest in Chittagong region heavily exploited by hill tribes.

SRI LANKA
Small tract on southwestern and central parts, largely disrupted by logging and slash-and-burn farmers.

Africa

ZAIRE
Holds Africa's largest rain forest (nearly one-tenth world total), parts of it now secondary growth. Some clearing by slash-and-burn farmers in south, but vast areas still undamaged by mainly rural population.

GABON
Almost entirely forested, with exploitation just beginning.

CAMEROON
Extensive disruption of large forest areas—especially in the southwest—by timber companies and slash-and-burn farmers.

CONGO
Forests in remote northern and central regions still undisturbed. Some logging in south.

IVORY COAST
More than 70 percent of primary forest at turn of century now cleared. Rest may be gone within a decade. Timber harvesting intense. Forest farming increasing rapidly.

LIBERIA
Very little primary rain forest left due to shifting cultivation.

CENTRAL AFRICAN REPUBLIC
Rainforests in south. Little pressure from small population.

NIGERIA
Most forest disrupted by dense population and a century of logging. Small areas remaining in south expected to be exploited soon.

SIERRA LEONE

Very few forest areas undisturbed by cultivators.

EQUATORIAL GUINEA
Almost totally forested. Little loss expected.

GHANA
Little or no virgin forest remains. About half removed during last 25 years by forest farmers. Remnants found in the southwest.

GUINEA
Small area still covered with rain forest in the southwest. BENIN About three-fourths of original forests left, but heavily disrupted due to strong pressure of growing population.

ANGOLA
Small rain forest concentrated in north.

MADAGASCAR
Much slash-and-burn farming. Only fragment of eastern rain forest still survives.

Southeast Asia

CHINA
Rain forests along southern coast largely disturbed, though a few areas are protected.

INDONESIA
Contains largest rain forest in Asia (nearly one-tenth world total), but much harvested already. Log production multiplied sixfold during 1960s and 1970s. Farmers and transmigrant settlers also eliminating large forest areas.

MALAYSIA
About two-thirds of lowland forests on peninsula heavily logged, converted to oil palm, rubber plantations. Large forests on Borneo also being harvested.

PAPUA NEW GUINEA
Largely covered by undisturbed rain forest, much inaccessible to logging companies. Full-forest harvesting under way in small areas on north coast. Half of population forest farmers.

PHILIPPINES
Large timber companies harvesting remaining rain forests, less than a third of what existed 30 years ago. Clearing by rural poor also severe.

BRUNEI
Mostly covered by rain forest, much undisturbed. Revenues from oil taxes take pressure off timber cutting as source of foreign exchange.

Only pockets of forest survive in Indochina, mainly in southernmost THAILAND, lower BURMA, southern KAMPUCHEA, and parts of the Mekong Plain in VIETNAM.

Australia

Fragments of primary forest remain along east coast of Queensland. Other lowland forests heavily cut for timber, sugar plantations, mining interests, and dairy farms.

Pacific Islands

Rain forests found on southeastern side of FIJI. Major areas allocated to timber companies. About three-fourths of SOLOMON ISLANDS also forested, most in terrain too steep to harvest.

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Lesson 101 - Harmonizing Society, Culture, and Lifestyle To Save Our Planet

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1. Introduction

Now that we've completed the mind-boggling task of trying to Condense earth's ecology and its millions of interrelated life processes into *two* lessons, we can breathe a sigh of relief. In these three "survival" lessons, I found myself in a predicament: I wanted to be comprehensive enough to cover a *wide* range of environmental (and other) issues related to survival, but because of the overwhelming abundance of related subject matter *and* limited space. I was forced to "dilute" a lot of material in order to keep things from getting out of hand! I also realized that many of us are *already* familiar with many of our earth's problems, and didn't want to overburden everyone with a deluge of "the same old" negative facts—but by summarizing them and viewing them as a whole (the only *real* way to look at them) we see them in a *new* and *different* way.

The more we perceive the *broad* spectrum of reality, the more enlightened we become, and the more we can share knowledge with others. Heroes, like the person who happens along at just the right moment to pull a drowning child from water, are everywhere—just *waiting* to be asked to lend a hand. There are few human instincts more beautiful than true heroism—without compassion, this would be a cold, hard world indeed.

Because potential heroes are everywhere, just waiting to help, *our* task is to start asking and to know *what* to ask for, to spread the word among the people. We must be sensitive enough to paint the picture truthfully, and strong enough to do so without such fear and gloom that peoples' psychic numbing mechanisms pop up to block everything out. Despite our aversion to bad news, most of us *would* appreciate being *told* we were standing in the path of an oncoming bus, and *once people know they 're needed and what they must do, heroes will come forth one-by-one*.

As destructive effects of our industrial age become more apparent, and as we see our once-pristine environment deteriorate and more deadly weapons accumulate among our green hills and valleys, places we dreamed of calling home are threatened, damaged or destroyed. We feel betrayed, and we're grouping together more and more to protect our lives and those of our children—our very survival now depends on this cooperative endeavor.

This lesson wraps up our discussion on survival and taking charge of our destiny, but of course by no means ends it—rather, it leaves us all with the ultimate challenge: the actual *taking charge*, the doing, the harmonizing of all our knowledge, faith, hope and love into a force strong enough to save our planet.

By survivalism, we mean the positive spirit of cooperation of all beings toward preservation of life. Let's make it clear from the start that our concept of survival in no way includes those of any so-called "survivalists" who advocate stocking up on guns and/or "survival" food. Nothing could be farther from our image of survival. A self-serving approach not only does nothing to help life on the planet or to clean up the environment so all life thrives; it is also based on the absurd delusion that one can "protect" oneself *in the first place* in a world where life *itself* cannot survive. We are the earth—it is our larger form, our larger body. If we are to survive, our earth must also survive. Our goal is total well-being, for only with total wellness can the parts themselves be well and flourish.

Those who plan on guns to "fight over what's left" would be sadly disappointed at the reality of such a world anyway, and would be like rats fighting over the last morsel of food in a *cage: trapped together*. Their fear and terror in the world they would create would far exceed any fear of hunger, or even death, that we could ever know. Even death in our world of life would be preferable to so-called "life" in their world of death. But let's reserve such thoughts for last-minute realities and resorts, because we must concentrate on *survival* of life instead!

If we were in a darkened room and the door were opened just a crack, the light would stream in, and even if the door were closed again, we'd *never forget* that light. So it is with truth. If we want to know what's on the other side of the mountain, we can wonder and speculate, or we can climb to the top and see for ourselves. It's more work, but well worth the effort. We don't even have to be "experts" to see truth for ourselves, nor to appreciate life and contemplate its wonder, even when our "knowledge" is limited. All of us have this special gift: wisdom, instinct and intuition don't depend on book learning!

It is not, therefore, "who" we are *or* how much we "know" that determine our ability to contribute—it's *what we do* with our thoughts, intuition and energy that matters as far as evolution and change are concerned. If you doubt this for a moment, take a look at what some so-called people of "wealth, influence, power or brains" do with their lives and for others—and at what they do *not* do. Some of them merely *perpetuate* the problems in our world.

Imagine being near a large fire and surrounded by people of knowledge, wealth, influence and power. The fact remains that the only things you really need to put out the fire are *water* and *action*.

1.1 Age-Old Excuses for Inertia

We've heard them all by now. These are but a few of our favorites:

- I overslept.
- I'm too busy.
- It's too late.
- I don't have time.
- I'll do it later (tomorrow, and so on).
- Someone else will do it.
- It's Monday (Tuesday, etc.).
- It's not my fault.
- It's not my problem.
- Call me when it gets really urgent.
- Don't call me, I'll call you.
- I need time to think it over and ask the "experts" more questions.
- I don't care.
- I don't know how to help.
- I can't ...

2. Life

2.1 Human Nature: The Mind and Evolution of Consciousness

We may observe the brain in its physical form and learn about its function, yet much is still unknown about how our mental processes actually work, leaving many unanswered questions about our perception and states of consciousness, and how they evolve from the "convergence" and "merging" of our physical and nonphysical realities. Some of us are at least aware that a healthy body and mind go hand in hand, and that deviations from physical health promote deviations from mental health as well.

Some scientists say that the left side of the body controls the right side of the brain, and that this right hemisphere is closely linked to feelings; emotions; intuition; subconscious thought; instinct; innate artistic, musical, creative tendencies; and so on. The right side of the body controls the left side of the brain, which is linked with rational thought, analysis, conceptualization, logic, and cognitive (conscious) thought. The right relies on the left for speech; its messages are verbalized by the left. Studies of serious worriers show they have an overactive left side of the brain compared to nonworriers (worriers also exhibit a lower level of alpha-wave readings—a measure of how relaxed a person is). Scientists are still not completely certain about all the specific areas of the brain; for example, the frontal lobes are still considered by many to be the most mysterious part of the human brain. Mild electrical stimulation of other parts of the brain makes people move a finger or hand, turn their head, or see flashes of light, but it is harder for researchers to link this vast, "silent" area to particular movements or sensations. When lobotomies were performed—by the 60s they more or less went "out of style" (thank goodness)—changes later evident in their victims suggested that the frontal lobes control such important qualities as self-awareness, initiative and the ability to plan to synthesize. The left frontal lobe seems to process information about shapes.

Eugene d'Aquili, a psychiatrist interested in the link between philosophy and neurobiology, says that strong feelings activate a certain part of the right hemisphere of the brain ("which instantaneously comprehends wholeness"), thus boosting our minds into a "separate" reality. He says some individuals report the altered state he calls "Absolute Unitary Being" in which "time stands still," and they see only the *totality* of a given situation or psychological reality, and have a sense of absolute and complete unity—of self, of cosmos—caused, he says, by the "occipital parietal region on the right practically obliterating the rest of the brain, perceptually." He says this experience can result in a religious *or* agnostic feeling (depending upon individual interpretation), but that everyone who goes through it is absolutely *certain* that the transcendent, absolute realm of things *does exist*. He says "since most psychiatrists and medical doctors really know very little about mystical states;" they often refer people to him. For example, he sees people who "don't seem to have actual thought disorders, but are unbalanced by a pervasive negative feeling, in which life and the universe are seen as purposeless; they aren't clinically depressed or 'disturbed,' but they want relief, relief from their belief that the state they're in is ultimate reality—their misery makes them wish to be taught to think it illusory so they can survive."

According to d'Aquili, for those who have experienced "both" realities—the reality of the daily world/objective science *and* the reality of transcendent unitary being—the problem is not reducing one to another, since these people say they "know" both are real, but rather to "reconcile what they perceive as two drastically different perceptions of reality."

We discussed states of consciousness somewhat in Lesson 90, and may want to review this section briefly before continuing here. It is precisely the wrongful perception of our physical, mental/psychological/spiritual/collective states of being as drastically "different" that has led to the intense confusion many people feel in today's times of introspection and transition into greater awareness. Upon closer scrutiny we see that *together* they make up our total being and are parts of a *unified whole*, just as night and day seem "drastically different" but are linked inseparably into one complete cycle. Until we understand and accept this concept of total unity, we'll remain confused at our scattered feelings and find it difficult to integrate all our thoughts, feelings and experiences into some semblance of order and understanding—a sense of wholeness. Remember, integrating our thoughts isn't necessarily defining or categorizing them; rather, it is allowing them to flow, synthesizing our impressions into an experience we can understand and view as a whole. It's best to allow our intuitive subconscious much more freedom and space in our minds because our conscious thoughts so often crowd them full. There is a subtle balance to be found, and the more complicated our minds become, the more we need to find this balance for ourselves, for our own peace of mind. It's ironic with today's constantly-increasing input of news, information, people, faces and other distractions, that the more dispersed we become, the more we also risk *dissipating* our precious life energy. Our "busy" nature can keep us out of focus if we don't learn to deal with our accelerated lifestyles. Each of us has a different solution to juggling input and output, but we can all benefit from an overall simplicity, by learning how to get to the point of clarity so that we see the *whole* picture through all the layers and layers of ideas.

As we said in Lesson 90, we must also avoid becoming so fascinated with "mental gymnastics" and so involved with analyzing our conscious, rational thoughts that our subconscious intuitive messages are unable to "penetrate" all the layers to reach us! We are sometimes so swept away by our passionate desire to "expand" our consciousness that we become wrapped up in the techniques themselves and can miss obvious truths amidst all the pomp and circumstance. It's as if we have a luscious ripe peach in front of us, and we spend hours looking for a plate to put it on so that we can eat it when all we really have to do is put it in our mouths, so *simply.*

We often overlook the simple things in life because we're dazzled by the so-called complex ones. Our world of gadgets and "scientific" facts and figures encourages us to expect complexity and to seek truth with fancy equations. We've come to expect much ado about nothing and everything, and it's human nature to be curious—we all learn that famous word at about age 2: *why*? It is probably one of the most frequently-asked questions. *We want to know.*

Stanley Bass once said that early Life Scientists/Hygienists viewed life as encompassing the *totality* of a person's being, including the mind and the spirit, but that in the 1920s the writers began to leave out more of the inspirational, "spiritual" (meaning *of the spirit*) aspects of Natural Hygiene because we were entering the "scientific" age, and Hygienic doctors didn't want to be considered "quacks" or strange people. He felt that this was a shame because it is *inspiration* that makes people change, more, than facts in black and white.

Although I came across his above statements only recently, from the very beginning of my writings I've had an *uncontrollable* urge to include the nonphysical realm of our minds and spirits in our discussions, not only because they are such a strong part of everyone's being and reality, but also because once the dietary truths we've learned have become a habit, we still need somewhere *new* to go. As we've said, once we change to a pure diet/ lifestyle, a growth in consciousness is *inevitable*, so the more we understand our minds, the better off we'll be. There is a gap or void left when we try to attend "only" to our physical needs, and I'd be more than happy to try to fill it.

Curiously enough, most of us nowadays are up-to-date on political figures and movie stars, the newest car models, the latest in art or literature—whatever we happen to be interested in—but still relatively little is said (in comparison) about the psychic energy of our minds; and those of us interested in it often find a lack of information on this subject, in contrast with the wealth of facts available on television, airplane engines, or simple arithmetic, for example. People hint at this energy, but there doesn't seem to be much general consensus on "scientific" explanations of non-physical phenomena of the mind—psychic energy doesn't seem to be taken for granted yet, at least not in the sense that something like television is taken for granted (although television *also* involves waves invisible to the naked eye and concepts beyond the physical reality that most of us are familiar with). The reason we have television is that people shared their knowledge until scientific concepts and technological aspects were put together. Piece-by-piece, bits of information and parts were assembled until television became a reality. Until we *share* our knowledge about what goes on in our minds, our understanding will remain limited. It's only when we synthesize knowledge that patterns emerge.

Perhaps we have experienced unusual intuition, precognitive dreams or other nonphysical phenomena, but don't know who to share them with. After all, not everyone is open-minded; we may hesitate to speak about such things to just anyone. Until more of us open up and become aware that these phenomena *do* exist, and talk about our experiences, these phenomena will remain unrecognized or largely misunderstood. I doubt that the "cavemen" were already talking about tax reform, molecular biology or their blood pressure—most of the "reality" we take for granted in our lifetime has taken years to develop into its present "form." A car would be as unexpected and "miraculous" to a primitive person as extrasensory perception is to some of us today. As more individuals come forth with their stories, our understanding of nonphysical reality will be broadened and become "second nature" to us—we'll consider it as normal and as basic a part of our being as breathing, eating, sleeping, and so on. Over the years we've gained a general understanding of how our *bodies* work; although many people are still off-the-mark nutritionally, most of us know some basic facts about physiology—for example, if we scratch ourselves and something red appears, we know it is blood from our veins, and the thump, thump we feel on our chests is a heart beating within. We take these things for granted now, but we must admit that our bodies and their contents would be very mysterious to us if we didn't already have these years of knowledge behind us.

It's unfortunate that pioneers of the mind, consciousness and the nonphysical realm have been mislabelled and misjudged so often, and that they have at times even mislabelled themselves because they didn't understand their vision or unusual insight. Whenever a person has been *different* from the "majority," s/ he has often been called *abnormal* as well, if not *crazy* or any other number of descriptions considered "fitting" by peers. If we weren't so judgmental and concerned with comparing ourselves to others and others to ourselves, we could use the simple word "different" as a substitute for all these other words—it's certainly a nicer way to say "eccentric."

2.2 Dreams

"You may say that I'm a dreamer,
but I'm not the only one."
—John Lennon

We spoke of unusual dream experiences in Lesson 90, but might add a few notes on this dimension of consciousness, since it accounts for approximately 1/3 of our lives and is obviously much more than a "sleeping fantasy." Just as people didn't begin to explore the ocean until they had boats, and that vast watery mass remained a mystery, so too have we been limited in our exploration of our minds and dreams, for want of a "vehicle" to take us there, or more appropriately, the understanding we need to operate a "nonphysical vehicle" in a nonphysical reality. Dreaming is but one such vehicle.

Some of us *have* begun to cross the boundaries already, and are becoming more familiar with the mind's "dimensions." Others of us have arrived, but aren't sure *what* "country" we're in; some of us are still looking for a parking place, or haven't even left "home" (our physical body) yet. Just as gifted children are often assigned extra learning projects at school when their special intelligence is recognized, and go on to advance more rapidly than their classmates, so too must those gifted with exceptional sensitivity go into the uncharted territory of the mind long before others. Just as any mathematical or scientific formula was first devised by one (or several) inventive mind(s), so too are we pioneers of the mind discovering new worlds *beyond* the physical, beyond the tangible things we can see, hear, smell, taste and touch. If such realities, waves and energy—all quite invisible to the naked eye—*didn't* exist, we wouldn't have satellites, radios, microwaves, and so on. Before these realities could be "harnessed" for our physical world, someone had to have intuition and *believe* in what they could not see. We must transcend our physical world and believe in things we do not see with our eyes before we can expect to understand the nonphysical realities in our world.

In a "lucid" dream, a dreamer is actually *aware* that s/he is dreaming, and can sometimes even control or influence the dream. Most people don't connect their waking and sleeping realities consciously, but lucid dreamers can do so. This has been verified in sleep labs by scientists studying dreaming and sleep.

Dr. Stephen LaBerge taught himself and others to wake within dreams, and believes that lucid dreaming can change the quality of our lives. ("Think of the value of being able to imagine vividly anything you can conceive of, and then to experience it," he says. "That would free us from so many restrictions.") LaBerge, who began as a student of chemical physics, first found references to lucid dreaming in the literature of Tibetan Buddhism—then, spontaneously, he experienced a lucid dream. As he studied the limited scientific literature available on lucid dreaming, he realized he'd had such dreams as a six-year-old. After finding a "technique" that worked for him, he was able to recall about 21 lucid dreams a month. In order to *prove* that he was actually controlling his dreaming, he decided to send a signal with his eyes while dreaming. In the laboratory, he was wired to a complex research polygraph (a polysomnograph) and fell asleep prepared to send the prearranged Signal to the researcher monitoring the machine. The lucid dream came after seven hours, and he decided to give the signal. The researcher saw the recording pens move on the polygraph, and this experiment was repeated successfully many times. However, because LaBerge knew that even the paralyzed muscles of active sleep twitch occasionally, he set up the polygraph to record the electrical activity of the muscles of his wrists. Then, during a lucid dream, he clenched the left fist of his dream body four times, the right fist once, and the left twice more. The polygraph showed the pattern: he had spelled out his initials, S.L., in Morse code—lucid dreaming became a scientific fact. Recent studies show that about a third of the population probably experiences at least an occasional lucid dream.

La Berge says the first step is remembering your dreams. Then, when you can succeed in incorporating a pre-sleep suggestion into a dream (if, for example, you tell yourself you want to see your hand in your dream and manage to do so), you have crossed the "boundary" and are able to connect both your waking *and* sleeping realities and states of consciousness. Those of us who don't feel "disciplined" enough to use techniques to arrive at these experiences can be assured that if we are meant to experience them, we will—one way or the other! I've had lucid dreams and precognitive dreams on many occasions without "trying"—they just happened (probably long before I recognized them too!). Those who benefit from trying "techniques," however, should do so.

LaBerge says dreams can be a workshop of creativity and growth. While dreams are often what he calls "repetitious melodramas" where we "confine ourselves by habit to a prison of self-limitation" (I suppose if we do so in our waking lives, well do so in our sleeping lives), lucid dreaming, he says, "presents a way out of this *sleep within sleep*." For example, a lucid d reamer caught in a nightmare could choose either to escape it or to attempt to resolve the fears behind it. Neither choice is available in ordinary sleep. Many of us *have* experienced nightmares in which we wished so strongly to wake up that we did—these were lucid dream experiences too, because we were *aware* that we were dreaming at the time.

LaBerge says that lucid dreaming might also offer psychological support to the handicapped; while awake, the paralyzed can't walk, but in their dreams they can dance and fly, helping them go beyond their physical handicaps in their inner lives.

As Stephen LaBerge says: "Your waking life is brief enough as it is. If a third of it must be shortened by sleep, *do you want to sleep through your dreaming too?*"

If we *can* learn to "combine" or blend our waking and sleeping realities, we have a whole new dimension open to us, a new opportunity for increased understanding and awareness. We can then make the *conscious* decision to go *beyond our physical reality and bodies* into the nonphysical realm, and potentially, find information there (as discussed in Lesson 90) that we aren't finding in our normal physical ("awake/conscious") world. We should use every tool we can, whether it be physical or mental, to increase our awareness. Dreaming is overlooked by many of us as an option for *enhancing* our lives, and as the wonderful flight from our bodies' physical boundaries that it is: a chance to *feel* our (spirit's) existence beyond our physical body ...

2.3 "A Penny for Your Thoughts"

We also have a lot more options in our waking lives than many of us even realize. I'd like to share some excerpts with you from the May 1984, issue of *Acres, U.S.A.*, from an interview with Dr. Phil Callahan (an internationally-famous entomologist and ornithologist who was also a navigation and electronics specialist in the 1940s). Several topics were covered, one of which was a brief mention of the circuitry of the brain. When asked about thought transmission and how it might take place between husband and wife or close relatives, Callahan says:

> "You have, say, a mother in the U.S. and a son, say, in Vietnam, and suddenly the son is hurt or wounded and she knows it instantly. *This has been verified in war after war after war.* One of the best verifications of ESP (extrasensory perception), in my opinion, is case reports of things that take place during traumatic experiences in war. The son's electric circuit brain is very much like his mother's—he has 50% of her circuits. Therefore, his brain puts out a lot of energy. If you can scan the earth from a satellite with 10 to the -17 watts, there is no reason why your brain isn't putting out much more than that: In fact, your brain is probably putting out, I would guess, 10 to the -12 watts and 10 to the -17 watts is less. Yet you can make a TV picture and turn something from a satellite into a TV picture with 10 to the -17, and that is a trillion, trillion, trillionth of a watt. *Your brain putting out 10 to the -9 or something like that is certainly a stronger signal and would go around the world 40 times*. Of course, signals do go around the world in nature. You have what you call Schuman Resonance. Schuman Resonance is when you have harmonics from lightning bolts that go around the world at about 8 to 20 cycles, and who knows what they are controlling. You have thousands of lightning bolts all over the world, and the ionosphere above and the earth below act like a big hollow cavity. So you get these frequencies trapped in this hollow cavity, and they go around and around. You can tune in to them. Nikola Tesla did this. He sent waves around the world. He was no doubt utilizing the Schuman Resonance to do it. He was ahead of his time. Schuman Resonance wasn't even discovered until about 15 years ago, but Tesla was doing this back in the 1890s."

Electroencephalograms measure the activity of brain waves; it is now obvious to scientists that these waves exist and show various levels of "energy." Many believers in thought transmission/reception probably think that it depends on the level of sensitivity, awareness and receptivity of the individuals involved, at this point—*recognition* of thought transmission/receptivity may now depend on these things, but the actual transmission/reception most likely *occurs constantly*, whether we are "aware" of it or not—just as our blood moves through our veins whether we are aware of it or not, our thought wavelengths can move out through space independent of our realization that anything is happening at all! *Believers* have been aware of this phenomenon for ages, but many people are still skeptical; perhaps they don't have firsthand experience with it or know someone who has—anyone who has experienced such things needs no convincing. I've recognized (and even experienced) verifiable thought transmission/ reception often enough to be a firm believer. Even when such an event happens once in a lifetime, it will alter one's outlook on life as few other experiences can. Truth *is* self-evident.

We already know we can "harness" waves that we can't even see to make a picture appear on a television screen, or to make songs come over the radio, but some of us still doubt that thoughts can be transmitted or received. Just because we can't "explain or understand all the physics" involved—or don't have enough awareness yet to control them ourselves to much extent—doesn't mean that thought transmission doesn't *exist*. We've already seen that *many* things exist outside our awareness of their existence. For example, microscopic life certainly existed before we saw it in microscopes!

Nowadays we *readily* accept the reality of TV waves, radio waves, telegraphic signals, microwaves, and so on, but a century ago people would have scoffed at such ideas (or perhaps labelled their proponents as "witches"); enlightened persons might have been open-minded enough to agree that these ideas were at least conceivable or perhaps possible "in the future," with more knowledge available. People today also readily acknowledge the following (and other) realities: that grooves on a record (or a thin, shiny tape in a cassette) will result in music; that X rays take pictures of things we can't see with our eyes; that radar sensors pick up objects; that cameras "make pictures"; that laser beams can, among other things, burn holes in objects; that computer chips we can barely see will hold *thousands* of bits of information; that we can talk to people thousands of miles away on the phone; and that the power of the atom (also "invisible" to us) in nuclear power has the ability to destroy our planet! How's *that* for an example of *immense* physical power in an element *so small we can't even see it!*

In our waking, conscious lives we learn what we want to learn, and advance (or degenerate) at our own individual rates; so it is with mystical dimensions. Just as an infant sitting in a car (who may someday learn to drive) is content for the time being to fidget with all the knobs, buttons and switches at random (sometimes to the chagrin of Mom and Dad), so are we when it comes to our level of understanding and awareness. We have a lot to learn, but the knowledge and insight we need to "grow up" are within us, as well as without. Remember too, that just as with any skill of *any* kind, abilities in interpreting "paranormal" reality definitely vary; some mistakes or errors in judgment are to be expected, even from gifted persons, and some *charlatans* can be expected as well, just as with *any* talent or creative ability. We're taking our baby steps into the world of the psyche, finding out that our spirits aren't limited to the physical realm, as our bodies are.

"Suspended in the physical, and yet,
I am beyond this skin, these eyes,
and cannot quite forget."

We have but to *imagine how free* we can be in our spirits—we've only just *begun*. Just as a baby looks around at everything with that "so-this-is-where-I-am" look, we too are now in awe of our newfound dimension of consciousness and reality, and wonder how far we can go here. That we can contemplate life in all its marvel *at all* is proof enough that *we are spirit*—we've outgrown the limits of our physical state—being spirit *and* body, we've always been in the nonphysical state, even before we "realized" it.

Phil Callahan's statement about the power of our brain waves to encircle the world "40 times" has some profound implications for us and adds a whole new dimension to our reality. Remember how many times we've thrown up our hands in despair to ask: "But what can *I*, as *one* person, do to change the world?" (Again, we've come to realize that the truth is, we're all *already* doing it *now*). When frustrated and overwhelmed about problems we see, we often feel "so small" in this big world, and so alone. Sometimes we even wonder if we're the "only ones" who care. Rest assured that we aren't—we *share* these feelings with one another whether we are consciously aware of it or not. Because we live in such volatile times (nuclear, ecological, etc.), the fact that we are *still here at all* is no small miracle. One of the things now holding the world together at this very moment (and since the beginning of the nuclear age) is our tremendous *collective* will to *live* and to *survive* (called our deepest, strongest instinct) radiating outward at every moment, criss-crossing the planet over and over again with its messages: *we want to live in peace and tranquility*. That we are still here is the collective manifestation of the drive within us to evolve to new states of being, to progress and to grow, to explore our universe and minds and spirits. We are tired of wasting our precious time and lives in the futile efforts of war. Hatred, destruction, rebuilding, and starting over at the beginning again and again—we should have *learned* our lessons many years ago. These energy-draining activities only slow us down and keep us from the beautiful, evolved creatures/spirits of life that we will be when we *work together and give peace a chance*. We've had enough—we're weary of having shadows of doom and gloom looming in the back of our minds, and concerned when our children say they don't even know *if* they'll grow up.

We must never underestimate the power of our thoughts Remember, just as with the atom, just because we don't *see* them doesn't mean they have no influence on our world—thoughts carry their own energy too.

Our desire for peace spreads outward like ripples on a pond, *renewed with every new thought of peace*, being reinforced all over the globe by the network of souls who want to live and let live—*ever-gaining* *strength*. We should be very proud to be part of this network of light and of life.

This is why we can't *dwell* on negative images of our world or future (beyond their imminent warnings), and get lost in our *re*actions, when it's *action* we need. In dwelling on the negative, we literally radiate negativity on the negative "wavelength," thus reinforcing the very thing we detest. When we radiate put on the wavelength of life and positive energy, we are joined with all the forces and powers of creation.

There's no tangible *profit* to be made off higher consciousness—you can't package it or sell it, and it results in people asking all those uncomfortable questions on "product safety" or "company liability for their damaged health," etc. In other words, it seems that one of the *last* things we hear about these days in the media is *non*physical reality, the evolution of consciousness, and so on (when what could be more relevant and *important* for those of us who are restless within the limits of our physical reality?). We certainly hear enough about ring-around-the-collar, squeezably soft toilet tissue or being part of the "Pepsi generation." People oriented in physical reality *buy* physical products. What's more, if they were to become true to their consciences and become their highest, most evolved, most moral selves, with a remarkable code of honor, they might no longer "have a price"—they might begin to care more about *life* and *people* than about *things*—and avoid *obsession* with material possessions that hinders their "non-material" growth and distracts them from higher pursuits. Why, then they might even refuse to pay for weapons that kill people and destroy life! In other words, "they might just *rock the boat*."

If we could realize the strength and power—and the incredible positive force of creation and love—that our minds are really capable of, now and at every moment, we would challenge corrupt and unjust systems into which we're locked for our physical survival, and we wouldn't be as easily influenced/manipulated/brainwashed. But as long as we're kept running a treadwheel, trapped like hamsters in a cage, locked in debt just to survive and make ends meet to pay for our physical needs, we'll "stay in our place," and many of us are too busy to find out about all our strength and potential (especially its *collective* force), or we're just "loo tired to care" at the end of another hectic day.

British futurist Peter Russell thinks that we are now moving "from the computer age to the Age of Consciousness, the next step, an epoch when our minds will be linked by common goals, when humans will be creatures without ego, using their large brains to manage the affairs of the planet." He believes that humankind is about to make an unprecedented leap in evolution, a jump beyond petty jealousy, virulent nationalism, unbridled greed. We are to become, Russell says, the nervous system that makes the whole globe tick, a kind of benevolent planetary brain linked by common consciousness. The earth for Russell is a single organism, not just a spinning rock teeming with life, but a life form all by itself, an individual being. And we humans are going to become this organism's brain. We are already the information processors of the planet, says Russell. We collect data, build libraries, museums and satellites. Information passes through national boundaries as if they didn't exist. In 1944 there were only three computers in the world. "Now look," Russell says. "We moved from the Industrial Age to the Information Age with tremendous speed. Now 40 years after the first computers, we're already starting to go beyond them, to consciousness and awareness." *Heightened consciousness*, he says, *is our inevitable next step*. Individual consciousness will become group consciousness, and humankind will interconnect in a single vast cooperative of consciousness. "We are an evolutionary experiment," Russell says. "And the question is, *are we a good thing or not*? Are we a cancer, a blight destroying the very fiber of life, or will we serve another purpose?"

Peter Russell is not alone in his vision of a living Earth. He studied theoretical physics at Cambridge University, but found himself drawn to Eastern philosophies; and when he went to India to pursue those interests, he "experienced a dimension of my consciousness of which I had never dreamed."

Today, doom scenarios are popular, Russell says. "We are in a very dangerous time. But shouldn't our large brains serve some greater purpose than self-destruction?" In his book he quotes1 inventor Buckminster Fuller: "The world now is too dangerous for anything less than Utopia."

2.4 The Life Force

We've spent a lot of time discussing health and survival of life, and pondered the mysteries of our existence for some time now. What then, do we know about *life itself*! What is this amazing quality that can come and go, leaving an entity "alive" one moment and "lifeless" the next? Just as we can see and hear, whether we know we have "optic nerves and tympanic membranes" or not, or taste even if we don't know that our taste buds are "small ovoid neuroepithelial structures that lie between the epithelial cells that cover the tongue," so too can we live, once the life force is within us, whether we understand it or not—luckily for us! All of our cellular groupings, organs, bones, and everything down to our *Hyoglossus* (a muscle that we'd *better* have between our hyoid bone and tongue if we plan on "pulling the tongue into the floor of our mouths" any time soon), are all part of an incredibly *intricate* life support system. Ask any car mechanic what's involved in assembling his machine that moves through space—plenty—but well soon see that our bodily machine is infinitely *more intricate*. If you look at a book on physiology, you'll see how many "parts" our machine has! Being a vessel of the life force is one thing—duplicating it, another. Genetic "engineers" keep trying, and heaven help us, for we're trying to exercise divine power (control life) before we truly understand what divinity is. Yet, as are so many things, I suppose that's "in our nature," too. Whether we knit, garden, build, or tinker, we are all imbued with the passionate urge to *create something*. In any case, it might be wise if we knew more about the life force *before* tinkering with it too!

When someone "dies," we say the life force "leaves the body." This is generally agreed upon, although what happens next is *still* open to discussion after all these years. Perhaps one of the reasons we have a hard time getting past these age-old questions is that we're falling back into that same old trap of "trying too hard" (in this case, thinking too much) once again. Let's face it, we *have* been wondering about some of these things for a *long* time now, yet we *still* seem to get lost somewhere between the question and the answer! What's our problem here? Aside from the fact that we often block our intuitive channels with "logical" reasoning, maybe we'll also see our "abstract" predicament more clearly with a "concrete" example: imagine a primitive person standing in front of a computer, wondering what it is. Whatever the primitive person can conjure up in his mind to explain or comprehend this object, with his limited resources, will still not serve to explain its function. There is a "gap." This primitive person probably has the *innate intelligence* to operate a computer, but until the gap of understanding is closed, it will remain a mystery. Just as the baby in the car must learn what the gadgets are before they will become "real" to him, so too, the more we learn about our mental abilities, the more meaningful they will be for us.

We often become impatient. Here we are, faced with our human physical mortality, bills due, *and* a mystery: what *happens* when we "die"? Like angry children, we demand answers to the mystery of life, but we're still forcing the issue and overlooking the simple. We're already in over our heads when we try to explain "supernatural" phenomena in our human terms and words. If we want to understand the life force, we must begin by realizing that it is "more" than a "human" event—intangible and invisible, it is an event of the spirit, encompassing far more than our limited human reality. Since we can't *see* the life force in the first place, it would be presumptuous to assume that *life* dies just because a living entity "becomes lifeless." This is pure speculation on our part. The life force itself doesn't die when the entity "dies."

Mysticism has always included some concept of "eternity", eternal life, infinity. Somewhere along the line, some of our pioneer spirits found something, and began to pass it on: The story of eternity has undergone countless metamorphoses and versions throughout the ages. Some say we "go to heaven" (or, if not so lucky, to the 'big barbecue pit' in the sky?), and some say we're reborn—but, although the accounts differ, enlightened people from all times have clung tenaciously to *some* common belief in *some* form of eternal life, or an immortality of the spirit, with absolute certainty that there was *life* "beyond" the physical form, that the body is like a *vehicle* that is abandoned after it becomes useless and can't take us any further.

Once upon a time, *long* ago, someone died, and his friends stood around in sadness and tried to figure out what had happened. One minute he was moving, and the next ... as best they could determine, this person was gone, finished, ended—and the concept or word "dead" was invented to explain this event. Thus came the conclusion that where there is "no life," there is "death." It sounds logical enough, and we've been saying it so long that we've pretty much taken it for *granted* by now, but one of the main reasons we say there's no life when a person dies is because the person we knew doesn't *move* anymore and bodily organs have ceased to function. The word "death" may be useful in describing an event, but the notion of death as a finite, final event might have as many flaws in it as our old world-is-flat theory or current germ/contagion theories, held by so many as "absolute" truths. Since we have a *profound* lack of knowledge (even after all these years) of exactly what happens beyond what is visible to the naked eye when someone dies, we'd be somewhat naive to say that *nothing* else happens just' because we can't see it or don't know what happens! Rather than being an *end to life* itself, *death is just a process of change*, a passage, transition, transcendence, metamorphosis, a new journey beyond the physical world of our bodies. Think about it. How can *life* be dead? How can life not be *alive*. The pioneer spirits who first spoke of eternal life saw a simple answer to the complex question of what death was: a sort of *evolution*—life goes on, eternally, forever, endlessly changing form. The first thing we do when we die is change form: our body begins to decay, to "disappear," to break down what it once built up—like a reverse-action film, it's completing the "cycle." The process of cellular decay is one of *change, change, change—of metamorphosis as the body fades from the physical world*. How can we define what is *obvious activity* as a "dead" (motionless) process, when this movement of molecular structure from one form to another is obviously a process of change (visible and invisible), and might better be defined as just another part of the life process *itself*! When the body finally disappears from our visible physical reality, we can't say exactly *what* has become of its atoms and molecules, for they have rearranged and changed structure from one form into another (or perhaps others). This *transformation process* of life (called death) is still very much a mystery to us!

People *already* give us "those" looks when we tell them we don't eat meat or cooked food. Wait until we see the looks we get when we say "there's no real death, only eternal life and change and metamorphosis and evolution ..." Here we go again!

So, is *that* all there is to it? We've been saying this life force weaves its way here and there, as if we could be in the middle of a sentence, and ... poof! We are fortunate enough to have been chosen by the life force as "containers" for its antics, but we too have choices to make. When life asks us to dance with it, we become its partners—we help determine its rhythm within us and the melody of our duet together—life is the voice—we become the words to its song. Studies with terminally-ill patients have indicated that the will to live, or the lack of the will to live, *do* have an effect on the length of our lives, and that a person can literally "turn himself off" at some point, whether consciously or subconsciously. (Another good reason to keep thoughts positive.) If we become too tired or bored, sick, old, etc., to continue the dance, life will understand and move on. If we *want* to live fully, life will stay with us as long as possible, even until the dawn of our new day.

In each moment, time stands still; in each moment, from whence we came and where we are going are all caught up in an instant of eternity.

Believe in life and its force and you already, know eternity. Eternal life is with us forever in this moment.

2.5 What Time Is It?

We discussed the concept of *time* in Lesson 90 and said that it doesn't actually exist *exactly* as we define it in our human terms! There, and in our above discussion, we mentioned the eternal *present: it is always now*. Yesterday and tomorrow are actually "abstractions": the only *real* time is "now." There is no other time we exist in other than "now" (in fact, everyone who *ever* lived, lived "now").

We say that moments (and time) *pass* from one to the next, but time isn't moving—it's always now—*it is we living beings who move*. We form a living chain of beings and we call those who lived before us "from the past" and those who are yet to come "from the future" and the links of this chain of life hold us together. We can assume that everyone was living (or will live) *now* at the time they lived (or will)—and we who are alive now are living now—so it appears that we're "all living at the *same time—now.* "Of course that seems to defy the physical imagination, to say the least, but as much as it defies logical explanation, it *is* at the same time somehow "logical." It's also interesting to note that this might shed some light on the mystery of the gift of prophecy!

2.6 "Time Is of the Essence"

We've talked about some peoples' ability to know things from the "universal mind"—an ability that defies logical explanation and goes beyond our usual "normal" channels for receiving knowledge. Not only that, but our "normal," traditional notion of time is also open to question when we see that some people not only know things or receive information beyond their "normal" physical/mental reality; they are even able to know things (whether from the past *or* future) *beyond* the so-called "physical *time*" in which they exist at that moment. How can this be? How can someone know something that "hasn't happened yet"? What does that do to our "normal" concept of the "future," or of time itself? One of the better-known examples of person with prophetic gifts was Nostradamus, who lived in the 16th century. He is said to have foreseen numerous events that came to pass after his death (which he also saw ahead of time). In 1568, he published the following prophecy:

Century IV, Quatrain 67:
In the year that Saturn and Mars are equally firey
The air is very dry, a long meteor (comet)
By secret fires, many places shall be burnt with heat
There shall be scarcity of rain, hot winds, wars, blood,
thirst and famine (when the comet shall run).

The above quote and the following excerpts are from an article "When Solar Winds Blow Havoc for Mankind" by Jim Cummins, *Acres, U.S.A.*, January 1985, which discusses the return of Halley's comet, due again in our vicinity in November 1985, and to "stay in our backyard" until April 1986. Halley's comet has a well-documented 76-year cycle, with records begun in March 239, B.C. Ever since this sighting, a worldwide three-year drought (and often resultant famine) has followed in its wake each time, (for details—a *long* list of other climatological, social and political upheavals throughout history that were on the heels or in the wake of a comet—please get a copy of the above issue.)

> "How can all these things be attributed to the passing of a comet? Space probes have sent back data showing that the sun continuously ejects a million tons of gas per second, moving at a radial speed of 250 miles per second, with wind speeds past the earth at some 900,000 miles per hour, and extends to about four times the distance beyond the farthest planet Pluto. (A comet travels in its orbit to several thousand times farther than Pluto.) This solar wind carries chaotic magnetic fields along with it because the gas is ionized. The magnetic fields of the solar wind ruffle the earth's own magnetic field as it passes by, hence, magnetic disturbances affecting communications, etc., at the time of increased solar activity (which is cyclical). Scientists have determined, for instance, a statistical correlation between the accelerations of Halley's Comet and magnetic disturbances on the earth
>
> "The effects of the solar wind on every earthly activity, from health to markets, weather, and wars, is well-documented. The transverse motion of a comet at many miles per second across the movement of the solar wind blowing radially from the sun results in the i6n tail of the comet interacting with the high velocity of the solar wind in the same way that smoke rising from a smokestack interacts with moving air to produce a graceful billowy arch to the earth
>
> "Scientists now believe that each interstellar dust grain of comet stuff contains molecules of

> formaldimine, methyl alcohol, methyl cyanide, hydrogen cyanide or hydrocyanic acid, and some 20 others, including cyanogen and carbon dioxide. (My note here: we have *too much* CO2 already.) Many of the radicals they have determined to be the 'smoke' of comets cannot be isolated in a terrestrial laboratory, and are probably created by the rapid breakdown of the parent compounds by ultraviolet sunlight. The lingering, billowy arch of smoke falls slowly to the earth in the wake of a comet's passing. Needless to say, no living thing on our tiny planet is made the better for it. We all breathe this cyanide: kings, presidents, common man alike think and act as though we have poison in our system (and we do) ... and we eat the plants and animals which have breathed the same deadly gases ... and the pale settles in for a season."

As we have seen in our studies on ecology and the current world political situation, we're already "teetering on the brink of extinction" in many ways, so we could certainly do without any "pales settling in" because we don't need much pushing, this close to the "edge."

> "The advent of two important planets aligning at a crucial astronomical degree from the earth at the precise time that Halley's Comet (with which Nostradamus was familiar) would make as *perihelion* (closest point of approach to the sun), would be an ominous occurrence, said Nostradamus, warning us in the only way he could, considering the Inquisition under which he lived. *Such an event* (this planetary configuration at the comet's perihelion) *has not happened/or over 1,000 years, but it is due in February 1986, and Nostradamus knew it!*"

Here then is a verifiable example of prophecy: the dates of alignment of planets, in this case, Saturn and Mars, can be calculated and determined scientifically; the next such alignment is due in February 1986. How could Nostradamus know, in 1568, that they'd be aligned in a once-in-a-thousand-years configuration at a "crucial astronomical degree from the earth at the precise time (1986) Halley's comet would make its perihelion"?

We *do* still have a lot to learn about the powers of our minds. Some people apparently "go beyond their physical lifetimes" in their minds or spirits, but in the sense that the eternal present covers *all* eternity, they really don't even have to "go" anywhere. Apparently it's because it's *always now* that they can "see it *now*" if they have that gift of sensitivity.

It is interesting to note that gifts of intelligence, wisdom, insight, vision, enlightenment, clairvoyance, prophecy, and so on, are obviously not limited to people of any particular "time," i.e., they aren't limited to so-called highly-evolved or "civilized" people, nor are they always found in persons with exceptional "conventional" intelligence (ability to learn quickly, etc.). Throughout "the ages," there have been individuals who possessed extraordinary insight, wisdom or extrasensory perception; such persons are "timeless"—they would stand out and excel in *any* time period.

One such person was Pythagoras, a Greek philosopher born in 570 B.C. who advocated vegetarianism, among other things, as the key to expanding consciousness and intellect. He was already talking about things Life Scientists believe in now; he was way "ahead of" most people of his day, and even ours. He even taught; that the world was round, long before Copernicus and Galileo came along after the 1400s.

Pythagoras was a mathematical and musical genius, a sage who travelled to many other countries (as far as Egypt and India, rare for people of those times); he was accepted by their wise men, who shared with him secrets often not divulged to their own public, nor to strangers. He accepted women as "thinking beings," and included them in his discussions, being unique in his times in doing so. Space here doesn't permit a detailed account of his life and gifts to humanity; suffice it to say, he was a rare person. Because of his diet, he was said to be in perfect health at all times, and of perfect, calm, harmonious temperament. He had a vision of a changed society with no war, slavery or violence. Had his communities of followers been left alone in peace and allowed to thrive, we can only imagine where we'd all be today! However, as is so often the case when ignorant people form the "majority," his enemies tried to destroy his books and temples, and enslaved his followers! We're *still* waiting for people to see the light that Pythagoras (and many before and since him) saw already. It seems quite obvious that the "missing link" in the puzzle of our prolonged aggressive tendencies and low-life attitudes up to now *is* meat-eating. Pythagoras was very specific in his admonitions not to eat meat; he wasn't vegetarian "by coincidence"—he knew exactly what he was doing in avoiding it, and said so. Had we listened to his wisdom (and others') we might have avoided another thousand years of human suffering and wars.

2.7 Vegetarian Thinkers

A March 1985 newspaper article on Einstein's brain talked about recent studies of its brain cells: nearly 30 years after his death, Marian Diamond was looking at cells taken "*from the 20th century's most celebrated clump of human intelligence*." Before he died, Albert Einstein stipulated that his brain be preserved and used for research. "When we heard that Einstein's brain was sitting in a cardboard box in Kansas, we saw a chance to study *the most highly-evolved brain available in our lifetime*," Marian said. Dr. Janice Stevens, staff psychiatrist at the neuropsychiatry branch of the National Institute of Mental Health, tells a story about the time researchers at Princeton did an electroencephalogram on Einstein. They were measuring the alpha wave, which indicates the brain's "idling activity." Alpha wave activity disappears with arousal or intense brain activity. The researchers started the EEG, and Einstein, so the story goes, was calmly solving quadratic equations in his head. His alpha wave, indicating mental idling, was very high. All of a sudden, the alpha wave went flat. Alarmed, the researchers rushed in and asked Einstein what was wrong. "I hear it's raining outside," said *the world's greatest scientist*, "and I've left my rubbers at home."

I wanted to include these excerpts (italics above are mine) to show how esteemed Einstein is in the scientific world, even though the article itself was going into details on his "glial cells" and so on (he had a higher ratio of glial cells to neurons compared with 11 other brains tested, with the most significant difference found in the sample from the left lower parietal lobe, the part of the brain most involved with higher mathematical and language abilities).

Einstein is considered a great genius, and he was *also a vegetarian*. Literature on vegetarians includes the following great thinkers from our history: Pythagoras, Socrates, Plato, Aristotle, Alexander the Great, Epicurus, Apollonius of Tyana, Plutarch, Seneca, Porphyry, Iamblichus, Proclus, Ovid, Tolstoy, the poet Ralph Waldo Emerson, Benjamin Franklin, Sir Isaac Newton, Gandhi, Buddha, Voltaire, Charles Darwin, Albert Schweitzer, and others; the artist Leonardo da Vinci was also a vegetarian— this list is but a sampling.

If we are interested in observing the mind and philosophy and the things of the universe, well do well to observe that some of the world's most "famous" historical figures, those whose names came down to us from the past because they were such outstanding persons in their day, were also vegetarians.

"Truly man is the king of beasts, for his brutality exceeds them. We live by the death of others. We are burial places! I have since an early age abjured the use of meat, and the time will come when men will look upon the murder of animals as they now look upon the murder of men." —Leonardo da Vinci

"While we ourselves are the living graves of murdered animals, how can we expect any ideal conditions on the earth?" —Leo Tolstoy

"Only living, fresh foods can enable man to apprehend the truth." —Pythagoras

"It is my view that the vegetarian manner of living, by its purely physical effect on the human temperament, would most beneficially influence the lot of mankind." —Albert Einstein

"Animals are my friends... and I don't eat my friends. Man suppresses in himself, unnecessarily, the highest spiritual capacity—that of sympathy and pity toward living creatures like himself—and by violating his own feelings, becomes cruel." —George Bernard Shaw

"World peace, or any other kind of peace, depends greatly on the attitude of the mind. Vegetarianism

can bring about the right mental attitude for peace... it holds forth a better way of life, which, if practiced universally, can lead to a better, more just, and more peaceful community of nations." —U Nu, former Prime Minister of Burma

By changing our diets and lifestyles, we've already seen how closely they're related to "who we are." Very often the "personality" we think we are is totally different after these changes are made in our lives. The sum total of our diet/ life becomes us, talks through us. As we unburden ourselves more and more, we replace our former resentment of ignorant people and our contempt for their wrongful actions with understanding, even forgiveness. We have no place in our minds for wasted thoughts; they distract us and clutter our heads with more useless negativity. We have no time for holding grudges or making judgments, for our time and our lives are precious. We've said it a dozen times, but it bears repeating: if we truly want to free ourselves, we'll replace all our negative thoughts with inner peace and tranquility. People who become trapped in their emotions don't see the diet/lifestyle connection; we know we don't have to be slaves to our emotions.

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3. Liberty

3.1 It's a Gift to Be Simple, It's a Gift to Be Free

If we have optimism, humor, understanding, faith, hope, love, self-control and the ability to step outside ourselves into a universal, collective consciousness and into concern for others as well as ourselves; and if we have the desire *and* willingness to *change* (not just intent to change or idle talk about changing)—we will become filled with creative energy and vibrant life force, and yes, *we will be free*. We will free not only our bodies, but also our minds and spirits. The more positive energy that emanates from us into the world, the more healing that will take place in the world. It keeps boiling down to the same thing: what the world needs now (and always) is *love*. Our positive healing energy is needed everywhere, especially in these trying times.

So, we should ask ourselves, are our world leaders working to lead us toward Utopia or not? The answer is obvious.

Are we told the truth about the link between our food and lifestyle and our state of health? No. We're told to drink Coke, eat sugared cereals, and spray poisonous chemicals on ourselves to "keep bugs off." Let's not expect to be enlightened by our "system," for it is to the system's advantage that the sheep stay in the herd, and not be "carried away" with wild ideas of freedom or notions of exceptional mental clarity or abilities, thus realizing their full potential as human beings. The system of centralized wealth prefers to homogenize its people into a nice, workable "arrangement" that best ensures the continued survival of its authority and power to keep things "under control."

Funny, I was under the impression that the founding fathers (and mothers) of this country intended to *govern themselves*. What was that they said about government by the people, for the people, and so on?

Those of us of the technological age who've been spared certain survival necessities, such as having to walk miles to a well for water just to *live*, still have our own special challenges to meet. Our education and the media have given us more opportunity to view the *broad* spectrum of events and their consequences; "knowing" more, we have a *deeper responsibility to truth and to life*. The more we receive from life, the more we should give back in return. And, as the saying goes, "*somebody* has to do it."

It is evident that each of us must explore our own mental capacities and strengths, and find the truths that are to be revealed, for we aren't getting enough support from our world leaders in evolving to a consciousness of world peace and harmony. It is we, the people of this planet, who must demand a *release* from the *bondage* of weapons and war, and insist that production of instruments of death be stopped, once and for all.

The slaveholders of the past didn't just wake up one day (until forced to do so) and tell the slaves: "Okay, you're free now." We can't wait for our "leaders" to "free" us. We must be free now. We are supposed to be free already, but who are the real *slaves* today? Every living being that is bound by the chains of war and hostility and who lives under the shadow of potential nuclear destruction—every living being on this planet, to be exact. We are being held back from our true work and kept from evolving toward our higher destiny. Ironically, here is an unusual situation in which even the slavemaster is enslaved—from now on, what happens to the slaves will happen to the slave "masters" as well. They now risk becoming victims of their own mistakes. While our "leaders" have at their "disposal" thousands of human hands ready (if not willing) for action, capable of making something immense in the spirit of cooperation, what do they do? They use our energy to create a system that could destroy us all, themselves included. Now does that make any sense?

We have years of struggle, suffering, joy, birth and creation behind us already. Let's not throw it all way! We are free to choose life. What are we waiting for?

Just as fresh air, sunshine and healthy food are necessary for nourishing our physical bodies, freedom is one of our *most precious* treasures to be preserved in safeguarding our minds and Spirits. We need freedom for our mental health and well-being, as much as we need air to breathe. Although we've made progress in some areas, human rights in the world today *cannot* be taken for granted by most people. Just as physical illness reflects some imbalance in the body, the sad state of affairs in human rights reflects the moral decay so prevalent today. We are told we live in a democracy, but we must be ever-watchful and vigilant of what freedom we do have, and hold on to it with all our strength. It could even use some improvement. Now that the computer age is here, we must be especially cautious of "world systems" and being numbered, catalogued and filed. The world economy is shaky; if transitions are made to a "cashless" system, necessitating numbering of citizens, a word to the wise ... freedom as we know it could all but disappear in the "ultimate" system. Computers, like all our inventions, are tools—as useful or destructive as we make them.

There are three principal groups in the United States dedicated to ending human rights abuses: Amnesty International, Helsinki Watch and Americas Watch. Amnesty International won the Nobel Peace Prize in 1977, and has 150,000 members here and 500,000 worldwide. It also watches out for political prisoners, for the *countless* people suffering in jail whose only "crime" was to speak out against injustice—nonviolent people of conscience who tried to better the lives of others. A 1984 report from Amnesty International ("Torture in the Eighties") carried meticulously-detailed accounts of inhumane treatment of prisoners in 96 countries, from Afghanistan to Zimbabwe. Amnesty tries to publicize abuses and pressure governments guilty of human rights violations. Now that the world is so small, we all have a vested interest in *global* human rights, in staying awake — the fox will come when the chickens are sleeping ...

3.2 We Shall Overcome

More and more sanctuary movements have begun to take an active role in reaching out to refugees from other countries who are fleeing political persecution and violence at home, and they must often defy official disapproval (and, or risk imprisonment) in order to shelter these people. Even church members are getting involved, saying that what they are doing is providing sanctuary, a historical and religious tradition dating from the Middle Ages. Court trials have already resulted. A statement issued by Austin Quakers said: "There is a law that binds us as one within the spirit, which cannot be made subject to laws constructed in response to national interests. We declare our willingness to provide *sanctuary* for these, our sisters and brothers, to hold them within the boundaries of our spiritual community, safe from pursuit and prosecution by the authorities." Another group made this statement:

> "We implore immigration officials and the court system to cease in their persecution of innocent people fulfilling their duty as Christians, and are proud of those who lay their reputations and lives on the line to protect, nourish, and care for the poor of other nations who seek nothing more than the same opportunity our refugee forefathers sought and obtained during the past two and more centuries."

Matthew 10:16... "Behold, I send you forth as sheep in the midst of wolves: be ye therefore wise as serpents, and harmless as doves."

26: "Fear them not therefore: for there is nothing covered, that shall not be revealed; and hid, that shall not be known."

3.3 "Reaching out to touch someone"

With the growth of technology and industry worldwide, our world cultures have been brought from the "dawn of time" to "modern civilization," sometimes almost literally overnight, in a single jump from "primitive" times to the 20th century. Just like the pizza people, *we deliver*, alright—for a price. There's a trade-off, and many souls have been "sold" along the way.

But while our businesses are arriving in faraway lands to look for a good deal on cheap labor, less safety restrictions perhaps, and so on, and arrive to buy and sell weapons and war, there's a *parallel movement* going on—one most of us have been part of at one time or another: the "world traveller's association"—the *real* diplomats-on-the-street of this planet. The next time we're gazing from a hammock in a tiny, relaxed terrace nestled among lush vegetation in a tropical country, sipping fresh-squeezed orange juice, be assured that we are actually *hard-at-work*, as members of the *real* international Peace Corps, bringing ourselves to others, drawing the world closer. People are travelling internationally as never before and that's had a *profound* impact on world society as a whole: more and more people see each other now. Even the goatherder in Morocco gazes face-to-face into the eyes of the American family from Kansas—two worlds meet again. The more we see each other, the less we can be "strangers."

Not only does this ever-broadening circle of *international* friends accelerate the quantum leap humanity is now making into *collective consciousness*; it also *strengthens* our chances globally to learn the truth more often. Whereas national leaders, newspapers or TV can (and do) lie or censor news, say what they want and try to shape everyone's reality and conform society's members, the fact remains that nowadays, many more people everywhere are also picking up the phone just to talk to a good old buddy or business associate on the other side of the world and they'll ask "what's new?". So, stories come out here and there— much news is still shared in the "old-fashioned" way—by word-of-mouth. This *international grapevine* is unlike any there's every been before in our recorded history—even gossip has gone international!

Much truth can leak through, because if there's one thing people are famous for, it's their ability to *talk*. Now that folks are chatting from Germany to Thailand to Timbuktu, a lot of truth can *even* leak through today's "sophisticated" totalitarian efforts around the world to control what can be heard in the media! The net thrown out by our dictators now has many holes in it, and as fast as they can "fix" them, we can make new ones! This international network of friends protects all of us because it keeps *real* channels of communication open; it exists *beyond* the formal rhetoric of world leaders who communicate to us (and each other) only what they want us to hear. This *real* communication network functions on a global level and yet is still unstructured—it exists and is *thriving outside* "government control and regulation"—a loose network of individuals with no control from specific, visible leaders—*independent*.

The world community is apparently healing itself *despite*—not because of—government, which is the "drug" in this case that's supposed to "cure" society. If the people "can't take care of themselves," they look to the government to play the role of doctor, to decide "what's best for them," to take the responsibility *out of their hands*, and the government is more than happy to do so. But even today's tyrants will find that *truth* will still pop up "in the strangest places." Just as some weeds are much hardier than domesticated hybrid plants, luckily for us, truth is one of the *strongest* weeds of all—stubborn and tenacious. No matter how hard a ruler might try to keep people ignorant (and thus *dependent*) and uninformed, light still penetrates the darkness again and again. Trying to keep truth a secret is harder than trying to stop the tide of water at the ocean's edge with your bare hands! Truth will surface again and again—that's the beauty of it. Like a blade of grass that clings stubbornly to life in a crack in the cement of a hot city sidewalk, truth clings to us in hope of survival.

And the truth shall set us free.

We've already taken a bit of "license" in speaking freely of phenomena of the mind which we're only beginning to experience, let alone understand. But lest the skeptical among us question the reality of anything in nonphysical "reality" too hastily, let's refer to the following excerpts on the *CIA*'s interest and dabblings in these phenomena. It is becoming increasingly apparent that we have to guard not only the freedom we expect for our *physical* bodies, but also the *nonphysical* freedom that is our heritage as spiritual beings.

Omni (10/80) reports: Declassified documents obtained under the Freedom of Information Act (one worth all our effort protecting) by the American Citizens for Honesty in Government revealed a 20-year CIA mind-control operation that experimented with everything from hypnosis and behavior modification to psychoactive drugs (such as LSD) and electroshock, all well-documented. "Less noticed among the esoterica included in the so-called Project Bluebird (later renamed Project Artichoke, still later MKULTRA) was another possible secret weapon: extrasensory perception." The agency's dream was spelled out in an April 1952, memo: "If a number of individuals could be found in the U.S. who have a very high ESP capacity, these talented individuals could be assigned to intelligence problems. Such a problem as whether or not the (deleted) had a submarine pen could be attacked by ESP."

It might be worth noting here that the media In the last few years has also given more attention to incidents of police departments using "psychics" to solve crimes, often with amazing success. If there were "nothing at all" to extrasensory perception, it is highly doubtful that such conventional organizations as the *police department* (or the *CIA*) would even consider such angles in the first place. Phenomena occurring out of our physical realities have been given little public attention in the media, but obviously *some* people know something that hasn't been generally publicized, for evidence does exist that these phenomena are not only real, but being recognized more often, and as with everything else, are capable of being used *for* us or *against* us. This is another good reason to be ever-vigilant.

Of note is the fact that, after the early fifties, CIA documents are "mum" about ESP and PK (psychokinesis): "Perhaps the CIA dropped the idea. But perhaps it actually implemented an ESP cryptocracy, and perhaps the documents detailing it are classified. The latter possibility is raised (along with a few eyebrows) by this January 1952, statement: 'If we are to undertake to push this research as far and as fast as we can ... it would be necessary to be exceedingly careful about thorough cloaking of the undertaking. The CIA has declined comment."

A later newspaper article (4/18/85) announced that the "Supreme Court recently gave the CIA absolute power to keep sources of information secret, even if the sources are not confidential and the information itself is not classified." Congress in 1947 gave the director of central "intelligence" very broad authority to protect all sources of intelligence information from disclosure. The 1985 decision overturned a ruling by a federal appeals court in Washington—the CIA had said that ruling would "cripple its ability to gather intelligence because the agency would be forced to reveal sources." The case involves a 1977 suit filed under the Freedom of Information Act by lawyer John Sims and Sidney Wolfe, director of Public Citizen Health Research Group. They sought the names of individuals and institutions involved in research under the CIA's MKULTRA project (financed from 1953 to 1966 "to counter Soviet and

Chinese brainwashing techniques"). It included "experiments in which researchers administered LSD and other psychoactive drugs to unwitting persons. At least two persons died as a result of the experiments. The agency had refused to reveal names of researchers of many of the institutions involved, citing the 1947 law."

We need to keep a watchful eye on the activities of such groups designed to "protect" our interests, for just as parents can become guilty of Mild abuse, such organizations can easily become guilty of *freedom* abuse! The reality that we are faced with is: every day we're told that such things as vitamins, drugs, weapons, the government, and so on "protect us," but we're becoming increasingly aware of the fact that what *really* protects us are such things as *truth* and *freedom*. Most of the other nonsense we can do much better without!

Here are more excerpts on CIA-sponsored experiments MKULTRA, from *Psychology Today*, "Mind Control in 1984," by Philip Zimbardo (psychology professor at Stanford University) 1/84:

> "MKULTRA was its most notorious covert program designed to develop operational technologies for disrupting and then reprogramming an individual's habitual patterns of perception, thought and action. Government research funds were funneled through universities and mental hospitals to encourage the experimental testing of LSD and other psychoactive drugs, as well as electroshock treatment, hypnosis and other exotic types of direct intervention in functioning of the human mind. The program was halted not because of the outrage of the citizenry (few knew of its existence) or the ethical concerns of turning American citizens into vegetables, but because it didn't do the job. These potent gadgets and gimmicks could surely scramble anyone's brain, but they could not *direct* a person's action in pre-determined ways."
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> One of the major discoveries of modern social psychology is that, under specified conditions, *less* social pressure can produce *more* attitude changes:
>
> "The most profound and enduring changes in attitudes occur under two conditions: when people perceive they have free choice in deciding to believe in ways that are against their values, beliefs or motives, and when the force applied is just strong enough to accomplish the task. The pressure may be as innocuous as having the experimenter in an authoritative white coat say, 'This is an important experiment...' or touch the person's shoulder and say confidingly, 'do me a favor.' People want to be good sports and team players. When people can be subtly induced or seduced into publicly behaving in ways contrary to their needs or usual standards, it produces an uncomfortable state of cognitive dissonance. The tension is particularly great when people believe that they chose the alien action freely, without external pressure. To reduce their feelings of discomfort, they become their own agents of self-persuasion. Since they can't attribute the discrepant behavior to something outside themselves, they explain it in terms of self-generated processes. 'If I chose to do it without promise of reward or threat of punishment,' they rationalize, 'I must have unknowingly liked it or wanted it.' In hundreds of studies, when intelligent subjects were induced, through means of which they were not aware, to lie, cheat, suffer or hurt someone else, they invented personal reasons to account for this atypical behavior. People devise such personal attributions to make sense of apparently irrational actions, such as eating fried grasshoppers after saying they dislike them or accepting powerful electric shocks.
>
> Although behavior can be controlled by powerful external rewards or threats, the person controlled will not also automatically believe in the trainer's ideology; coercion creates conformists, but not true believers. When people think an external force is powerful enough to make them act as it wishes, they often yield to the power, but do not internalize the force's ideology. Without at least an *illusion* of free choice, they become passive re-actors; they take

> no responsibility for their actions, but attribute them to outside forces."

When Orwell wrote 1984 (in 1948), he saw the potential power an can be wielded by professionals "who intervene in people's lives 'for their own good.'" But, Zimbardo continues, "he did not foresee the extent and depth of that power, which is so evident in our 1984. When control is cloaked as cure, surveillance as a security service and repression as a rehabilitation program, civil liberties can be set aside and cherished freedoms put on hold without arousing resistance or rebellion. When something is being done *for* you and not *to* you, it is difficult to complain without feeling the guilt of the ungrateful. Would-be mind controllers are springing up everywhere, unconstrained by Party allegiance. They pose more of a threat because their tactics are more subtle, their strategies more insidious and their influence more pervasive. They sell us, educate us, treat us, service us and minister to us—after first persuading us of the need to pay willingly and dearly for their product." Let the buyer *beware*.

"In the end," concludes Zimbardo, "we must individually and collectively challenge the Party line: There is indeed something called human nature that will be outraged by what is done to the least of our kind and will turn us against despots and dictators, demonic or benevolent. We defy Big Brother."

3.4 Economic Freedom: A Penny Saved Is a Penny Earned?

"When the whole property of this universe has been inherited by all creatures, how then can there by any justification for a system in which someone receives a flow of huge excess, while others die for lack of a handful of grains." —P. R. Sankar

Excerpts from John Hamaker's *Survival of Civilization*, "Taxes, Freedom and the Constitution":

> "Fundamental change is required to save this nation from becoming a totalitarian state. Decay is evident in every facet of our society, but few understand the cause. Rightists simply blame it all on 'communism,' and Liberals frantically search their first-aid kits for palliatives to treat the most painful effects of the underlying cause. *This essay tells why the rich get richer and the poor get poorer, and why centralization of wealth occurs*.
>
> "In the matter of economics, an exponential equation similar to population growth is destroying our economy and our democracy. It is the rot that runs through the forest. Benjamin Franklin willed $100 to the city of Philadelphia. It was to be kept at compound interest until it reached $1,000,000. The inheritance paid off in a little less than 200 years. If the million were kept at 6% compounded annually for 20 years, it would reach 3.2 million; in 40 years, 10.3 million; and in 60 years it would reach 33 million. At 3% it would be only 5.9 million in 60 years; but at 7% it would be 57.9 million. Long before Franklin's time many people made business investments of much more than $100 and realized more than 6%. Those investments which were invested in the steady money-making businesses, and passed on through inheritance, now are valued in the hundreds of millions. Today these fortunes control capital now measured in hundreds of billions. Applying the 20-, 40-, or 60-year factors shows by inspection that the rate of increase of such vast sums has far exceeded the potential rate of growth of the economy. The growth rate of the centralized pools of wealth has exceeded the finite limits of the capacity of the economy to support it. This is particularly so now, because the growth of population is the primary basis for the growth of the economy. The population growth must be stopped.
>
> "One dollar can be plotted as a series of curves using a different rate of interest compounded annually for each curve and plotting time on the abscissa against fund increase on the ordinate. The result is the accumulation of a single dollar—the factor to be multiplied by the amount of the initial fund to find its present value. It will be noted that the curves bend gently upward until half to one million dollars is reached. Then in a 50- to 100-year period,

the curve breaks upward toward infinitely large numbers. The number of years it takes to reach the break-point depends on the rate of interest (or profit). At 3% it takes about 450 years, at 6% about 220 years, and at 10% about 125 years to reach the break-point. After that point is reached, the rate of increase in funds reaches absurdly large rates of increase which have no relation to the rate of increase of *real values* in the economy. Therefore, the only way such fortunes can continue to increase is to expand ownership over everything in the economy which makes money. Because of the power of large fortunes to buy out or freeze out competition, they take control of the most stable and lucrative businesses. The theoretical end result is one fortune in possession of everything in the country. In practice, when a majority of people have been impoverished, there is a revolt and a wiping out of all debts. Historically, this has occurred every few hundred years, i.e., when the large fortunes in a country have reached the break-point in the curve and have transferred much of the ownership from the people to the pools of wealth. They then have the power to reach out for every real value in the economy. The more they take, the faster the process works until they have it all.

"One does not argue with the laws of nature. One either conforms or pays the penalty. The mathematics of compound interest is natural law. We are in the self-destruct stage. Our economy is at the break-point in the curve. If we continue to permit funds to accumulate, we are certain to have our economy destroyed and our people in revolt. Money, like everything else in the environment, must be recycled to prevent destructive pollution of the economic environment.

"Specifically, there is now about one and one-half trillion dollars in public and private debts. Most of these debts are owed to pools of money which annually grow by the amount of the interest (or profit) added to it. In 60 years, at an average of 7% interest, the value of the funds would be 58 times their present value. The total growth rate has far exceeded the real growth rate of the economy. The best-protected funds have passed the break-point. They are well on the way to owning the entire country. Senator Phillip Hart said, '200 decision makers control two-thirds of all production.' Senator Fred Harris said that centralization of wealth and the question of how to redistribute it will be the major issue of this decade. It had better be, because the claims to ownership by those funds are going to try to double in ten years time. An awful lot of people and small businesses are going bankrupt. Inflation and government and personal debt will continue at high rates of increase. Super-wealth has a counterfeiting machine and a government to legalize its product. It can buy us all

"The excessive rate of growth of large pools of money according to an exponential equation is responsible for virtually all the deficiencies of the present capitalistic system as follows:

1. The constant growth of large pools of money in excess of real growth in the economy is highly inflationary. The avidity with which the holders of great wealth seek to multiply it leads to *overexpansion of industrial capacity, overextension of credit to consumers, and vicious competition for ownership of all income-producing values*.
2. *The inflationary 'boom' is turned into a 'bust' when a significant number of people have used up their credit, and when competition caused by overproduction has closed out the least competitive companies, further depleting consumer demand. Small savings are robbed by inflation. So great is the ever-ready inflationary capacity of large pools of wealth, that the cycle of boom and bust* has occurred roughly every 10 years since 1840. In each one there is a transfer of ownership from those who fail to those who have larger funds subsidizing them at an exponential rate. Example: In 1935 there were 750 breweries, in 1970 only 140. The rate of *bankruptcy* and *conglomeration* insure that there will be a lot fewer breweries after

this bust period. The power of the major funds now dominates the economy. Production has become centralized, leaving behind centers of poverty.

3. Charity and government pick up the bill to feed people left destitute. If all present government and private debts were collected from the people tomorrow, most of us would be penniless or in debt. Almost everything in the country would be owned by about one-half of one percent of the people or the businesses in which they hold a controlling interest. *Most of the people are broke*. The wealth has become highly centralized. Inflation eats up the savings of older people, and they're forced on welfare or social security. They've relied on fund growth for security. Insurance and private pension funds pay off about 40% and 10% respectively, and they pay off in inflated dollars. Social security isn't an insurance fund. It's a tax on present producers to feed older, less productive workers forced off the job by the *fixed wage, fixed 8-hour day, maximum benefits concept*. If social security tax payments had been funded at compound interest, inflation of the dollar would be far worse than it is, and the government would be well on the way toward ownership of the entire country. The $153 billion in private pension plans doesn't help the 90% of contributors who get nothing back, but it sure helps the big corporations with their conglomeration plans.
4. Because the people of this country have been largely separated from ownership of the real wealth, the pressure of the rapidly multiplying huge pools of wealth has moved toward *exploitation of the people and their resources in less developed countries*. To insure those investments, large sums have been spent since WWII to insure 'friendly' national legislators and administrators. The result has been the *absurdly hopeless policy of 'Containment of Communism.'* Meanwhile, the revolt grows within our nation.
5. The forced flow of wealth from the people to the funds (directly and indirectly through taxation) reduces large numbers of people to poverty and the majority of the working force to the insecurity of *having only the job (and in most cases one paycheck) between themselves and poverty.* These demoralizing stresses induce *crime, alcoholism, drug addiction*, and other escape mechanisms to alleviate the pains, needs and wants that attend poverty.

> "Poverty provides little market demand. *The total national product must therefore shrink relative to actual need*. This contraction means that more people enter the ranks of poverty: the rich get richer and the poor get poorer. Those who still work are heavily taxed to sustain the poor. Ultimately it's the *taxpayers who revolt.*
>
> "We are ruled by an exponential equation. Either we control it or we'll join the two-thirds of the world's population which have yielded to dictatorship for survival. Right now is the time to protect ourselves from the rule of centralized pools of wealth if we are to save our political freedom.
>
> "The rich get richer and the poor get poorer because money 'earns' money at an exponential rate, whereas the economy expands directly with population and the technical ingenuity of the people. The difference between the two rates is the margin of power by which the owners of wealth impose poverty on everyone else.
>
> "In the broad sense, taxes are government-enforced demands for a share of the consumer goods. Nothing has monetary value until human labor is applied to it. Thus a tax is forced human labor. Whether or not equal goods and services are given in exchange for the tax determines whether it's a service institution or a means of enslaving the people."

Hamaker says we can simplify taxes and increase our freedom by:

"outlawing all taxes ahead of the sales tax (taxes collected ahead of the consumer goods sales tax are added to the cost of goods sold and are therefore sales taxes, i.e., claims for a share of consumer goods). The burden of taxation can't be shifted from consumer goods. A frugal person can more easily accumulate funds to start a business if taxation is deferred to the point of consumption of goods. Only when this freedom to use our national fund of ingenuity and initiative is established can we expect to eliminate the welfare rolls and withdraw workers from government into the productive economy. Then our tax burden will be lowered accordingly and this, too, is an increment of freedom. Also, if taxes were eliminated at the production level, politicians could no longer sell loopholes in exchange for campaign support. This practice has resulted in establishing economic advantages for the highest bidders— farmers, for example, can't compete with agribusiness (which can lose money on farming and make it up elsewhere in the conglomeration where tax loopholes support it). Thus the big corporations would be less powerful and the government less corrupt. These are important increments of freedom for the people.

"Within the broad definition of taxes, there are three included in the cost of consumer goods which government says are lawful, but which are collected by individuals. When the *inheritor* of wealth goes to the marketplace for a yacht or a mansion, he brings no products or labor to exchange. The same thing is true of a *land speculator* who does nothing to increase the value of land, but whom the government allows to collect the increased value. The same is true of the stockholder, who by the grace of government and a *stock split*, finds himself in possession of a share of several years of company surplus earned by the ingenuity and effort of a good working force. He brings to the consumer marketplace no value which he's earned if it's profit above the true market value (rightful interest) of his original investment. These government-sanctioned private taxes have the same effect as government taxes: they increase demand without increasing supply and therefore inflate the price. They take units of labor without giving units of labor, which is slavery.

"This element of slavery is what makes possible the rapid conglomeration of companies and ultimately the centralization of the nation's wealth. Man-hours of labor can be legally expropriated from, each person's paycheck to obtain a pool of wealth with which to buy a new plant from which to hire-people from whom man-hours of labor can be expropriated to obtain a new pool of wealth, etc. When slavery is legalized, anti-trust laws have all the effect of a pea shooter against an elephant. It is these three something-for-nothing deals which, by means of the exponential equation, *generate sufficient funds so transfer all ownership from the people to the funds*. They are taxes collected directly by the property class and enforced by the government it controls.

"Taxes on savings, such as property taxes, can drive older workers with little income out of their homes, which then become properly of mortgage holders. The property tax is an excellent device for transferring ownership from the people to the centralized pools of wealth.

"Savings are stored labor. To take care of ourselves, we must be allowed to accumulate the results of our labor and use it to support ourselves over unproductive periods. The government that collects property or other taxes on stored labor is patently an institution of slavery.

"Another class of taxes are those used to control imports/exports. *When we have obtained economic freedom, we're going to be able to work a 4-hour day and have a standard of living and quality of living beyond most peoples imagination*. Other nations can and will obtain the same results. But it can't be done if we try to compete with technically-advanced nations overpopulated with wage slaves. We must therefore control our foreign trade to protect our own progress. As other nations turn toward freedom, we can establish free trade with them and operate as a single economy with a common standard of living. We have yet to establish one peaceful nation.

"Finally, there are special-use taxes based on the principle that if government performs a service for a particular group, they should pay for it. Gasoline taxes pay for roads, but the pressure group that results from pooling such funds has not led to intelligent environmental planning. Special-use taxes are no longer practical.

"One wonders why people have tolerated these burdens for countless centuries. The answer is two-fold: Those who hold power have always been those who have access to the unearned values. They have written the laws to suit themselves. Until very recent times they have kept the people illiterate. Even to this day, all preachers and most school teachers fear to discuss the three something-for-nothing deals. It's only because these three causes of the centralization of wealth have brought us to the brink of crisis that the great power of wealth to perpetuate itself is slowly yielding to the force of necessity. For two-thirds of the world's people, these ancient prerogatives of rulers have yielded to the force of bloody revolutions led by ostensibly altruistic dictatorships. Hopefully, an enlightened electorate will bring these institutions down in this country without the loss of political freedom won with so much blood through the centuries.

"What should be done to return these values to those who produced them? Inheritance and land rent value must be collected by the government. This will decrease the sales tax required. The privately-collected tax on the earnings of a working force in excess of interest is composed of increased technical efficiency, human effort, and product demand. Heretofore, this has always accrued to ownership simply because they have hire, fire and bribe control over the management. The unions now contend for this value, while the white-collar workers who had a good deal to do with the increased earnings sit or the sidelines and take whatever is handed out. Instead of the single inflationary force of profit-taking, we now also have an inflationary force from union wage demands. In monopolistic or near-monopolistic necessity industries, the reaching for profit and wages is passed on to consumers as inflated price. Of necessity, less-favored industries and unorganized workers follow along behind. This built-in inflation can be slowed by recession. It might be stopped by depression. But after recovering, it would start up again. The dollar is depreciating at a chaotic rate because we no longer have any semblance of a free market product evaluation. In order to solve this problem, we're going to have to re-define the commodity called labor as human beings and redefine the investor as one enjoying the privilege of investing his savings at whatever interest rate the market will currently support. We must transfer the management of each company from the ownership board of directors to the working force. This will result in companies whose size rests solely on economic factors. No group of workers will remain in a conglomerate if it costs them money to do so. The better producers will pull out, and the massive pools of wealth that now dictate to government will be dispersed among small companies. We'll have, for the first time since man left the barter economy, free market conditions. Of greatest value is the right of a working force to earn all it can earn. Under this incentive, there will soon be an abundance of goods in the marketplace. Since working hours will no longer be bound by the rigid (most profitable) 8-hour day, they'll work when there is work to do and cut hours back when the demand declines. Technical improvements will be used to shorten hours instead of eliminating people from the payroll. The security (now based on the total payroll) of the individual and the company will both be vastly increased. Interest rates will decline to true market values. Since supply and demand are both relatively constant factors and the rigid artificial factors

> will be gone from the economy, the economic cycles will cease. Small business initiated and managed by one or two persons must be permitted to operate as they have been. These are some of the creative geese who lay the golden eggs. They probe all the diverse avenues for economic development. They develop products, services, and jobs. Of necessity, they must have full control over their initiative.
>
> "Our economic troubles are man-made. They persist to this late, day in the history of civilization because greed has maintained institutions of enslavement. Even our Constitution contained a provision for the return of run-away slaves. In the intervening 200 years, human populations have covered and been compressed into habitable lands. The means of destruction of human life have been perfected. We are at Armageddon. Either good will triumph over evil or all or most of humanity will be destroyed.
>
> "Every conceivable economic system except economic freedom has been tried without bringing internal peace to any nation, let alone between nations. It is time to test whether or not we, freed of our shackles, can find peace In the United States, the first step toward that end is the establishment of Constitutional basis for constructing a free society."

Hamaker includes a "Proposed General Revision of the Constitution of the United Slates of America" at the end of his book *Survival of Civilization*. In conclusion he says "the capital goods and personal property must be dispersed among all the people if they're to attain financial security and the independence of action required to initiate an economy of abundance to replace the present hand-to-mouth rat-race economy of scarcity. To accomplish this, 100% of both earnings and savings must be protected by law against the greed of those who hold power. The autocracy of ownership in the corporation must be broken to enable the people who work there to become a flexible unit of production responsive to supply and demand."

> "Politicians talk of tax reform as a matter of closing loopholes and/or confiscatory taxes at high levels of income. It's nonsense. If they taxed 100% over $50,000 and closed all the loopholes, it would only accelerate the process of conglomeration of companies. Instead of taking profit, owners would leave it in the corporation where it can be used to buy more companies. The power of wealth, not spending money, is the prize sought. Railroad cars, yachts, airplanes, expense accounts, pseudo-retirement plans—all have been used by corporate ownership as private property exempt from personal income tax. The bill must be paid in the price of goods in the consumer marketplace.
>
> "Politicians talk about inflation as a political argument at election time. Not one of them proposes measures which will get at the cause by stopping the flow of wealth away from the people, and the welfare government that sustains them, to the centralized pools of wealth which new own most of us. When they try to slow the inflation rate of the exploitative economy by arbitrarily raising interest rates, the result is decreasing credit transactions and throwing marginal producers out of work. So great is the inflationary pressure from government debt, national corporations, and national unions that only a serious depression can significantly slow the rate of destruction of the dollar.
>
> "Politicians talk about unemployment at election time (between them they talk of welfare and make-work). Meanwhile, small businesses fall like dominoes at the rate of 10,000 a year. Economists in ivory towers have told politicians that free trade is the ideal international trade system. So politicians have authorized free trade because this is what their masters (the owners of the centralized pools of wealth) want. The expropriated earned surplus of numerous corporations has been used to ship whole plants and management personnel to countries where labor is cheap. The low-cost goods shipped back to this country have

eliminated numerous industries. Even the steel and auto industries are finding they aren't competitive. There's been a large shift from production to service industries. In the process of going out of production, our real unemployment and underemployment has soared. The phony government statistic doesn't give the true figure. The true figure includes the forced retirees over 50 and the 40,000,000 under the poverty level. The government picks up the check for everything, including the price of wars to keep the "free world's" people and resources safe for exploitation by the controllers of our centralized pool of wealth. The government, of course, passes the bill to the people who do the work. This 'free trade' has become one more tool by which rich get richer and poor get poorer.

"Politicians say we can't have a depression again. The fact is that the only thing that has held a depression in check since WWII was an expanding economic system based primarily on electronics, constant war production, and an expanding federal and personal debt load. Environmental costs here, and cheap labor abroad, move industry and capital to foreign lands where the costs can be evaded. We are fed up with the cost of war. Government and personal credit have about run out.

"Politicians have no answers because the exploitative economy doesn't work. As long as history has been recorded, nations have failed every few hundred years. Before the industrial revolution, inheritance and land speculation were primary factors in bringing all the land into the hands of a few people. Those who owned the land had the power to run the government. To protect their ownership, they raised the land rent to raise armies and build castles. When the rent rose above 50% of the crop value, revolt and redistribution of the land always occurred. As trade developed, the profit system was developed and again a share of the labor was confiscated by ownership. As governments became more complex, they, too, learned to take a share of the labor. Thus the total tax at the point of revolt made up of the personal levies by ownership plus the taxes levied by the government which serves the ownership class. If we add up the total taxes in this country, we have approximately 35% taken by government plus an inexact amount represented by the burden of inheritors, land speculators, and profit in excess of a theoretical free market interest on money. The total tax is probably in excess of 50%.

"In 2 centuries, we've been sorely corrupted by a capitalistic system which included the 3 something-for-nothing deals, which in concert with an irrational exponential equation causes the centralization of wealth and power. By the simple expedient of making our capitalistic system honest, we can gradually disperse the wealth among the people. In the hands of the people, it will support an excellent standard and quality of living. It will never accumulate to sums whose rate of increase reaches toward infinite quantity and infinite power—and arrives at infinite weakness in that the whole system can be destroyed by a single dollar accumulating its interest for a long period of time.

"All the industrialized 'free nations' which now contain large fortunes and funds operating at high rates of interest have the same problem. The bonanza of productivity resulting from widespread public education has peaked. The ever-present ability of the pools of wealth to accumulate ownership is now the dominant force. Within 10 to 20 years the industrialized "free nations" will all either establish economic freedom under law or they'll be under dictatorship. The something-for-nothing deals have brought the funds of wealth in this country to the point where they've caused a 60% inflation in the last 15 years. If given our economic freedom, we can work our way out of this mess. Without economic freedom, we're going to lose our political freedom to some form of dictatorship because the economy doesn't work.

> "It is pure fantasy to believe that this economy can last for more than a few years without redistribution of wealth. About 15 U.S. manufacturers receive a total of 88% of all business profits. About the only money-making property left to take is the land, and they are gobbling it up. We mere mortals can't compete with fortunes which enjoy the luxury of perpetual life. Nor can the monetary system withstand the inflation of funds increasing exponentially to become so powerful that they can fix profits and prices of necessities. Taxes must inevitably keep rising to pay for the palliatives used to soften the impact of the ever-more- numerous problems which arise as our nation and its environment degenerate. The working taxpayers, who inevitably pay for everything, will eventually want to demand radical change.
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> "People of rank who are saying they know nothing about carbon dioxide and acid rain aren't stupid. They're either lying or using evasive language. Such a massive conspiracy of silence is understandable when one realizes that 'official' announcement of our situation would plunge the world into a financial debacle. They would no doubt like to have more time to prepare an alternate financial system to replace the international banking system. The trouble is, they've been wringing their hands over this for a half dozen years; meanwhile our chance of survival gets weaker and weaker."

In defending their desires for "more studies of the problems," our leaders are stalling for time; no one wants to tell the public the truth, so by stalling, and "not looking for evidence," they just won't "have to admit" that evidence exists.

4. ...And The Pursuit Of Hapiness

4.1 Human Interaction: It Takes Two to Tango

Survival has a twin called Need, and they're always together. We learn from the start that we need more than air, water and food—*we need others*. Very early on, people depend on each other for survival; in fact, we're all born completely dependent, as infants, upon someone. In Western society, a conflict often arises between our natural human need for others and our "quest for independence." We have self-sufficiency, self-fulfillment, self-knowledge, self-mastery, self-control, self-indulgence, self-confidence, self-esteem, self-assurance, self-consciousness, self-defense, self-government, self-help, self-improvement, self-interest, self-pity, self-preservation, self-reliance, self-satisfaction and self-respect. We are self-centered, self-contained, self-evident, self-righteous, self-supporting, self-sustained and self-motivated!

In our world of human interaction, of *Give* and *Take*, closely-related to our twins *Survival* and *Need* are the triplets *Power*, *Submission*, and *Opposition*, although those of us who know *Creativity* prefer *her* companionship to that of the triplets. Most human interaction is related to survival/need, give/take, power/submission/opposition, friendship and/or creativity. We learn by trial-and-error to assert our individuality and begin to use our "power" as soon as we realize it's there. Along with our *needs*, we develop *wants* and *expectations*.

Like fire and all forms of energy and tools known to us, our pride can be either a constructive or destructive force, depending upon how it's used. Pride can be our incentive and motivating passion to do our best, to excel and to reach our highest possible achievements—or it can consume us and destroy us—it can become the biggest obstacle of all on our path to our higher selves, if we let it. If we can control it and use its powerful energy for good, we will be able to harness its tremendous force to our advantage and it will work with us—if not, it will control us (as with anger and all other emotions) and work against us, because pride without wisdom and insight is like a boat without a sail or a car without steering. We have but to look at human history to see what pride *without* direction, guidance and conscience has done to us—or, more aptly—*undone* for us. We can either indulge in our anger, false pride and other emotions, and let them grow, or *we can find something better to do with our time*.

Because we reap what we sow, we'd do well to spend our time in positive pursuits. When we let go of false pride, or anger, we *free ourselves* to do something that can *help* us. Negative emotions are like a big, huge wave that hits us at the ocean's edge. If we've ever romped in the surf at the seaside, we know that the best strategy is to "duck and let the wave pass over us" so that it crashes onto the shore, where its force is shattered.

On the other hand, *fueling* our negative emotions (as with concentrating on symptoms of a healing crisis) lends strength to them, reinforces their control factor over our lives, making us *less free*. When we find ourselves thinking "so and so (or such and such) *makes me so mad*," we must remember that it is we *ourselves* who make the decision on *what to do with our anger*. It's ironic that we so often find ourselves thinking we don't have "enough" time for this or that, but we'll turn around and burn up *twice* the vital life energy in anger or other negative emotions—*most* illogical! Only positive action will help us to change things for the positive. We should use our emotions for fuel, not our life energy itself.

4.2 Peace on Earth, Good Will to All . . .

We've reached a point of stagnation on a planetary level, where international relations are concerned. We're all posed and "ready," weapons-in-hand, all trying to act tough and *scare* each other into peace (or whatever) by threat of possible force. If you've ever watched two tomcats nose-to-nose, making their growning, siren-type sounds, you'll notice that neither one wants to be the first to back down at that point; they're now stuck at this crucial point of a "final confrontation."

We're like these cats, making our most impressive, mean, scary threats, and we're so deep into it that we're *afraid* to trust one another. We've heard all the threats and made our own, and we've defined ourselves as "enemies," when the reality is that we'd still be better off in the kitchen of a Russian family than with our local mugger here at home. The enemies we fail to recognize are often more dangerous to us in the everyday sense than those we've been *told* to fear. In any case, we've built the wall between us, and built elaborate "defense" mechanisms for self-"protection"; in fact, as we've said, we've done such a thorough job of building weapons that our self-"defense" now threatens self-*destruction* as well. We've built the wall by a lack of understanding and lack of cooperation, by fear, mistrust, and refusal to communicate honestly. When we *do* communicate, our messages are often confusing: we stand with a loaded gun (so to speak) pointed at each other's noses, and our voices are saying, "hey, let's be friends and talk this over." No one dares to be first to put the gun down, and our history of war and violence certainly doesn't help to allay our fears. As long as we can't believe each other and trust each other, the tension persists.

We've arrived at the last stop on this bus, as it were—the end of the line. It's gone round and round in circles, and each time we've found ourselves back where we started; this route has had little to offer for our spiritual evolution as creatures of light. It's time now to decide whether to get off the bus and make a transfer to a new journey, or whether to head once again for the "terminal." A 1984 news item said "the world will spend $1 trillion for weapons other military purposes by next year," (according to the U.S. Arms Control and Disarmament Agency). From "less" than $300,000,000,000 in 1972, spending rose to $820,000,000,000 in 1982, and was expected to reach $970,000,000,000 in 1984, thus heading for the $1,000,000,000,000 mark (I'm purposely writing these figures out with 0' s because they make more of a visual impression than the respective terms "million, billion, trillion," and so on). The weapons industry is obviously doing a booming business (if you can pardon a bad pun) in an age where funds for positive human endeavors are so often said to be "dwindling, lacking, unavailable, or whatever." Economies in every nation are involved in sales and purchases of these instruments of death, certainly not a wholesome foundation on which to base our economies. With nuclear, chemical, environmental and/or biological war now possible, what we're seeing is *global weapons pollution* of the highest order, and the world's increasing violence and power struggles are symptomatic of ailing minds and spirits that result from pollution of our human values of love and cooperation, worldwide.

Studies indicate that testing of these weapons has already taken its toll on innocent victims everywhere. Thousands of civilians have filed suits in Nevada and other areas, citing that they've been exposed to deadly radioactive fallout. Hundreds of atmospheric *and* underground tests have taken place (not all even announced)—we've been told not to trust "foreigners," but it becomes obvious that we can't even trust our health, lives and safety to our own government either. As just one example of the magnitude of potential and real danger of such tests, consider the following excerpt from Hamaker's *Survival of Civilization*, page 75:

> "In 1972 the Atomic Commission tested a 5-megaton bomb a mile below sea level on the Aleutian island of Amchitka. The Aleutian chain is a continental heater and the Bering Sea is slowly being raised to plateau status. The underground bomb test had the ingredients for a total change in the world's weather. Fortunately a group of senators headed by Senator Phillip Hart persuaded the AEC to stop the testing."

An underground test in Nevada (2/81) was the "568th reported at the Yucca Flats" (northwest of Las Vegas) and the "353rd announced since atmospheric testing was stopped (by the U.S.) in 1963." Where does all this radiation go? A May 1984 news article talks of suits by Nevada residents who say the government knew or should have known the fallout was dangerous (atomic tests from 1951-1962) and was negligent in not protecting people downwind from the Nevada Test Site.

A January 1984 news article says "the Reagan administration has been concealing an unknown number of nuclear explosions at the underground test site in Nevada, signifying a break with a 1975 policy of announcing all explosions."

Hold on to your seats for this one: An official at the Energy Department said "the policy of announcing only the larger tests was adopted a year ago for convenience. There was simply no reason to announce them all. The size of some of the tests was such that they didn't even create a ripple. Nobody could feel them off the test site. It takes a lot of work to announce each of those tests. And it was information that was not germane to the general public." There you have it folks. Don't fret—"what you don't know can't hurt you," right? A ripple? (Just because a person doesn't "feel" those little old cancer cells start to work in his body, doesn't make them any less dangerous.) The article concludes in saying that since Reagan administration took office, the federal budget for nuclear ting has almost *doubled*, going to $388,000,000 (1984) from 201,000,000 in 1981." Pacific islanders have borne much of the brunt of the nuclear age; over 200 weapons tests have been conducted in the region, and people exposed to the fallout have been plagued with high rates of thyroid cancer, miscarriage, stillbirth, leukemia and other health problems. When the U.S. conducted its largest hydrogen bomb explosion at Bikini Atoll in the Marshall Islands (March 1, 1954), hundreds of islanders, 28 American meteorologists, and 23 Japanese fishermen were exposed to high amounts of radioactive fallout.

Our weapons aren't merely stockpiled in "safe little cubbyholes for some future use"—some have *already* killed victims. Physicians and others have banded together to warn the superpowers of the dangers of even "limited" nuclear wars: uncountable burn victims, too many to handle, and so on. We've all heard the details and are well aware of the dangers. Now we hear talk of "space" stations and "star wars," of studies to determine feasibility of dumping nuclear waste in space—when and where will the madness end?

4.3 "Where never was heard a discouraging word, and the skies were not cloudy all day. . ."

Scientists have now alerted the world to the latest nuclear danger: that of a "nuclear winter," with many of the negative consequences from increased cloud cover that we've already discussed in reference to potential global climate changes towards colder conditions due to excessive CO2 and other factors.

News of March 3, 1985, was that "the Pentagon has accepted as valid a theory that nuclear war could generate enough smoke and dust to blot out the sun and cause severe climatic cooling." The 17-page report was the military's first assessment of the theory that detonation of nuclear bombs could cause: "a devastating nuclear winter around the planet and drop temperatures as much as 75 degrees, first in the Northern Hemisphere and then southward as the smoke spread with the wind. Land and water would freeze and cause harsh global effects unrelated to radiation hazards. The upshot, they argued, would be the extinction of a significant proportion of the Earth's animals and plants, possibly including the human race."

An earlier news article (1/20/85) compares the cloud cover with those of past volcanic eruptions known to cause climate changes:

> "We have established that volcanic eruptions have an effect on the climate, and enough of them happening at the same time, like exploding nuclear bombs, could have a significant effect. The most famous example of the effect of a volcano on climate was the eruption in 1815 of an Indonesian volcano (Tambora) which lasted three months, the largest eruption in historical times, producing huge quantities of ash and dust that were carried around the world in the stratosphere. The particles sufficiently deflected sunlight to produce what historians later called *the year without a summer* in 1816. In New England that year, there was widespread snow in *June* and frosts every month through the summer. Throughout the world it was unusually cold. Crop failures caused food shortages in Ireland and Wales; that's the most famous example. It was the first time a relationship was shown between volcanoes and weather." (Fred Bullard, geology professor, University of Texas.)

"Average annual temperatures in the Northern Hemisphere could be lowered to well below freezing for a month or longer," is another description of potential climatic change. Other studies think extended periods of freezing would be unlikely. Again, everyone has a slightly varying opinion in these matters, but it should be obvious after our lengthy discussion in the last lesson on carbon dioxide excesses and their relation to the Ice Age cycles—plus indications of climatic extremes worldwide—that such cloud covers (added to our current *excess* CO2-generated clouds) could indeed produce *dramatic* changes. Here's another description: "dust generated by nuclear explosions still could block enough sunlight to drop summer temperatures to near freezing and destroy food crops for survivors of the initial blast and radiation effects." Bullard said recent volcanic activity hasn't produced anything like the Tambora eruption, but has "continued a *general world cooling trend* that started with the eruption of a West Indies volcano in 1902. Dust and ash from the eruption of Mount St. Helens in Washington in 1980 didn't rise high enough to enter the stratosphere or have much effect on world climate, although the dust still is circulating in the upper atmosphere. But dust from the eruption of El Chicon in Mexico in April 1982, did enter the stratosphere and is adding to the cooling," he said. "It means," he continues, "that frosts could come earlier than usual." The news source then says, "Carbon dioxide from auto pollution in the upper atmosphere often is cited as producing a warming 'greenhouse effect' by intensifying sunlight. But Bullard said the Earth actually is in a cooling trend because of volcanic eruptions throughout this century, generated by dust from the volcanoes in the stratosphere, and there've been a significant number of eruptions in the past few years to help it along. It's really only since scientists began using computers to analyze the changes that we've noticed the effects."

Calculations of the nuclear winter concept have been made independently by several groups of scientists in the U.S. *and* the Soviet Union, and by now, the theory (if not its details) is probably agreed upon by scientists in other countries as well.

"Into the eternal darkness, into fire, into ice." —Dante, The Inferno

Excerpts on the Nuclear Winter, by Carl Sagan (10/30/83):

> "The results of our calculations astonished us. The amount of sunlight at the ground was reduced to a few percent of normal—much darker, in daylight, than in a heavy overcast and too dark for plants to make a living from photosynthesis. At least in the Northern Hemisphere, where the great preponderance of strategic targets lies, an unbroken and deadly gloom would persist for weeks. Even more unexpected were the temperatures calculated. In the baseline case, land temperatures, except for narrow strips of coastline, dropped to minus 25 degrees Celsius (-13 degrees F) and stayed below freezing for months—even for a summer war. (Because the atmospheric structure becomes much more stable as the upper atmosphere is heated and the lower air is cooled, we may have severely undererestimated how long the cold and dark would last.) The oceans, a significant heat reservoir, would not freeze, however, but because temperatures would drop so catastrophically, virtually all crops and farm animals, at least in the Northern Hemisphere, would be destroyed, as would most varieties of uncultivated or undomesticated food supplies. Most of the human survivors would starve. In addition, the amount of radioactive fallout is much *more* than expected; in long-term fallout, fine radioactive particles lofted into the stratosphere would descend about a year later, after most of the immediate, shorter-lived radioactivity had decayed. However, the radioactivity carried into the upper atmosphere (but not as high as the stratosphere) seems to have been largely forgotten, etc. Carrying of dust and soot from the Northern to the Southern Hemisphere would thin the clouds some over the North, but then only making things worse in the Southern Hemisphere.
>
> "In summary, the overall conclusion seems to be agreed upon: there are severe and previously unanticipated global consequences of nuclear war—subfreezing temperatures in a twilit radioactive gloom lasting for months or longer. If scientists have underestimated the effects and amounts of fallout, didn't know fireballs from high-yield thermonuclear explosions could deplete the ozone layer and missed altogether the possible climatic effects of nuclear dust and smoke, what *else* have we overlooked? Nuclear war is now a theoretical problem for us, for it certainly isn't amenable to experimentation! It is highly likely that there are even *further* adverse effects that no one has yet been wise enough to anticipate or recognize. With billions of lives at stake, where does conservatism lie—in assuming that the results will be better than we calculate, or worse? Many species of plants and animals would become extinct. Vast numbers of surviving humans would starve to death. The delicate ecological relations that bind together organisms on Earth in a fabric of mutual dependency would be torn, perhaps irreparably. There is little question that our global civilization would be destroyed. The human population would be reduced to prehistoric levels, or less. Life for any survivors would be extremely hard. And there seems to be a real possibility of the extinction of the human species. It is now almost 40 years since the invention of nuclear weapons ... men and machines are fallible, and fools and madmen can exist and rise to power. Concentrating always on the near future, we have ignored the long-term consequences of our actions ... fortunately it is not yet too late. We can safeguard the planetary civilization and the human family if we so choose."

So, if we don't already have *enough* reasons for *not* embarking into a nuclear war of *any* proportion, here we have another. Nature will insist that we see the *truth* that what we do to her, or to others, we do to ourselves: we could literally destroy *ourselves* in seeking to destroy another in *any* size nuclear war.

War is. indeed, hell—whereas peace is heaven on earth. Ever since time immemorial it has been our dream. Now peace is more than a necessity for survival: it has become a reality that is just within our reach. With just one more burst of evolution of human consciousness, we will grasp it and hold on to it for dear life. Our most precious treasure—world peace—will become a reality. In protecting *everyone*, we protect ourselves best of all, and the best protection comes in the form of peace. Because we *are* all one and interconnected, we *are* beginning to realize that in destroying anyone, we destroy ourselves.

Einstein: 'The bomb changed everything but the way we think."

Our old ways of thinking of ourselves as separate and divided have become obsolete, and if we don't change our tune soon, we'll risk becoming obsolete with them. Our weapons systems are somewhat like a vicious watchdog that we've chained up to "protect" us, one that's become so mean since it was full-grown, that we've begun to fear it ourselves, and don't dare let it loose or touch it for fear of its bite. As long as it's chained, we try our best to keep out of its way and ignore it, but we know it would attack an innocent person, or ourselves, if it were let off the chain. Some people might feel comfortable with such a dog, while others would see that we've created a monster.

War is our last link with the barbarism of our past. It is "the highest form of criminal acts, grave offenses against morality and social behavior" (David Stry); "when an individual kills another, the legal systems bitterly condemn such acts, but if done in a *wholesale* fashion by nations (artificial, political units), accompanied by marching bands, flags, uniforms, and propaganda, then medals and decorations are given out for bravery ..." War is the ultimate *use of force*. Perhaps our outmoded belief that it can "solve" any of our problems is as foolish as our belief that medical drugs can *force* ("cure") our bodies into health. Just as health alone produces healthful living, so too does peace alone (not war and weapons) produce harmony and cooperation, an environment in which life and all its creatures may flourish.

As long as our world "leaders" keep us separate and divided, as long as they encourage us to remain at odds with one another, they will succeed in holding us captive in warlike thoughts or endeavors. Only we can remove the final obstacle that keeps us from peaceful coexistence: this separation of human beings worldwide that *keeps us from seeing one another as human*. Once we see each other as human, we will do unto others as we would do unto ourselves. Pacifism isn't a new idea. Although we've reached a crisis point in international world relations, in *Psychology Today*, June 1983, Erikson says:

> "If you study the lives of very creative people, you'll find that at times they *all* have a terrible sense of *stagnation*. And the interaction of such opposites is characteristic of every stage of the life cycle ... I cannot help thinking of how nuclear weapons have done away with the boundaries of whole continents, and how, with their threat of global destruction, they call for the recognition of man's indivisible 'specieshood.'
>
> *Gandhi's pacifists marched unarmed toward their attackers.*
>
> ... In order for nonviolent behavior to be effective it must be shocking—it has to shake up the violent opponent peacefully. In that situation, what is more important: That you are an Indian? That you are a soldier? That you are an officer? That you are a human being? It has to come to the point where suddenly these other people become human to you. Then you can no longer keep hitting them. Incidentally, it's amazing how American audiences are taking to the (Gandhi) movie, and these are not intellectuals. The movie about a great man's use of nonviolent resistance reaches people who do not belong to special peace organizations, and it makes them thoughtful. That's why it's such an important film. I honestly believe that it focuses on something our Judeo-Christian culture has not yet quite understood and has not used, and will probably have to face: the invention of *non*violent tactics to get out of the nuclear dilemma.
>
> "Human beings spend an awful lot of their imagination on defining just what others they *don't* care for. The danger in rejectivity, that is, the rejecting of other people, other groups, or

> other nations, is that it leads to what I have called 'pseudospeciation.' People lose the sense of being one species and try to make other kinds of people into a different and mortally dangerous species, one that doesn't count, one that isn't human. Other groups are considered to be a different species, and you can kill them without feeling that you have killed your own kind. People aren't conscious of doing this, and that's why it's so dangerous. The paradox is that pseudospecieshood as a sense of representing the best in humankind binds a group together and inspires loyalty, heroism and discipline, and the very existence of humanity depends on the solution of that paradox. What's important now is a *conviction that one's culture and 'system' can go on living in a world that includes one's former enemies*."

When asked if he thinks our odds of developing an identity that encompasses the whole species are any better than they were 15 years ago, Erikson replies: "Absolutely. After all, we *are* one species."

Years ago, someone used force to get his way, and so began a long history of people getting what they could, when they could, if they could, because they could, no matter how they did. We could philosophize endlessly on the moral aspects involved, but the fact remains: we're long overdue for a change in attitude. When Christopher Columbus set sail into the unknown, he had to take a chance. Every explorer, inventor and challenger of traditions has to take some risks. The Wright Brothers had to get up the nerve to take that *first* flight—how many of us would have found that courage? As our world shrinks in size, there are fewer new horizons left to discover, yet we've seen in our discussions of the mind and consciousness (to say nothing of *outer space*), that there are many dimensions of reality left to explore, albeit intangible or distant ones. One such reality is that we *can* live together in peace, if we make the combined commitment to such a world. We've never even *tried* to explore this incredible dimension of human reality, so largely unknown to us in our history, and yet so fondly dreamed of and hoped for and sought after by so many! It's time to really *give peace a chance*, to explore the unknown territory of working out differences in a *new* way. We have *everything* to gain in doing so, and *everything* to lose if we don't.

Let's finish our discussion of peace with a short story:

Once upon a time there was a big boy and a little boy. The big boy figured that he could do whatever he wanted since he was the big one. One day a little boy was walking down the road, and the big boy called out to him, saying, "*who* do you think you are walking down *my* road?"

"The same person who walks down every road," replied the little boy, without even slowing his pace.

Well, this was too much for the big boy, of course, because people didn't just walk down his road, especially not if they were little, because they knew what that would mean. It made the big boy angry just to think about it. In fact, the more he thought about it, the angrier he got. Every angry thought was a brick being laid in a wall just behind the big boy, but he was so busy looking at the object of his anger—the little boy on the road—that he did not see the wall that he would have to face when he would finally turn around, nor imagine how long it would take to climb over this wall once he had built it. His angry thoughts seemed like endless fuel for the fire burning within him, and he. stood in front of the little boy and refused to let him pass. "No one walks on my road," he said.

"This is my road too," replied the little boy. The big boy could not believe what he was hearing. He figured he'd just have to show that little boy whose road it was.

The little boy was thinking the same thing! Then he looked at the big boy, at the wall behind him, and at the look in the big boy's eyes. Maybe there were bigger boys, boys bigger than this big boy, boys who could walk on this road without fear, boys who would challenge bigger boys. But he also saw that the anger became stronger, every time they all let it grow.

He knew laughter. Even the big boys liked to laugh, after all. He wondered what was funny to this big boy, the one whose eyes were empty of life, whose voice echoed bitterness, whose face was etched in lines of hardness, and whose very being seemed to defy all happiness.

"I choose to be your *friend*," said the little boy, for long ago he'd chosen to become a *peacemaker*. Perhaps *this* would be a good joke for the big boy, and he would laugh.

"What would I do with a *little* friend? sneered the big boy.

"I am a mirror," said the little boy, "and whoever looks into me will see himself," for lack of anything better to say. Maybe *this* would be funny to the big boy—surely he knew that all roads went to the same place. Surely he knew that they were the "same person." Maybe he would see the wall behind him when he looked into the mirror in the little boy's eyes. Or maybe not.

Maybe the little boy could say, "look behind you!" and run by real fast when the big boy looked, well, true, it's an *old* trick. A big boy might expect to see something *big*, though—perhaps his fears were bigger too!

While the little boy was busy pondering what strategy to use, the big boy was beginning to get a little bored. It wasn't easy to fight with someone who had no intention of fighting, but he wanted the little boy to get what was coming to him—and with this last angry thought, the final brick was laid on the wall. They had now reached the moment of truth.

The little boy grasped it in an instant and ran forward toward the light. The big boy was close behind, but he ran headlong into his wall!

"Hell is truth seen too late." —John Locke

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Article #1: "Who Is At Fault?"

Freedom Includes Our Right to a Pure Environment

Living creatures have a right to a clean environment, and everyone who pollutes it is violating this sacred right. It's time to insist on quality, worldwide. We will *all* benefit if we "clean up our act." We will *all* suffer if we don't.

In scanning our environmental problems quickly, the common thread noticed is that it is impossible to "blame" illness on any one particular factor or hazard, because some side effects take years to manifest and because *all* bodily conditions represent the *sum total* of the individual's diet and lifestyle habits. In other words, it's as if a young child who's blindfolded in the game hide-and-seek suddenly gets a swift kick in the behind from one of his playmates, but he doesn't know which one. He has only a sore bottom to show for the experience. This is the *ultimate* legal loophole, and a rather convenient situation for all the thousands of manufacturers of chemical products and other toxic substances, because finger-pointing years down the line is virtually impossible. It's a shame that what this boils down to is that some people are *only* honest if they "have" to be, for example if they'll be "caught," otherwise there's no guarantee. Whenever you meet a person you can really trust, treasure this person, for honor is a precious human quality, and people who don't have a price are special in our money-oriented times.

We all want security, safety, guarantees, and assurances nowadays, but the fact is that *real* security involves more than money, the roof over our heads, and so on—real security is ours when we are healthy, hen we have access to the truth and to freedom, when we have lends and people we can trust around us, when we have hope ... there are no price tags or monetary values to be put on *real* security, when you get right down to it. Security also means a clean environment, which brings us back to our question of who is responsible. Not only is blame difficult to place, but another thing we'll soon notice is that when researchers or doctors are at a loss to explain a problem or "cure" an illness, they often seek, at least, to fix the blame *somewhere* (or *else*where). Patients expect answers from doctors, and the public demands results from researchers. Remember when you were in school and you didn't know the answer to one of those essay questions, but you managed to fill 20 lines of paper anyway with something less than the pertinent details and with *much* imagination? No one wants to come up empty-handed— if they don't know, they'll make something up on short notice. With all the *mis*information given us, blame is even harder still to come by.

Because *any* bodily condition is caused by factors too numerous for our doctors or "experts" to know *or* mention, we never get the *whole* story from them *anyway*. We're always left with the task of synthesizing the information one way or the other.

All this vagueness also raises some serious questions about our personal *freedom* to have a pure environment. It's obvious that "blaming" and "suing" aren't enough (they don't always change the situation), and we can't even know *who* to blame or sue most of the time. We can't bring every unseen housewife to court for spraying with an ozone-depleting aerosol can, we can't sue the sun for ultraviolet skin cancer rays, nor can we sue all the motorists for increasing our CO2 levels. We can't afford the time it takes Jo blame all the people responsible for the state of our world today, and even if we *could* spare several lifetimes to make a list of guilty persons, it wouldn't remedy our ailing earth. So, what exactly *are* we free to do? *We're free to do what we can.*

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Article #2: Radiation Hazards

"The hazards of Everyday Radiation," by Elisabeth Rosenthal

(*Science Digest*, 4/84): "There is no doubt that radiation can trigger cancer. Today, Americans are exposed to more low-level radiation than ever before. We get it from X rays or while traveling in an airplane. It seeps from nuclear power plants, from the homes we live in. It rises from the ground beneath us and descends from the sky above. Some scientists say this isn't a serious threat, but others say that if we don't guard against further radiation exposure, we may be saddled with a cancer rate of epidemic proportions. All agree there is no such thing as 'safe' radiation. Many radiation-induced tumors don't appear until 35 to 40 years after exposure; evidence suggests cumulative lifetime exposure also affects tumor growth.

"The loudest voice crying disaster belongs to John Gofman, professor emeritus at the University of California. Gofman discovered uranium 233 with Glenn Seaborg in 1941; he isolated the world's first workable quantity of plutonium for the Manhattan Project; and so on. 1983 had an updated version of his 908-page analysis of radiation risks, *Radiation and Human Health* (New York, Pantheon books). It contains some terrifying predictions. For example, Gofman estimates that if, in the U.S., we were to produce our energy fully from plutonium and could contain the substance with 99.99% effectiveness, we'd still produce *tens of thousands of deaths* from cancer annually. He predicts that 20% of workers in nuclear plants exposed to only one rad a year for 20 years will die prematurely from cancer. He also estimates that plutonium fallout *from all the nuclear weapons testing to date will produce 950,000 deaths from lung cancer worldwide*. (Italics mine. Imagine what a "surprise lottery" that amounts to for so many of us.) Gorman bases his conclusions on a variety of studies, beginning with those made on the 82,000 survivors of the 1945 Hiroshima and Nagasaki. Among those survivors, at first, there seemed to be no signs of cancer. But in the early 1950s, there was a rise in leukemia among the survivors and in birth defects among their children. In the early 1960s, there was a slight rise in the number of tumors, not all of them cancerous. In 1974, the U.S. National Cancer Institute calculated that only 100 of the 82,000 survivors had died from cancer caused by radiation exposure—not a very impressive number. But, in the past decade, the cancer rate among survivors has continued to rise. It is now believed that the survivors received an average of 25-30 rads of radiation, or a mean of 28 rads, and, says Gofman, many are surprised to find that the average dose of the exposed

Japanese atom bomb survivors is comparable to that received during some common diagnostic exams in American medicine." (Keep in mind that today's weapons are much stronger too, but it's still interesting to note how quickly we could accumulate doses like the Japanese in our day-to-day life.) Remember, again, this is our purpose of discussing another unpleasant item from our Pandora's Box: because we live in these times we, as "healers," *must be aware* of how *all* factors interrelate to influence life on earth, and that certainly includes radiation and its effects. Again, our lesson's space cannot cover what is a whole topic in itself, but this serves to remind us to *keep our eyes open* (in working with people to attain good health) for the things we *can't* see, such as radiation or other exposure to toxins or chemicals, as well as looking out for dietary factors in physical symptoms and manifestations of the body's healing process. This is obviously difficult work—to assess a person's state of health in terms of so many possible types of (invisible) exposure-it requires a good strong sense of intuition and understanding. There is no one concrete, definitive way to "compute" a person's total lifestyle impacts—this skill can't really be *taught*—although much information can be shared, and much knowledge can be taught/learned, we must still develop this in ourselves, as best we can. If we are sensitive and sincere, we can tune our*selves* in to the nonphysical world "beyond" our bodies. (Remember, too, the admonition to *heal thyself.*)

Gofman continues: "In light of these numbers, and given the rising cancer rate among the survivors, the dosage of radiation given to most Americans in diagnostic x-ray exams is unnecessarily high, and if the dosage were cut by one-third, we'd avoid 1,000,000 deaths over the next 30 years." Some scientists think he overestimated risks, but common sense tells me I'd rather overestimate a risk and be more cautious than to take chances, since no one seems to agree on definite risk factors. I for one would prefer *not* to become a guinea pig or a *future* statistic. *Any* figure given for "the number of deaths possible in 30 years" is bound to be somewhat arbitrary, whether low *or* high, because unpredictable factors can enter into our predictions later. More important than the *exact* numbers of "nameless victims" counted is the remedying of problems before more victims are found.

One of the *common* things said by people faced with life-threatening health crises is "that you never think it'll happen to you" or "you never realize what it's like till it's happened to you, or someone you know" ... Something has to "bring it all home" before most of us realize (and or *admit*) it's time to do some changing. When the roulette wheel in this "surprise" lottery spins, and you're holding your breath that your number won't come up, it becomes more and more evident that the statistics are *not* nameless or faceless anymore. We all have a chance in this one, whether we like it or not, so we may as well learn how to *really* play the game, instead of letting someone else spin the wheel while we wait for our number to come up "before our time."

It's better to be alert, awake and ever-watchful of our earth's rhythms, sensitive to her very heartbeat itself. When "experts" disagree on a problem's details, the advantage is that we then *question* their opinions. No truths are finite and stationary—everything is in the process of change, subject to constant alteration. Vigilance on our part also helps us to see through patronizing assurances lightly tossed our way by the *no-risk* and *low-risk* radiation salespersons who'd rather not rock the boat, and whose sources of funding often encourage low-risk assessments that *protect* manufacturers and their investments.

Gofman writes, "in a fully developed 'nuclear economy,' radon gas coming from the refuse left over after mining uranium should lead to 3.9 lung-cancer deaths per year in an equilibrium population of 250 million, acknowledging that this is one-thousandth the death rate caused by naturally-occurring radon," but he also notes that the damaging material has a half-life of 80,000 years, which means it can kill for 115,400 years. Therefore, he says, a fully operational nuclear power industry would eventually cause 115,400 times 3.9 deaths—or 450,060. But these would "occur over a time frame more than 20 times longer than that of recorded history." X rays and gamma rays are electromagnetic and are simply packets of energy. Alpha and beta rays are streams of charged, subatomic particles. When they rip into our bodies, they dislodge particles of atoms in our cells that carom about with enormous energy; these hopped-up particles behave like the proverbial bull in a china shop; they tear around, breaking bonds and chromosomes and disrupting cell reproduction—such damage may well be the initiating event in cancer.

"It took years for doctors to realize that radiation is dangerous, and there are many old horror stories as a result of this lack of understanding. Fifty years ago, when dentists began x-raying teeth, they would often use their hands to hold the film in their patients' mouths. Many of these dentists contracted skin and bone cancer that began with lesions on their fingers. It is more difficult to collect accurate data on low-dose exposures, of course. Background radiation of all kinds exists nowadays." One estimate says most Americans are exposed to an average of 0.2 rads a year, or 210 millirads. (Remember this figure is an "average" *and* is arbitrary.) Of this typical individual exposure, about 28 millirads come from outer space in the form of cosmic rays (that's at sea level—at higher elevations, where the thinning atmosphere deflects fewer rays, the number rises; *estimates range from 2 millirads extra at 1000 feet to 70 extra per year at 9000 feet*. Perhaps 50 millirads come from the natural decay of radioactive elements in the Earth. Certain areas have measurably more than others. (Leadville, Colorado, residents, more than 1.5 miles up, absorb 125 millirads of cosmic rays per year.) "Your home could be radioactive, too. Contractors occasionally purchase debris from uranium mines to use as filler in construction materials. Alternatively, the rock from which your house is constructed could have been mined from a quarry with naturally-high radiation. The Department of Energy is beginning a 3-year survey of 8,000 buildings that are believed to deliver excessive radiation. And if you live in an area rich in radioactive elements, your water could be radioactive as well. Such water spraying out of shower heads gives an ambient concentration that can approach occupational limits. Fallout from all the nuclear-weapons testing to date is said to give us each about 4.4 millirads per year (in 1963, when testing was above ground, it was 13 millirads per year). Nuclear power plants give us each about another millirad. Add almost 3 millirads of cosmic radiation for each hour you fly, because the atmosphere is thinner up there. (A flight attendant on the Boston-New York shuttle, for example, gets an extra 250 millirads per year.) Then, if you sleep next to a radioluminescent clock, add another 9 millirads per year. And some dentures are coated with a uranium-and-cirium glaze to make them sparkle. One estimate figures this gives your mouth about 3 rads annually, localized. Color TVs are said to give about 0.48 millirads per year (if you watch 24 hours a day, otherwise proportionately *less*). The display screens on personal computers are the same kind of so-called 'safe" cathode-ray tubes. Some occupations increase your risks; you absorb a-lot more radiation if you're a uranium miner, a radiologist or a worker in a nuclear plant." (I think we can assume most of our *students* aren't.) "But the biggest radioactive boost most of us get comes from diagnostic X rays. A 1970 survey found 65% of the U.S. population had 'at least one x-ray exam that year.' Collectively we receive about 240 million x-ray exams annually. Ordinary chest X rays require about 30 millirads, and a single dental X ray needs 300 millirads. Unfortunately, there is no such thing as a standard X ray. One radiological physicist says national studies of x-ray trends have shown, factors of variation greater than a hundred: 'it's extremely worrying.' Mammography tests have been found with exposures as 'low' as 300 millirads and high as 3,000. A range of dental x-ray machines was found in a Department of Health, Education and Welfare study in 1976 to deliver 100 to 5,000 millirads. The average was one rad, or more than three times the 'necessary' exposure. The largest x-ray doses come from fluoroscopies, commonly used to find ulcers, tumors and other abnormalities in the gastrointestinal tract. In a GI series, a patient drinks a solution containing barium (which X rays can't penetrate) or gets the barium in an enema, and an x-ray machine takes series of photos amounting to as much as 10 minutes of radiation. Compared to chest films, Gofman says, barium meals are a horror show—if the doctor is particularly solicitous, the patient could have his ulcer checked every 6 months—that's a lot of radiation.

"Few doctors or dentists even know *exactly* how much radiation their machines deliver. Then, x-ray doses can be increased for other reasons; the overworked technician might juice up the radiation dose to 'save the time' required to mix a new batch of developer."

We must also question schemes to "dump toxic and nuclear wastes at sea," because leaking barrels have been found (and so on—space here doesn't permit a detailed account of problems in this area, and most of us are aware of them by now). The radioactivity in the sea, if it works its way into the ecosystem there, will become a part of the chain from lower to higher life forms, as each larger fish (etc.) ingests a more concentrated dose than the one before it. We already have a problem controlling toxic substances on land, and an even *bigger* problem with *ethics* on land *or* sea—when "there's no one looking" who knows who will dump what where?

Natural hot springs can be another source of radiation. Several hundred of the world's geothermal springs are radioactive (their waters flow through radioactive rocks), and many of these are popular "health" spas. "Visitors to Luchon, France, drink the water and inhale gas that can be 15,000 times more radioactive than normal air." In the U.S., radioactive springs include Hot Springs, Arkansas ("low" levels), and Alhambra Hot Springs, Montana, "with high levels that could constitute potential hazards to health," says the U.S. Geological Survey.

The news of May 19, 1985 carries a story of "a natural environmental hazard of uncertain but grave dimensions discovered beneath the meadows of eastern Pennsylvania: state and federal investigators have found that many houses are contaminated with radon, a radioactive gas that causes lung cancer after prolonged exposure. Levels in some houses were the highest ever recorded in the U.S.—in one eastern county, nearly 40% had unsafe levels of radon. But the risk may be spread far beyond this semirural county. The radon is seeping up through the soil from uranium deposits in the earth below. Officials believe the radioactive contamination varies from place to place, depending on the permeability of the soil and other factors. Parts of New Jersey and New York are also part of the Reading Prong, a geologic formation with uranium in it. Pennsylvania officials are telling residents that the radon does not constitute an immediate health risk, although it may pose serious long-term problems." More houses still need to be examined; one New Jersey Environmental Protection spokesman described the situation as "an entirely new area of concern that nobody even guessed at six months ago." A University of Pittsburgh professor of physics says *virtually every state has areas of radon contamination* that might pose a health threat. "It is really a worldwide problem," he said.

Sheldon Meyers, director of the office of radiation at the federal Environmental Protection Agency, agreed that "there was no doubt radon caused cancer," but (as usual) the *exact* dangers are still "not certain." One family's living room had the "highest radiation level found in the U.S. from radon contamination; at that level, the chances of contracting lung cancer over a lifetime of exposure are 100%, experts say. They moved, but a nearby neighbor was told that her house showed 2.12 working levels of radon, and that the level was "equivalent to smoking 22 packs of cigarettes a day! At twenty-two packs, "hazardous to your health" becomes quite an *under*statement!